



**ADVANCES AND LATEST WORKS
2024**

<http://www.siette.org>



INTRODUCTION

WHAT'S NEW IN SIETTE?

- Question generation (and automatic assessment)
 - Question generation from tables
 - Question generation from spreadsheets.
 - Tables from web crawling.
 - Question generation from databases
 - Question generation from Semantic Web
 - SPARQL from DBpedia / Wikidata
 - Hints
 - Review of generated questions
 - Question generation and assessment for Compiler construction
 - Regular expressions
 - CFG generation and testing.
 - Assessment of LL(1) and SLR(1) techniques
 - Question generation and assessment for Music
 - Personalized Feedback
 - Missconceptions detection
 - Question generation and assessment for Chemistry formulation
 - Personalized Feedback
 - Missconceptions diagnosis

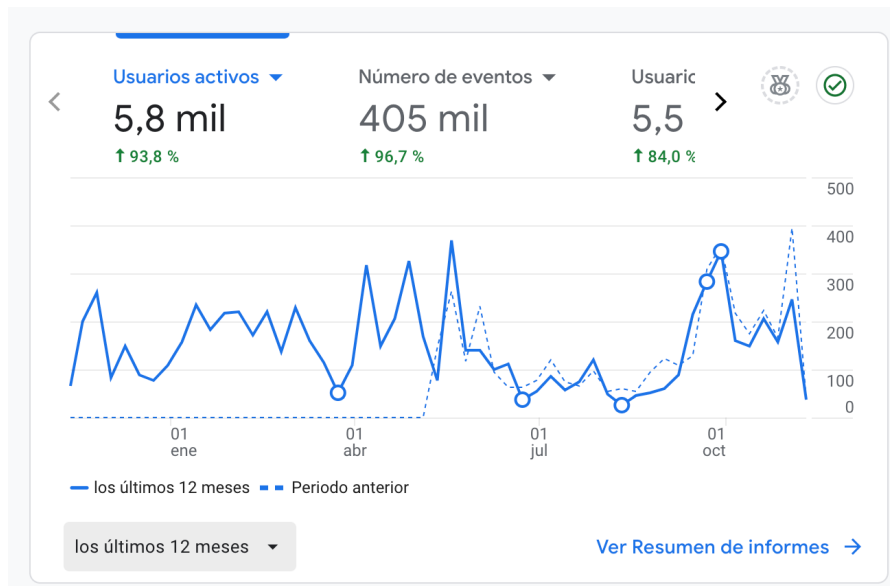
WHAT'S NEW IN SIETTE?

- Automatic assessment of complex tasks
 - Compiler implementation.
 - Test cases
 - Result analysis
 - Haskell / Python programming
 - Plagiarism detection
 - Analysis of student groups (Collaborative work)
- Interactive questions
 - Built-in question types with authoring tools
 - Applications for childrens
- QR and geolocalized questions
 - Testing field botany knowledge
- Gamification
 - Scoring records, comparing results, etc.
 - Synchronized testing

SOME FIGURES...

Administración	Número de sesiones	Sesiones recientes	Accesos recientes	Exportar	Importar
URL	https://www.siette.org/siette?lang=es <input type="button" value="QR"/>				
Número de asignaturas:	397				
Número de tests:	3.226				
Número de preguntas:	46.401				
Número de profesores:	1.598				
Número de alumnos:	75.846				
Número de sesiones (hoy) :	914.463 (0)				
Uuarios conectados:	0; 1				
Memoria disponible:	1.761.985 KB				
Memoria disponible:	4.104.419 KB				
Conexiones abiertas con la base de datos:	2				

Data from www.siette.org Nov 14, 2024



Data from analytics.google.com Nov 14, 2024

QUESTION GENERATION

QUESTION GENERATION

FROM SPREADSHEETS

There is an API to generate questions from tables:

	A	B	C	D	E
1	ATOMIC_NUM	ATOMIC_MASS	VALENCY	SYMBOL	NAME
2	1	100.797		1 H	Hidrogeno
3	2	40.026		0 He	Helio
4	3	6.939		1 Li	Litio
5	4	90.122		2 Be	Berilio
6	5	10.811		3 B	Boro
7	6	1.201.115	2 4	C	Carbono
8	7	140.067	-3 1 2 3 4 5	N	Nitrogeno
9	8	159.994		-2 O	Oxigeno

```
<%@page import="siette.util.corpus.Table"%>
<%
    Table table = new Table("demo/periodic-table.xls");
    String[] element = table.select();
    String name = table.get( element, "NAME" );
    String symbol = table.get( element, "SYMBOL" );
%>
What is the symbol for the chemical element "<i><%= name %></i>"?
```

QUESTION GENERATION

FROM DATABASES

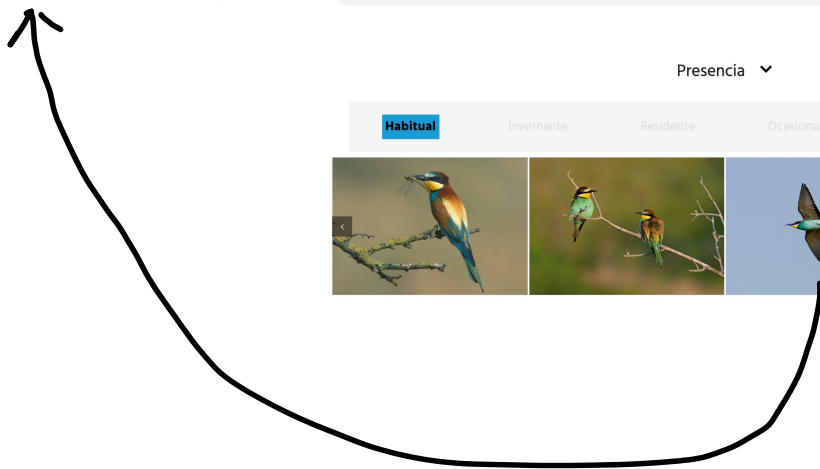
The same idea but getting the table data from SQL databases queries:

```
<%@page import="siette.util.corpus.DatabaseTable"%>
<%
    String query = "SELECT S.BINOMIAL, S.COMMON_NAME, P.IMG "
                  + " FROM SPECIES S JOIN PHOTOS P ON P.SPECIE = S.SPECIE "
                  + " WHERE P.FEATURE='Leaf' "
                  ;
    DatabaseTable table = new DatabaseTable("demo/tree.properties", query);
    String[] plant = table.select();
    String img = table.get( plant, "IMG" );
    String binomial = table.get( plant, "BINOMIAL" );
    String plant_name = table.get( plant, "NOMBRE" );
%>
Write the scientific name of the specie that have this leaf:
<center> <IMG SRC='<%= img %>'> </center>
```


QUESTION GENERATION FROM WEB PAGES

The screenshot shows the Siette web application interface. On the left, there is a navigation menu with categories like 'vertebrados', 'aves', and 'mamíferos'. The main area displays a question: '¿Cuál es el nombre de este pájaro?' with an image of a European bee-eater. Below the image are radio button options: 'Abejaruco europeo', 'Bibilia pratense', 'Abejero europeo', and 'Ostrero euroasiático'. At the bottom, there are buttons for 'Guardar cambios', 'Eliminar', 'Duplicar pregunta', 'Crear instancias', and 'Ayuda'.

The screenshot shows the seo.org website profile for the European bee-eater. The page includes a title 'Abejaruco europeo', a scientific name 'Merops apiaster', and a conservation status indicator 'PREOCUPACIÓN MENOR LC'. There is a detailed description in Spanish: 'El abejaruco europeo es una las aves más vistosas de nuestra fauna. Tal y como su nombre indica, se trata de un especialista en el consumo de abejas, aunque también se alimenta de otros insectos voladores. Aparte de por su colorido, uno de los más llamativos de las aves europeas, resulta muy fácil de reconocer por su característico reclamo, que emite constantemente mientras vuela y que puede ser oído desde largas distancias.' Below the text are flags for 'Abellaruco europeo', 'Abellarco común', 'Erie-txorria', and 'European Bee-eater'. There is also a section for 'Escucha su canto' with a progress bar and a 'Presencia' dropdown menu with options: 'Habitual', 'Invernante', 'Residente', 'Ocasional', 'De paso', and 'Estival'. At the bottom, there are four images of the bird in different poses.



QUESTION GENERATION FROM WEB PAGES

Wordreference (es)

What is the meaning of the Spanish word **sobre** in the following phrase?

El autobús llegó sobre las diez de la noche.

about|around|approximately

WordReference.com | Online Language Dictionaries

Spanish-English

sobre ESCUCHAR: MÉXICO

Spanish definition | Spanish synonyms | Gramática | Conjugación [ES] | Conjugator [EN] | in context | images

Inflexiones de 'sobre' (nm): mpl: sobres

Del verbo **sobrar**: (⇒ conjugar)

sobre es:

- 1ª persona singular (yo) presente subjuntivo
- 3ª persona singular (él/ella/usted) presente subjuntivo
- 3ª persona singular (él/ella/usted) imperativo

sobré es:

- 1ª persona singular (yo) pretérito indicativo

WordReference Collins WR Reverse (100) Definición Sinónimos

En esta página: sobre, sobrar, sobre...

WordReference English-Spanish Dictionary © 2024:

Principal Translations

Spanish	English
sobre prep (por encima de) El avión volaba sobre Mónaco. <i>The airplane flew over Monaco.</i>	over, above <i>prep</i>
sobre prep (encima de) El jarrón está sobre la mesa. <i>The pitcher is on the table.</i>	on, on top of <i>prep</i>
sobre prep (aproximadamente)	about <i>adv</i> approximately <i>adv</i> around <i>prep</i>
sobre prep (acerca de) El periódico no decía nada sobre el accidente. <i>The newspaper didn't say anything about the accident.</i>	about <i>prep</i> relating to <i>prep</i>
sobre nm (envoltorio) Metió la carta en el sobre y le puso el sello. <i>She put the letter in the envelope and put a stamp on it.</i>	envelope <i>n</i> (food) packet <i>n</i>

Is something important missing? Report an error or suggest an improvement.

QUESTION GENERATION

FROM THE SEMANTIC WEB


The same idea again, but taken data from SPARQL queries to Semantic Web endpoints (DBpedia / Wikidata + Wikipedia):

```
<%@page import="siette.util.corpus.WebTable"%>
<%
String query = "SELECT DISTINCT ?nombre ?name ?population ?flag ?img "
+"WHERE { "
+"    ?country a dbpedia-owl:Country ; rdfs:label ?name ; dbo:flag ?flag . "
+"    ?country ?hasPopulation ?population ; dbo:thumbnail ?img . "
+"    ?country dct:subject dbc:Member_states_of_the_United_Nations "
+"    FILTER (langMatches(lang(?name), \"en\")) "
+"    FILTER (?population > 1000000) "
+"} "
;
    WebTable table = new WebTable("http://dbpedia.org/sparql",query);
    String[] country = table.select();
    String name = table.get( country, "name" );
    String img = table.get( country, "img" );
%>
<center>
Which is the country of this flag? <br/>
<center><IMG src="<%= img %>" /><br/></center>
```

QUESTION GENERATION – EXAMPLES

Flags Wikidata

What country is this flag from?



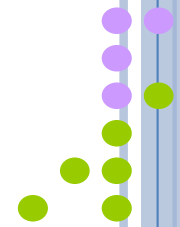
Italy

Flags Wikidata

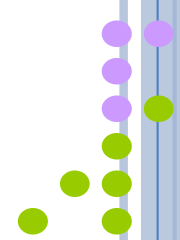
What country is this flag from?



Argentina



QUESTION GENERATION – EXAMPLES




Matematician SPARQL



Who is this matematician?



He was a mathematics professor at the University of Jena, and is understood by many to be the father of analytic philosophy, concentrating on the philosophy of language, logic, and mathematics. Though he was largely ignored during his lifetime, Giuseppe Peano , Bertrand Russell , and, to some extent, Ludwig Wittgenstein introduced his work to later generations of philosophers. ___ is widely considered to be the greatest logician since Aristotle, and one of the most profound philosophers of mathematics ever.

 Gottlob Frege



QUESTION GENERATION – EXAMPLES - HINTS

Paintings (Imagen) SPARQL

Who is the author of this painting?



This painting is entitled: "Farms near Auvers"

Dutch painter (1853?1890)

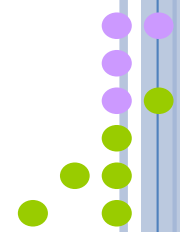
_____ was a Dutch Post-Impressionist painter who posthumously became one of the most famous and influential figures in Western art history.

In a decade, he created about 2,100 artworks, including around 860 oil paintings, most of which date from the last two years of his life.

They include landscapes, still lifes, portraits and self-portraits, and are characterised by bold colours and dramatic, impulsive and expressive brushwork that contributed to the foundations of modern art.

Not commercially successful, he struggled with severe depression and poverty, eventually leading to his suicide at age thirty-seven.

== Vincent van Gogh



QUESTION GENERATION – EXAMPLES - HINTS

Composers1 - SPARQL



Who is the composer of this work?



Austrian composer (1732?1809)

_____ was an Austrian composer of the Classical period.

He was instrumental in the development of chamber music such as the string quartet and piano trio.

His contributions to musical form have led him to be called "Father of the Symphony" and "Father of the String Quartet".

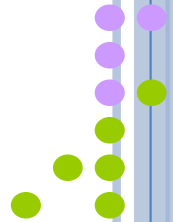
_____ spent much of his career as a court musician for the wealthy Esterházy family at their Eszterháza Castle.

Until the later part of his life, this isolated him from other composers and trends in music so that he was, as he put it, "forced to become original".

Yet his music circulated widely, and for much of his career he was the most celebrated composer in Europe.

He was a friend and mentor of Mozart, a tutor of Beethoven, and the elder brother of composer Michael _____.

== Joseph Haydn



QUESTION GENERATION

FROM THE SEMANTIC WEB

- Is it really the same?
 - In the first and (maybe) the second case, we have full control on the data available to generate the question
 - In the (second and) third case, the number of records are much higher.
 - The less control and the higher the data volume makes more difficult to guarantee 100% question quality.

QUESTION GENERATION – ITEM CONTROL

Administrador . 2018/06/07 11:12:04 - 115.red-83-41-82.dynamicip.rima-tde.net

english Change Profile Log out

Questions Test Students Documentation New > Search Groups > Preferences List of Subjects

> Demo (English) > Maths > Matematician SPARQL


Demo (English)

- Filosofía
- Maths
 - Matematician SPARQL
 - Simple pattern
 - GZA - Item models
 - Problems with templates
 - Algebra
 - Calculus
 - Geometry
 - Estadística
 - Arithmetics
- Physics
- Chemistry
- Computers
 - 3-1 Programming loops 1
 - GCD
 - GCD & LCM
 - 1. GCD
 - 2. LCM
 - 2. LCM (Copy)
 - Programming loops
 - single_answer.xml
- Informática teórica
 - C / C++
 - Java
 - Redes
- Economy
- Biology
- Geography
- Art and Literature
 - 1-2 Paintings
 - 1-3 Who wrote the Quixote?
 - Lloyd Puzzle
 - Sets
- Music
- Painting
 - Author of this painting - SI
 - Paintings (Imagen) SPAR
- Literature

Preview Information Content Display Selection Evaluation Advanced Branches Analyzer Sessions

Matematician SPARQL

Who is this matematician?



___ is a criminal mastermind whom Holmes describes as the "Napoleon of crime". Doyle lifted the phrase from a Scotland Yard inspector who was referring to Adam Worth, a real-life criminal mastermind and one of the individuals upon whom the character of ___ was based. The character was introduced primarily as a narrative device to enable Conan Doyle to kill Sherlock Holmes, and only featured in two of the Sherlock Holmes stories. However, in many adaptations, he has been given a greater prominence and treated as Holmes' archenemy.

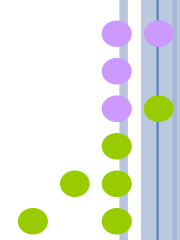
Professor Moriarty

Evaluate

Save changes Delete Clone question Create instances

Button to mark this instance as "canceled"

QUESTION GENERATION – MANUAL REVIEW



- MANUALLY: The teacher can review the student sessions and comments together, remove invalid instances and recalculate score.
- The instance is also removed from any future session it might appear.

Administrador · 2018/06/07 11:12:04 - 115.red-83-41-82.dynamiop.rima-tde.net

english Change Profile Log out

Questions Test Students Documentation New > Search Groups > Preferences List of Subjects

> Demo (English) > Entrenamiento > Flags SPARQL

Preview Information Content Display Selection Evaluation Advanced Branches Analyzer Sessions

Selection by session	Selection by criteria	Selection by test	Selection by student	Selection by comments	Selection by answers	Selection by instances
1 sessions Showing 15 sessions per page. Pages: 0						
FC	Date	Family name, Name	Comments			
<input type="checkbox"/>	2018/06/07 12:55:23	Administrador .	This flag is confusing, it might be from Romania or from Chad. Both flags are very similar			

Save changes Delete Clone question Create instances

Question number 7: Flags SPARQL (318194)

Which country has this flag?

Romania / Chad
 Chad

Comments :
This flag is confusing, it might be from Romania or from Chad. Both flags are very similar

Question number 8: Flags SPARQL (318194)

Which country has this flag?

Mali

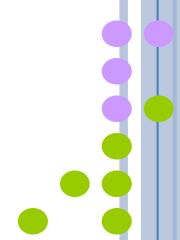
Question number 9: Flags SPARQL (318194)

Which country has this flag?

Honduras



QUESTION GENERATION – AUTOMATIC REVIEW



- AUTOMATICALLY: Analyze correct response frequency, discrimination index and item-test point biserial correlation for all instances

The screenshot shows the Siette application interface. At the top, there is a navigation bar with 'Preguntas', 'Test', and 'Alumnos' tabs. Below this is a breadcrumb trail: 'Demo > Geografía > Banderas SPARQL'. A sidebar on the left lists various subjects like Matemáticas, Física, Química, etc., with 'Geografía' expanded to show 'Banderas SPARQL' items. The main area displays a table of question instances with columns for Instance Ids, Frecuencias absolutas, Índice de dificultad, Índice de discriminación, Correlación biserial-puntual, and Anulada. A callout box labeled 'Instance quick preview' shows a flag image and the question '¿De qué país es esta bandera?'. Other callouts point to 'Re-assess button', 'Difficulty index', 'Discrimination index', 'Frequency', and 'Cancel buttons'.

Instance Ids	Frecuencias absolutas	Índice de dificultad	Índice de discriminación	Correlación biserial-puntual	Anulada
79E8625632428108	2	0.50	0.00		<input type="checkbox"/>
09F6D0F6560FA56403C00F62AFC8FBD2	3	0.33	0.00		<input type="checkbox"/>
FE55CBE4F8243484379DB319023329A7	1	1.00	1.00	1.00	<input type="checkbox"/>
C8000B76516FA86FC373198827110EEA	2	1.00	1.00		<input type="checkbox"/>
2D940E6AA3FD9DF863CD24595AE99A5F					<input type="checkbox"/>
734B995109FA7BD3843E3E053FE9CAD3				1.00	<input type="checkbox"/>
B8D10540B457AE2E84B70F96667D98E9				1.00	<input type="checkbox"/>
E40170BF53A3B678269DBBDC381DE31D					<input type="checkbox"/>
3C6FD2C6239FAB41A8165A2A8687BA69					<input type="checkbox"/>
DFECBFE736523E87E10D51CF2E4DAC10					<input type="checkbox"/>
0E8FE1F3721B4B02FE26AB129B217B69	1	0.00	0.00	1.00	<input type="checkbox"/>
DE60777C2DE0632A060BD40C1B7A625A	3	0.33	0.00		<input type="checkbox"/>

QUESTION GENERATION (FOR COMPILERS)

QUESTION GENERATION – REGULAR EXPRESSIONS

- Automatic generation of regular expressions
- Automatic recognition of lexemes

JFLEX - G07


Given the JFlex program:

```
(a-b)/(a-b) { System.out.print( yytext()+"-" ); }  
(a*b)+(a*b) { System.out.print( yytext()+"-" ); }  
(a+b)*(a+b) { System.out.print( yytext()+"-" ); }  
.          { System.out.print( yytext()+"-" ); }
```

Write the output for the following input:

aabcbb

Note that you must write all recognized lexemes separated by a hyphen.

 aab-c-bb-

QUESTION GENERATION – REGULAR EXPRESSIONS

- Automatic assessment of regular expression design by comparison with a given correct solution

Write a regular expression that recognizes strings made up of lowercase letters with at least two vowels in a row. Examples of words recognized by this regular expression:

CORRECT	INCORRECT
queue	Queue
tool	tower
author	use
toe	a

er.txt

```
[a-z]*[aeiou]{2}[a-z]+
```

 >java Test toe

 [a-z]*[aeiou]{2}[a-z]*

The regular expression does not properly recognize the sequence shown in this statement.

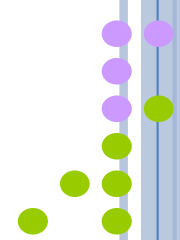
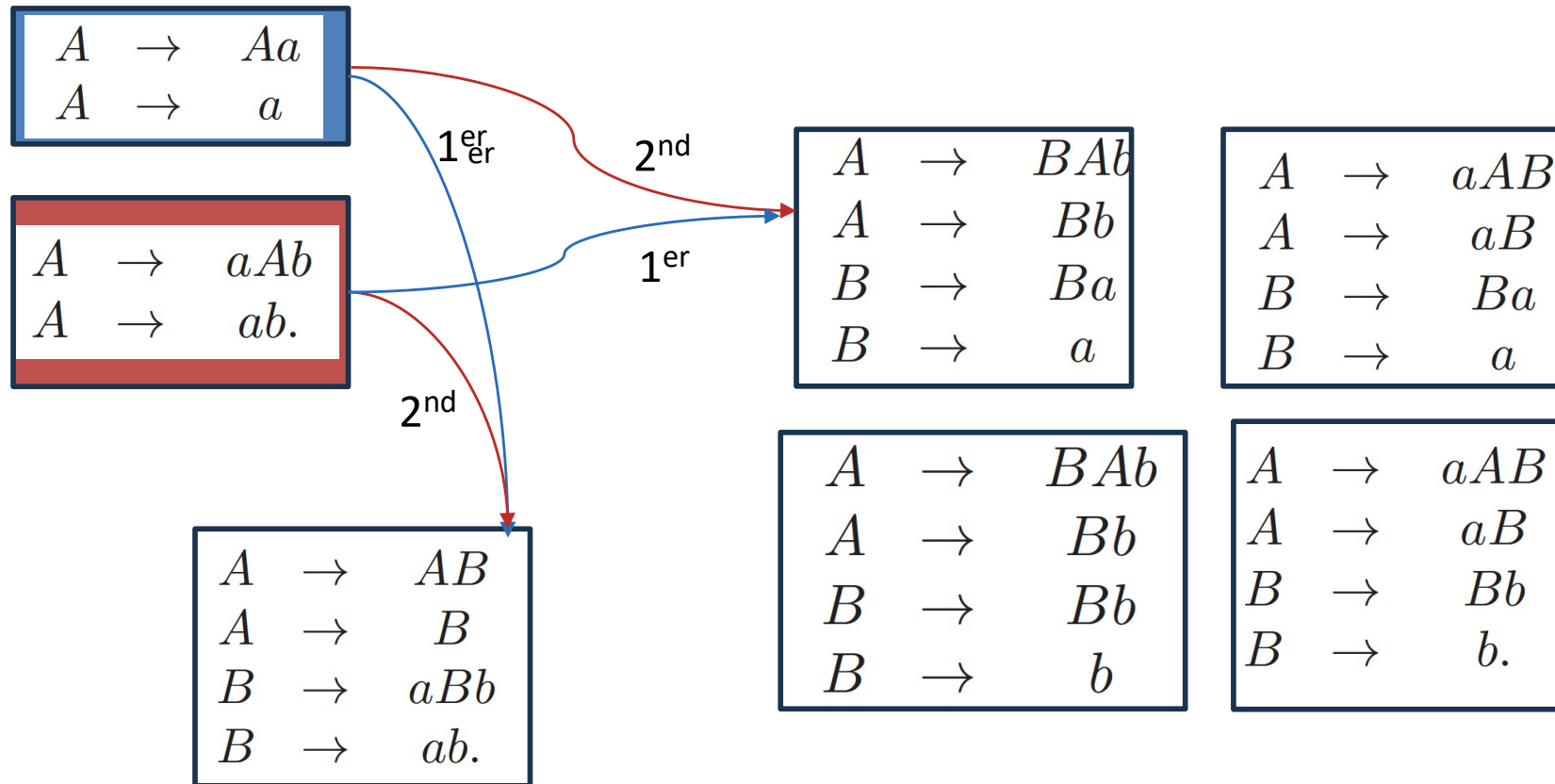
 >java Test use
use

 [a-z]*[aeiou]{2}[a-z]*

The regular expression recognizes the sequence shown in this statement and should not recognize it.

QUESTION GENERATION – CFG

- Automatic generation of CFG for teaching / assessment purposes, combining “building blocks grammars”



QUESTION GENERATION – CFG – AUTHORIZING TOOL

Sietto Log out Administrator . 12:29:30 - static-159-128-224-77.ipcom.comunitel.net - 0 English Change Profile

Questions Test Students Documentation New > Search Groups > Preferences List of Subjects

2018/10/01 > Compiler design > Syntax analysis > Grammar design > LL(1) grammar design > Grammar 09 (LL1)

Compiler design

- Introduction
- Lexical analysis
- Syntax analysis
 - Syntax analysis functionality
 - Syntax analysis types
 - FIRST & FOLLOW functions
 - LL(1) analysis
 - G05F - P04 - CAB(A)
 - G05F - P05 - CAB(B)
 - G05F - P06 - CAB(BCBD)
 - G05F - P07 - SIG(A)
 - G05F - P09 - SIG(C)
 - G05F - P10 - SD(A->CB)
 - G05F - P11 - SD(B->)
 - G05F - P12 - SD(C->)
 - GEN01 - Table LL(1) - 4N
 - GEN01 - Table LL(1) - 5N
 - GEN06
 - GEN07
 - GEN08
 - GEN08 - Table LL(1) - 5N
 - GEN08 - Table LL(1) - 6N
 - GEN08 - Table LL(1) - 7N
 - GEN09
 - GEN09.with example
 - GEN10
 - GEN11.with example
 - G05F - P08 - SIG(B)
 - LL(1) Condition
 - Theory
 - Simple precedence
 - Operator precedence
 - SLR(1) analysis
 - LR(1) analysis
 - Comparing syntax analysis algo
 - Grammar design
 - Basic grammar design
 - Non ambiguous grammar c
 - LL(1) grammar design
 - Grammar 01 (LL1)
 - Grammar 02 (LL1)
 - Grammar 03 (LL1)
 - Grammar 04 (LL1)
 - Grammar 05 (LL1)
 - Grammar 06 (LL1)
 - Grammar 07 (LL1)
 - Grammar 08 (LL1)
 - Grammar 09 (LL1)
- Attribute grammar
- Semantic analysis
- Symbol tables
- Memory allocation
- Code generation

Content

Stem

Define a context-free grammar THAT SATISFIES THE LL (1) CONDITION for the language of two-dimensional arrays where the rows are separated with commas, and the columns with semicolons. Note that in this language there can be no empty row. Some examples of this language are:


```
[<br/>
[a]<br/>
[a,a]<br/>
[a,a,a]<br/>
[a,a,a,a]<br/>
[a,a,a,a,a]<br/>
```

Patterns

- @GramaticaEquivalenteLL1
 - A->]
 - A->[
 - B->B;a
 - B->B;a
- @ErrorSintactico
- @ErrorGramaticaNoValida
- @GramaticaEquivalente
 - A->]
 - A->[
 - B->B;a
 - B->B;a

Valid example

```
<br/>
A->[A*<br/>
A->B]<br/>
A->]<br/>
B->aB*<br/>
B->]<br/>
B->aB*<br/>
```

Hint

Pattern type: Grammar pattern

Ignore case:

Ignore accent marks:

Ignore punctuation marks:

Ignore white spaces:

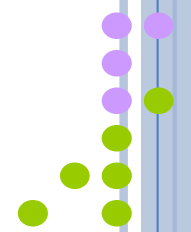
Accept minor spelling mistakes:

No. of answers: 1

Feedback pattern not found

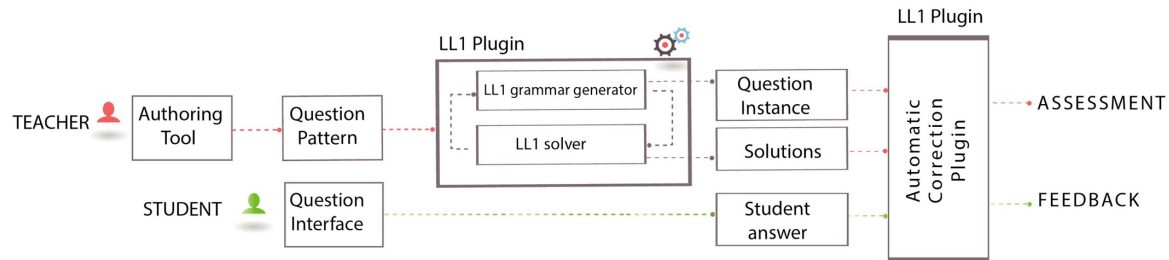
Grammar does not generate this language
 @Contraejemplo

Feedback when the question is not answered



QUESTION GENERATION – CFG - ASSESSMENT

- Automatic assessment of CFG design and feedback.



Define a context-free grammar THAT SATISFIES THE LL (1) CONDITION for the language of two-dimensional arrays where the rows are separated with commas, and the columns with semicolons. Note that in this language there can be no empty row. Some examples of this language are:

```

[]
[a]
[a,a]
[a,a,a]
[a,a,a; a,a; a]
[a,a; a; a,a,a]
...
  
```

✗

```

A->[L]
L->L,a
L->L;a
L->a
  
```

Grammar does not generate this language
The grammar does not generate the sentence [] that belongs to the language.

✓

```

A->[A'
A'->B]
A'->]
B->aB'
B'->
B'->,aB'
B'->,>aB'
  
```

✗

```

A->[L]
A->[]
L->L,a
L->L;a
L->a
  
```

The proposed grammar generates this language but it is not LL(1)

QUESTION GENERATION – CFG - ASSESSMENT

- *Automatic Assessment of LL(1) and SLR(1) table construction*

Giving the grammar:

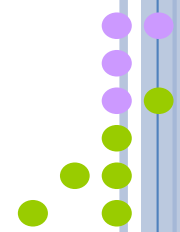
$S \rightarrow A\$$
 $A \rightarrow \epsilon$
 $A \rightarrow Bc$
 $A \rightarrow ac$
 $B \rightarrow bC$
 $B \rightarrow cadC$
 $C \rightarrow \epsilon$
 $C \rightarrow bC$

Find the LL(1) table

	a	b	c	d	\$	
S	A\$	A\$	A\$		A\$	✓
A	ac	Bc	Bc			✗
B		bC	cadC			✓
C		bC	ϵ			✓

NOTES:

- To write down the empty string you should type EPSILON.
- Complete the LL(1) table for this grammar leaving blank the error cells. If there are conflicts, write down both rules consequents separated by a comma.
- This exercise is corrected by rows, assigning a partial credit to each correct table row



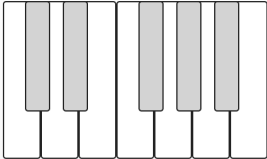
QUESTION GENERATION (FOR MUSIC)

QUESTION GENERATION – MUSIC

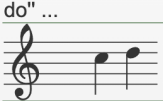
- *Generating intervals or chords, with a synthesizer and recognize answer with a piano keyboard.*
- *Adapting difficulty*

(G) 2 Notes - Piano-7

Play this interval in the piano. The first note is C.


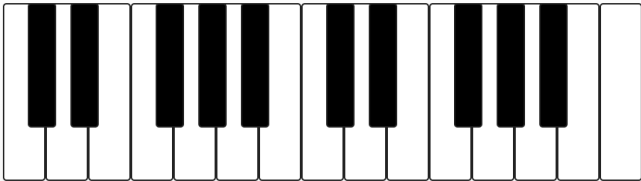


do" ...



Major 7

Play in the piano the tetrad of the chord: F^Δ7

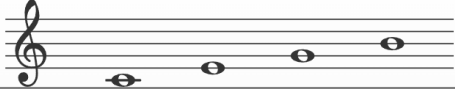


QUESTION GENERATION – MUSIC

- *Listening to instrument playing.* Using the microphone and a frequency recognition tool, a sequence of notes is recognized and compared to a given musical pattern, taking into account precision and tolerance.. (On going work).

S0. Do mayor - microfono (I)


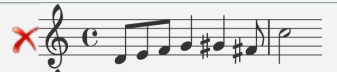

Play this chord C^Δ7



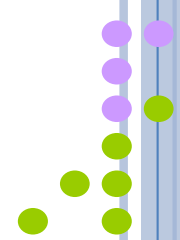
459Hz

G

221



The image shows a software interface for music recognition. At the top, it says 'S0. Do mayor - microfono (I)'. Below that, it asks the user to 'Play this chord C^Δ7' and shows a musical staff with a C major 7 chord. A large box in the center displays '459Hz' and a large letter 'G', with '221' below it. At the bottom, there are three musical staves: the first is a C major 7 chord with a green equals sign, the second is a C major 7 chord with a red X, and the third is a C major 7 chord with a green checkmark.



QUESTION GENERATION – MUSIC

- *Authoring tool*
- *Score rendering (Lilypond)*
- *Sound Synthesizer*
- *Notes recognition*
- *Musical pattern matching*

Preview Information **Content** Display Selection Evaluation Advanced Branches

Run time Static

Stem

```
<%  
String[] escalaCromatica = { "do", "re", "mi", "fa", "sol",  
"la", "si" };  
String nota1 = escalaCromatica[0]; // Do  
String nota2 = Random.select(escalaCromatica);  
%>
```

Edit

Score

```
\language "espanol"  
{  
  \override Score.TimeSignature #transparent = ##t  
  \override Score.BarLine.stencil = ##f  
  <%= nota1 %> <%= nota2 %>  
}
```

Musical answer

Device

Piano

Scale Yes No

SHow time signature Yes No

Length of the notes Yes No

Sound

Audio file

Synthesizer

Note sequence

Tempo

Audio button Yes No

Allowed playing times

Play on load Yes No

Patterns

```
%@Exact Pitch  
<%= nota1 %> <%= nota2 %>
```

Edit

Complete

Delete

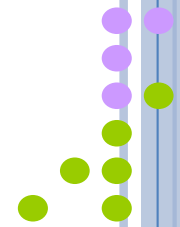
is correct.

+ Add Patterns

Valid example

```
<<SCORE>>
```

Edit



QUESTION GENERATION (NOMENCLATURE OF INORGANIC CHEMISTRY)

QUESTION GENERATION – CHEMISTRY

- Inorganic chemistry compounds are randomly generated from the data of the periodic table. Formulas and IUPAC nomenclatures are accepted.



Test (Name -> Formula)

Write the formula of this compound: *Dibismuth pentaoxide*

= Bi₂O₅

- Oxides

Test (Name -> Formula)

Write the formula of this compound: *Dicobalt trioxide*

= Co₂O₃

Test (Name -> Formula)

Write the formula of this compound: *Carbon monoxide*

= CO

Test (Name -> Formula)

Write the formula of this compound: *Iron trichloride*

= FeCl₃

- Binary salts, etc...

Test (Name -> Formula)

Write the formula of this compound: *Dilead monocarbide*

= Pb₂C




Test (Name -> Formula)


Write the formula of this compound: *Disodium monosulfide*

= Na₂S



QUESTION GENERATION - AUTHORING TOOL

 English Log out  Ricardo Conejo Administrador 22:09:05 - localhost - 0  Change Profile

Questions Test Students Documentation New > Search Groups > Preferences List of Subjects 

> Chemistry > Inorganic nomenclature > Binary compounds > Oxides > Oxide formula -> IUPAC Nomenclature

Chemistry

- Inorganic nomenclature
 - Elements
 - Ions
 - Binary compounds
 - Oxides
 - Oxide formula -> IUPAC Nomenclature**
 - Prefix nomenclature
 - Fórmula -> Prefix
 - Hydrides
 - Peróxides
 - Binary salts
 - Ternary compounds

Preview Information **Content** Display Selection Evaluation Advanced Branches

Stem

Name the following compound in any of the IUPAC standards <<FORMULA>>

Compound

Compound type

- Single element
- Oxide
- Peroxide
- Hydride
- Halide
- Binary salt
- Hidroxiide
- Oxoacid
- Polyhydrated oxoacid
- Oxosal
- Acid Oxosal
- Binatry acid salt
- Thioacid
- Polyatomic anion


Display compound name with nomenclature:

Chemical elements selection:

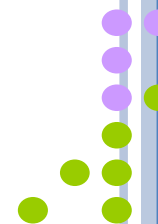
Accepted responses

- Formula
- Nomenclature (Automatic (Accepted by IUPAC))

Hint

 Add Hint

Save changes Delete Clone question Create instances Help



QUESTION GENERATION – CHEMISTRY - FEEDBACK

- Answers are assessed and adaptive feedback is provided in case of error.
- Feedback includes explanations of the error

Test (Name -> Formula)

Write the formula of this compound: *Trioxigen dichloride*

✓ O_3Cl_2

Test (Name -> Formula)

Write the formula of this compound: *Trioxigen dichloride*

✗ O_3Clh_2

✓ O_3Cl_2

The symbol *Clh* does not correspond to any element of the periodic table. The symbol for *Cloro* is *Cl*

Test (Name -> Formula)

Write the formula of this compound: *Trioxigen dichloride*

✗ Cl_2O_3

✓ O_3Cl_2

When writing the formula, the least electronegative (or electropositive), in this case the Oxígeno (O), elements are written on the left and the most electronegative, in this case the Oxígeno (O), ones on the right; but when writing the nomenclature is just the opposite. The formula O_3Cl_2 would be correct

Test (Name -> Formula)

Write the formula of this compound: *Trioxigen dichloride*

✗ OCl

✓ O_3Cl_2

The chemical elements are correct, but there is an error in the number of atoms in the molecule. In compound the Oxígeno (O) acts with oxidation number +2, and the Cloro (Cl) with oxidation number 3.

Test (Name -> Formula)

Write the formula of this compound: *Trioxigen dichloride*

✓ O_3Cl_2

Test (Name -> Formula)

Write the formula of this compound: *Trioxigen dichloride*

✗ O_2Cr_3

✓ O_3Cl_2

The element *Cromo* is represented with the symbol *Cr*. The symbol for *Cloro* is *Cl*

Test (Name -> Formula)

Write the formula of this compound: *Trioxigen dichloride*

✗ O_3CL_2

✓ O_3Cl_2

When writing the symbols of chemical elements, it is not the same to use uppercase or lowercase letters. Chemical symbols all have one or two letters, the first is always a capital letter and the second, if it exists, will be a lowercase letter.

Test (Name -> Formula)

Write the formula of this compound: *Trioxigen dichloride*

✗ O_2Cl_3

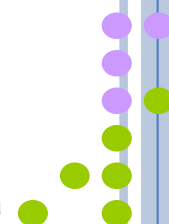
✓ O_3Cl_2

The chemical elements are correct, but there is an error in the number of atoms in the molecule. In compound the Oxígeno (O) acts with oxidation number +2, and the Cloro (Cl) with oxidation number 3.

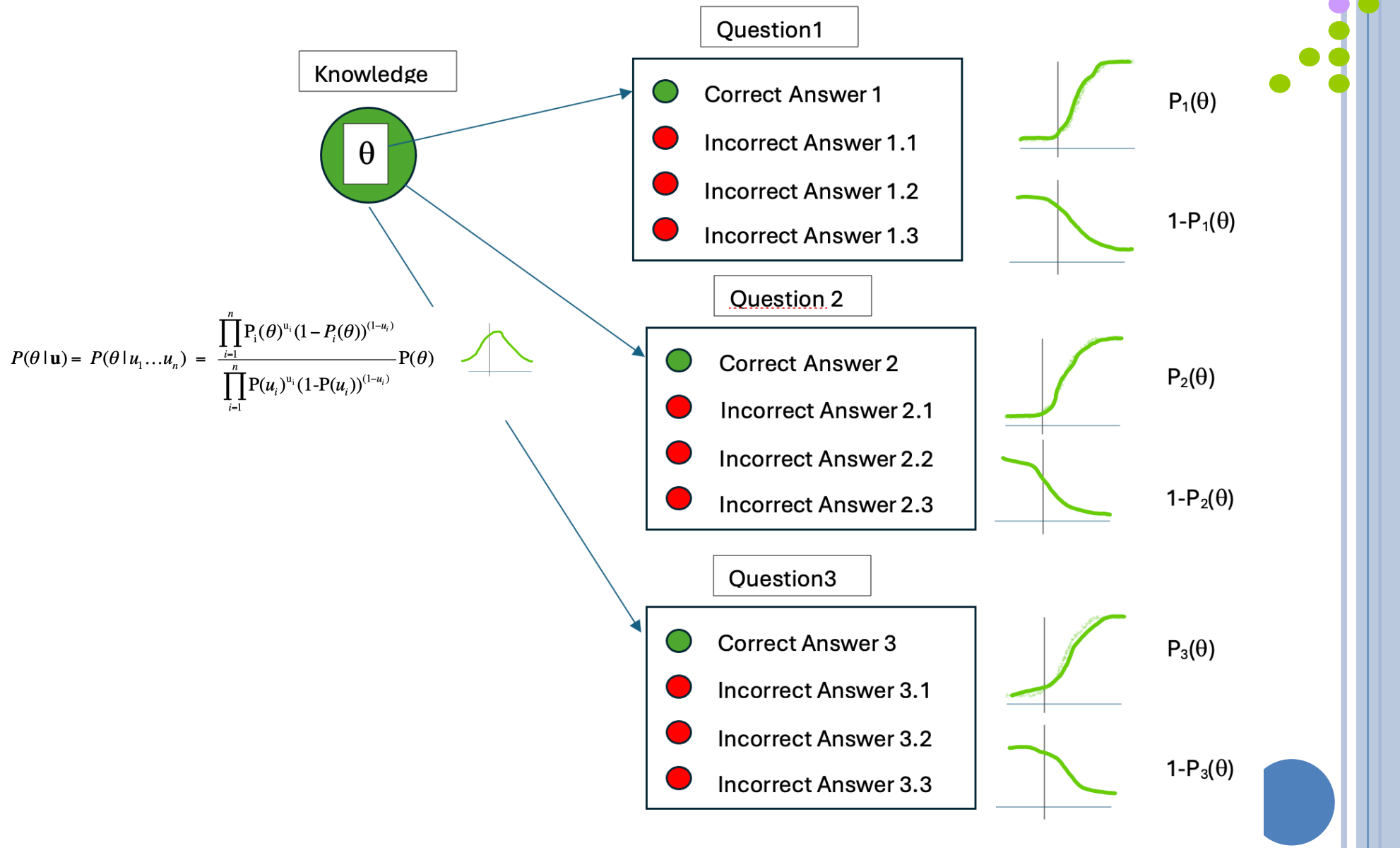
MISCONCEPTIONS

- Wrong answer are associated with a list of predefined misconceptions

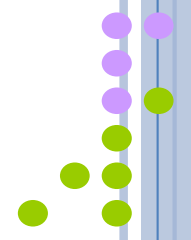
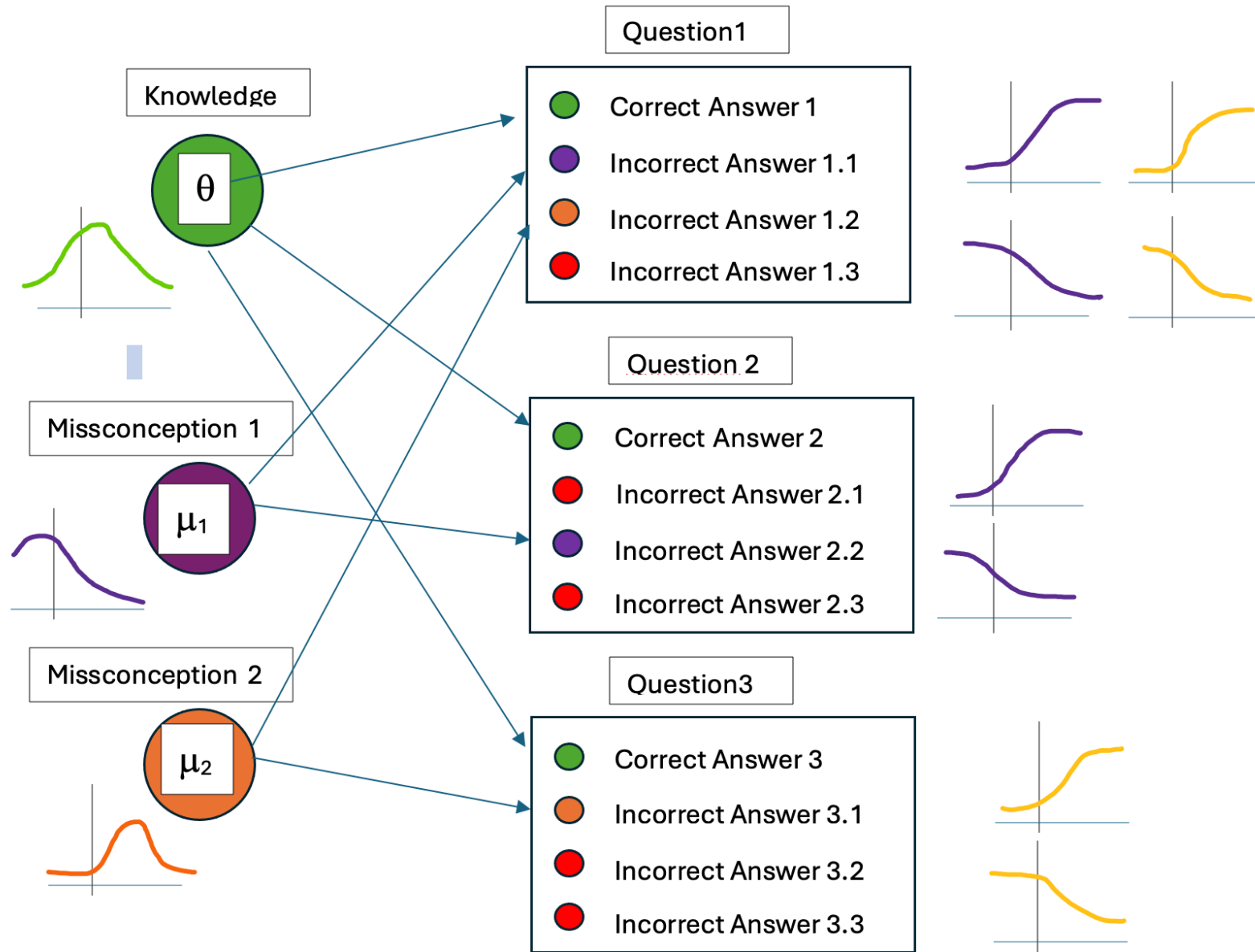
ERROR_CONFUNDIR_NUMERO_OXIDA	The oxidation number is confused with the number of atoms
ERROR_ELEMENTO_DESCONOCIDO	The symbol <i><i>%SimboloIncorrecto</i></i> does not correspond to any element in the periodic table.
ERROR_ELEMENTO_INCORRECTO	The symbols or names of two elements in the periodic table have been confused.
ERROR_FALTA_HIDROGENO	There is no balance of charges in the molecule
ERROR_MAYUSCULAS_MINUSCULAS	When writing the symbols of chemical elements, it is not the same to use uppercase or lowercase letters. Chemical symbols all
ERROR_NOMENCLATURA_ANO	Error in the traditional nomenclature of parent hydrides ("borane", "azane", etc.)
ERROR_NOMENCLATURA_FALTA_H	There is an error in the number of hydrogen atoms in the molecule.
ERROR_NOMENCLATURA_HIDRURO	Error in the use of the term "Hydride".
ERROR_NOMENCLATURA_ICORRECTA	Nomenclature different from that indicated has been used.
ERROR_NOMENCLATURA_LATINA	Error in the use of Latin terms (Not applicable in English)
ERROR_NOMENCLATURA_OXIDO	Error using the term "Óxide".
ERROR_NOMENCLATURA_PREFIJOS	Use of unknown prefixes in systematic nomenclature
ERROR_NOMENCLATURA_STOCK	Error in the use of the numeral in the Stock nomenclature
ERROR_NOMENCLATURA_TRADICION	Use of inappropriate prefixes or suffixes in classical nomenclature
ERROR_NO_PEROXIDO	An oxide has been confused with a peroxide
ERROR_NO_SIMPLIFICAR	The formula has not been simplified
ERROR_NUMEROS_DESORDENADOS	The subscripts of the formula have been exchanged between anion and cation
ERROR_NUMERO_ATOMOS	Error in the number of atoms in the molecule
ERROR_NUMERO_UNO	Subscript 1 has been used in the formula
ERROR_ORDENACION	The chemical elements of the formula are not properly ordered.
ERROR_SAL_ELECTRONEGATIVO	The subscript of the most electropositive element does not match the answer.
ERROR_SIMPLIFICAR	A formula has been simplified, which should not be simplified
ERROR_SIN_SUBINDICES	No subscripts have been used in the formulas
PATRON_NOMENCLATURA_CLASICA	A classic nomenclature has been used that is no longer officially accepted.



IRT (BAYESIAN) KNOWLEDGE INFERENCE



IRT (BAYESIAN) MISCONCEPTION INFERENCE



ASSESSMENT OF COMPLEX TASKS

COMPLEX TASKS – COMPOUND ITEMS

- A compound item (question) is composed with by a common stem and a set of items (questions) that are always presented together and in the same order. Like in this example...

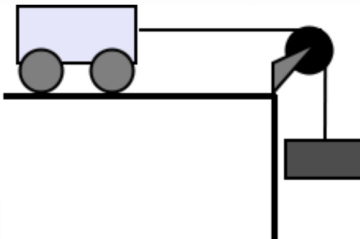
Physics

- + General Questions
- Classical Mechanics
 - + Kinematics
 - + Universal Gravity Law
 - Newton's Laws of Motion
 - Newton 004
 - Newton 011
 - Newton 011a
 - Newton 011b
- + Work, Energy and Power
- + Momentum
- + Moment of Inertia
- + Circular Motion
- + Oscilatory Motion
- + Solids and Fluids

- + Thermal Physics
- + Electricity and Magnetism
- + Others

Newton 011

Let a wheelbarrow of mass 7,50 kg be attached to a block of mass 3,98 kg as shown in the following figure. Neglecting the effects of the rotations of the pulley and the wheels and in the absence of friction, determine:



Newton 011a

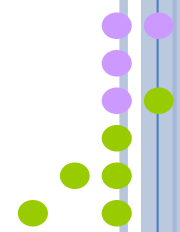
The absolute value of the forklift acceleration

= 3,40 m/s²

Newton 011b

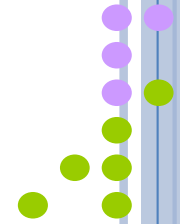
The tension of the string.

= 25,47 N



COMPLEX TASKS – COMPILERS

Siette provides a framework for Evidence Centered Design (ECD).



- Unitary test are converted to answers to internal items.
- Evaluation (knowledge inference) can be done using different models available on Siette (classical test theory, Item response theory, etc.), like any other.
- Analysis tools can be used to adjust the model.
- Siette stores the submitted files so that it can reassess the whole process off-line if something went wrong or evaluation schema changes. (i.e modifying a test case, changing the score assigned to an item, etc.)

Additionally...

- Siette may call JUnit or any other software for program testing.
- Siette may run execution on a separate machine or on a chroot jail to enhance security.
- Plagiarism detection can be applied within the Siette environment.



COMPLEX TASKS – COMPILERS

- A complex task is evaluated using a underlying compound item.
- The stem requires to implement a certain program, maybe with multiple files, zip them and send it to Siette for testing.

PLX - CUP (CORE)

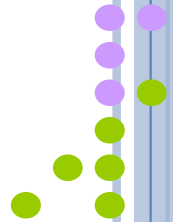
.El objetivo de esta práctica es desarrollar con la ayuda de JFlex y Cup un compilador de un lenguaje denominado PLX generando código intermedio en formato CTD, de acuerdo a las instrucciones que se detallan en este [enunciado completo](#). Para resolver este ejercicio se enviaran todos los ficheros fuentes necesarios para compilar el programa **PLXC.class** mediante la siguiente secuencia de instrucciones:

```
cup PLXC.cup
jflex PLXC.flex
javac *.java
```

La compilación deberá llevarse a cabo sin que se produzcan avisos ni conflictos. Una vez compilado el compilador, deberá ejecutarse mediante la instrucción:

```
java PLXC prog.plx prog.ctd
```

En el fichero [plx-init-core.zip](#), se adjuntan algunos programas de prueba (con extension .plx). Pueden utilizarse versiones compiladas del compilador (plx). [plx-*.zip](#) para comparar los códigos fuente generados Para ejecutar el código intermedio generado puede usarse el programa ctd



COMPLEX TASKS – COMPILERS

- Siette unzip the files in a temporary directory and copy on it some other files (code analysis programs, testing cases, etc.)

Previsualizar Información Contenido Presentación Selección Evaluación **Avanzado** Ramificación Analizador Sesiones Control de plagio

Esquema de generación de pregunta




Sistema de presentación de la pregunta





















Nombre de fichero + -

Usar area de texto Sí No

Mostrar fichero recibido Sí No

Directorio base

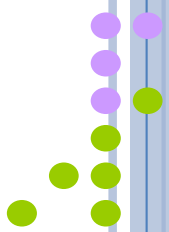
pl/plx   

Subdirectorios:	Archivos:			
	[Nuevo directorio]	[Editar directorio]	[Nuevo fichero]	[Enviar fichero]
	 a0.plx	 a1.plx	 a2.plx	 a3n.plx
	 a5n.plx	 ambito1.ctd	 ambito1.ll	 ambito1.plx
	 ambito2.ll	 ambito2.plx	 ambito3.ctd	 ambito3.ll
	 ambito4.ctd	 ambito4.ll	 ambito4.plx	 ambitoPrueba.ctd
				

Limite de tiempo (en segundos)

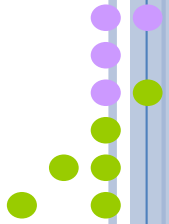
Script

```
@error continue
@PatronSiette : true, false, false, true
rm -f *.class parser.java sym.java Yylex.java *.ll
perl -pi -e 's/[^\[:ascii:]]/g' *.java > /dev/null == *
perl -pi -e 's/[^\[:ascii:]]/g' *.cup > /dev/null == *
perl -pi -e 's/[^\[:ascii:]]/g' *.flex > /dev/null == *
chmod +x llplxc llj == *
```



COMPLEX TASKS – COMPILERS

- An execution script (written in Siette Script Language (SSL)) is provided, by composing it from the subitems of the compound item.



PLX - CUP (CORE)

- Compilacion y ejecucion**
- Expresiones**
- Variables y asignaciones**
- Sentencia if**
- Expresiones lógicas**
- Sentencia if-else**
- Sentencia while**
- Sentencia do-while**
- Sentencia for**
- Tipo float**
- Tipo char**
- Operadores char**
- Matrices unidimensionales**
- Matrices de float**
- Matrices de char**
- Matrices print**
- Tipo string**

```

@error stop
@PatronSiette: false, false, false, true
cup PLXC.cup == *0 errors*           -> : ERROR-1
jflex PLXC.flex == *Writing code*   -> : ERROR-2
javac *.java <> *error*              -> : ERROR-3
java PLXC cero.plx cero.ctd ==      -> : ERROR-A
ctd cero.ctd == 0                    -> 10 : ERROR-B

@Correspondencia exec: false, false, false, true
@Command on
@OnError skip
@Eval add all
for file in exp1 exp2 exp3 exp4 exp5
do
  @OnError recover
  java PLXC $file.plx $file.plx.ctd ==           ->
  ctd $file.plx.ctd == plxi $file.plx -> 2
done

@Correspondencia exec: false, false, false, true
@Command on
@OnError skip
@Eval add all
for file in asig1 asig2 asig3 asig4 asig5
do
  @OnError recover
  java PLXC $file.plx $file.plx.ctd ==           ->
  ctd $file.plx.ctd == plxi $file.plx -> 2
done
    
```



COMPLEX TASKS – COMPILERS


- The SSL script generates a token for each subitem according to the results of its execution. These tokens are considered as the “answers” to the subitems, evaluated accordingly, and provide associated feedback

The screenshot displays a software interface for managing complex tasks, specifically focusing on the 'Contenido' (Content) tab. The interface is divided into several sections:

- Navigation Tabs:** Previsualizar, Información, **Contenido**, Presentación, Selección, Evaluación, Avanzado, Ramificación, Analizador, Sesiones.
- Enunciado (Statement):** A text area labeled 'Expresiones' with an 'Editar' button.
- Etiquetas (Tags):** A list of tags with associated actions:
 - Tag 10: Completar, Eliminar, Es correcto. (checked)
 - Tag 8: Completar, Eliminar, Es correcto. (checked)
 - Tag 6: Completar, Eliminar, Es correcto. (checked)
 - Tag 4: Completar, Eliminar, Es correcto. (checked)
 - Tag 2: Completar, Eliminar, Es correcto. (checked)
 - Tag 0: Completar, Eliminar, Es correcto. (unchecked)
- Subitem Details (Id: 5086475):**
 - Patrones (Patterns):** A text area containing the regular expression `<!-- 4 -->*`.
 - Comentarios (Comments):** A text area containing the feedback text: 'Parcialmente correcto, aunque la mayoría de las pruebas no funcionan correctamente.'
 - Variables de sesión (Session Variables):** An empty text area.
 - Puntuación (Scoring):** Positive score: 0,4000; Negative score: 0,0000.
- Footer:** '+ Añadir Etiquetas' and 'Mostrar patrones (en vez de etiquetas)' checkbox.

COMPLEX TASKS – ANALYSIS TOOLS - ITEMS

- Frequencies, difficulty index, discrimination index, PB correlation, ...


Español
Desconectar
Administrador . 08:18:08 - 225.red-79-147-146.dynamicip.rima-tde.net - 9
Modificar Perfil

Preguntas
Test
Alumnos
Documentación
Nuevo test
Grupos >
Preferencias
Listado de asignaturas

> Python > Tema 4. Funciones de Orden Superior > Practica6

Python


- Prueba de Python
- Tema1. Funciones Básicas
- Tema 2. Funciones y LPC
 - Practica2
 - Practica3
 - Practica4-TRES
 - Practica5-2425-GRUPOA
 - Practica5-2425-GRUPOB
- Tema 3. Recursividad
 - Practica4
 - Practica4-BIS
 - Practica4-TRES
 - Practica5 GrupoA-2324
 - Practica5 GrupoB-2334
 - Practica5-2425-GRUPOA
 - Practica5-2425-GRUPOB
- Tema 4. Funciones de Orden Superior
 - Practica6**
 - Practica9 - Grupo A
 - Practica9 - Grupo B
- Tema 5. Estructuras de Datos

Información	Presentación	Selección	Evaluación	Acceso	Colaborativo	Ramificación	Analizador	Sesiones	Indicadores	Control de plagio
Mínimo de sesiones <input type="text" value="0"/> No agrupar sesiones Evaluación porcentual Indicadores										
<input checked="" type="radio"/> P4.01.anagramas			50	0,90		0,90		0,00		0,04
<input checked="" type="radio"/> lap			50	0,96		0,96		0,17		0,32
<input checked="" type="radio"/> lapRandom			50	0,82		0,82		0,42		0,47
<input checked="" type="radio"/> esSuaveFold			49	0,96		0,96		0,00		0,03
<input checked="" type="radio"/> suaves			49	0,78		0,78		0,26		0,45
<input checked="" type="radio"/> cumpleaños			49	0,67		0,67		0,67		0,49
<input checked="" type="radio"/> cuantosMismoDiaMes			49	0,53		0,53		1,00		0,83
<input checked="" type="radio"/> p_mismoDiaMes			49	0,51		0,51		0,92		0,80
<input checked="" type="radio"/> nicomano			49	0,88		0,88		0,33		0,58
<input checked="" type="radio"/> empaqueta			49	0,88		0,88		0,33		0,58
<input checked="" type="radio"/> cubos			49	0,88		0,88		0,33		0,58
<input checked="" type="radio"/> esPrimoFold			43	0,79		0,79		0,51		0,58
<input checked="" type="radio"/> primosFormula			43	0,65		0,65		0,53		0,58
<input checked="" type="radio"/> esPrimoFOS			35	1,00		1,00		0,00		
<input checked="" type="radio"/> porCientoPrimosFold			35	0,74		0,74		-0,21		

Guardar cambios
Eliminar
Probar
Duplicar test
Ayuda

COMPLEX TASKS – ANALYSIS TOOLS – ITEM OPTIONS

- Frequencies, difficulty index, discrimination index, PB correlation, ...


Español
Desconectar
Administrador
08:18:08 - 225.red-79-147-146.dynamicip.rima-tde.net - 9
Modificar Perfil

Preguntas
Test
Alumnos
Documentación
Nuevo >
Buscar
Grupos >
Preferencias
Listado de asignaturas

> Python > Tema 3. Recursividad > P3.13.PersistenciaMultiplicativaA

Python

- Tema 1. Funciones Básicas
- Tema 2. Funciones y LPC
- Tema 3. Recursividad
 - P3.01.numerosLuhnR
 - esLuhnR
 - sigLuhnR
 - P3.02.kaprekar
 - P3.03.sucesiones
 - esCreciente
 - esCrecienteConstante
 - esSupercreciente
 - sigSupercreciente
 - P3.04.SustituirSumando
 - P3.05.numerosFelices
 - esFeliz
 - felicesHasta
 - P3.06.serpientes
 - P3.07.fraccionesContinuas
 - P3.08.vampiros
 - P3.09.FSylvester
 - P3.10.FGolomb
 - P3.11.primordiales
 - P3.12.reunirRepartir
 - P3.13.PersistenciaMultiplicativaA
 - persistencia
 - persistenciaHastaAC
 - listaPersistenciaGPC
 - P3.13.PersistenciaMultiplicativaB
 - P3.14.otroCesarA
 - P3.14.otroCesarB
- Tema 4. Funciones de Orden Superic
- Tema 5. Estructuras de Datos

Previsualizar
Información
Contenido
Presentación
Selección
Evaluación
Avanzado
Ramificación
Analizador
Sesiones
Control de plagio

Tema 3.Tema 3. Recursividad
 Sesiones Datos de todas las sesiones
 Tipo de CCI empírica

Datos estadísticos	Histograma	Indicadores	Frecuencias absolutas	Frecuencias relativas	CCI	Funcion de información	Tiempos de realización	Instancias
1874870								
✓			39	0,64		0,81		0,64
✗			0	0,00		0,00		
✗			22	0,36		-0,75		-0,57
			0	0,00		0,00		
1874906								
✓			29	0,48		0,88		0,71
✗			0	0,00		0,00		
✗			31	0,52		-0,69		-0,59
			0	0,00		0,00		
1874942								
✓			16	0,27		0,50		0,44
✗			0	0,00		0,00		
✗			44	0,73		-0,31		-0,28
			0	0,00		0,00		

- Guardar cambios
Eliminar
Duplicar pregunta
Ayuda

COMPLEX TASKS – ANALISYS TOOLS – TEST RESULTS

- Frequencies, Score distribution, Reliability indicators, ...

Siette Español Desconectar Administrador 08:18:08 - 225.red-79-147-146.dynamicip.rima-tde.net - 9 Modificar Perfil

Preguntas Test Alumnos Documentación Nuevo test Grupos > Preferencias Listado de asignaturas

> Python > Tema 3. Recursividad > Practica5 GrupoA-2324

Python

- Prueba de Python
- Tema 1. Funciones Básicas
- Tema 2. Funciones y LPC
 - Practica2
 - Practica3
 - Practica4-TRES
 - Practica5-2425-GRUPOA
 - Practica5-2425-GRUPOB
- Tema 3. Recursividad
 - Practica4
 - Practica4-BIS
 - Practica4-TRES
 - Practica5 GrupoA-2324
 - Practica5 GrupoB-2334
 - Practica5-2425-GRUPOA
 - Practica5-2425-GRUPOB
- Tema 4. Funciones de Orden Superic
- Tema 5. Estructuras de Datos

Información Presentación Selección Evaluación Acceso Colaborativo Ramificación Analizador Sesiones Indicadores Control de plagio

Tema Tema 3. Recursividad Sesiones Datos de todas las sesiones

Datos del test Frecuencias absolutas Frecuencias relativas Funcion de información Tiempos de realización

Nivel	0,42	1,25	2,08	2,92	3,75	4,58	5,42	6,25	7,08	7,92	8,75	9,58
Porcentaje	8%	3%	2%	13%	13%	6%	1%	8%	3%	9%	1%	32%
Porcentaje acumulado:	8%	11%	14%	26%	39%	45%	46%	54%	57%	67%	68%	100%
Invertir	100%	92%	89%	86%	74%	61%	55%	54%	46%	43%	33%	32%

Guardar cambios

Eliminar

Probar

Duplicar test

Ayuda

COMPLEX TASKS – ANALYSIS TOOLS – PLAGIARISM

- Integrated plagiarism detection based on MOSS system.
- Also used to determine collaboration between students.

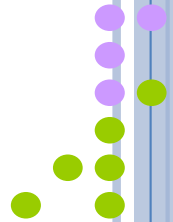
The screenshot shows the Sietto web interface for plagiarism detection. The left sidebar contains a tree view of course materials, including 'Tema 3. Recursividad' and 'Practica5 GrupoA-2324'. The main content area displays the 'Control de plagio' (Plagiarism Control) section for a specific question (1545830 - P3.10.FGolomb). Below this, the 'Moss Results' are shown for a submission on Sat Nov 23 00:24:11 PST 2024. A table lists the results for two files, showing the student name, percentage of code detected, and the number of lines matched.

File 1	File 2	Lines Matched
Gómez-alvado Abderrahman, Vicente [cv.uma] (98%)	Vertedor Alcaraz, Manuel [cv.uma] (97%)	46
Doblas Funez, Guillermo [cv.uma] (38%)	Llamazares Fernández, Inés [cv.uma] (38%)	25
González Peña, Beatriz [cv.uma] (33%)	Sánchez Mérida, Ignacio Javier [cv.uma] (33%)	21
Burgos Martínez, Lucía [cv.uma] (23%)	Llamazares Fernández, Inés [cv.uma] (36%)	23
Gómez Rubio, Fabio [cv.uma] (42%)	Hueso García, Francisco [cv.uma] (44%)	21
Gómez Pérez, Miriam [cv.uma] (47%)	Hueso García, Francisco [cv.uma] (42%)	22
Hueso García, Francisco [cv.uma] (41%)	Plaza Lopera, Hugo De [cv.uma] (36%)	16
Hueso García, Francisco [cv.uma] (41%)	Sánchez Mérida, Ignacio Javier [cv.uma] (29%)	16
Plaza Lopera, Hugo De [cv.uma] (36%)	Sánchez Mérida, Ignacio Javier [cv.uma] (29%)	16
Gómez Ledesma, Bruno [cv.uma] (38%)	Poncelas Cañizares, Julia [cv.uma] (37%)	22
Peña Lagares, Marta [cv.uma] (25%)	Ruiz Ortiz, Adrián [cv.uma] (31%)	14
Bueno Martín, María [cv.uma] (25%)	Lares Barreiro, Noelia [cv.uma] (26%)	20
Cara Luque, Paula [cv.uma] (34%)	Hueso García, Francisco [cv.uma] (36%)	19
Cara Luque, Paula [cv.uma] (34%)	Gómez Rubio, Fabio [cv.uma] (35%)	19
Burgos Martínez, Lucía [cv.uma] (18%)	López Lovera, Rafael [cv.uma] (22%)	20
Doblas Funez, Guillermo [cv.uma] (28%)	Poncelas Cañizares, Julia [cv.uma] (32%)	21

ASSESSMENT OF INTERACTIVE TASKS

INTERACTIVE TASKS – BUILT-IN INTERACTIVE ITEMS

- Some tasks require a graphical interface to answer
- The graphical interface can be developed in JavaScript, or Unity but requires programming skills.
- An authoring tool make development easier
 - General purpose interactive items are constructed by means of a user-friendly authoring tool.
 - Two column matching
 - Sorting images / text
 - Image labeling
 - Area selection
 - ...
 - Domain specific items
 - Music
 - Chemistry
 - Kids drawing abilities
 - Etc.



INTERACTIVE TASKS – PURE JAVASCRIPT EVALUATION

- Previsualizar
- Información
- Contenido
- Presentación
- Selección
- Evaluación
- Avanzado
- Ramificación
- Analizador
- Sesiones

Enunciado

```
<script>
function evaluacion() {
  console.log('evaluacion');
  var respuesta = new Array();
<%
  n=0;
  for(int i=0; i<nElem; i++) {
    if (!selectedPos[i]) {
      out.println("respuesta["+n+"] = document.getElementById('resp'+i+'.value;");
      n++;
    }
  }
%>
  console.log('respuesta='+respuesta);
  /
  var correccion = new Array();
  correccion[0] = true;
  correccion[1] = false;
  correccion[2] = false;
  correccion[3] = false;
  correccion[4] = false;
  resolver(respuesta,correccion);
  */
  return respuesta;
}

function resolver(respuesta,correccion) {
  console.log('respuesta='+respuesta);
  console.log('correccion='+correccion);
  var elements = new Array();
<%
  n=0;
```

Piramide N=3 (Mult)



Patrones

<%= sol[0] %>

Completar

Eliminar

Es correcto.

<%= sol[1] %>

Completar

Eliminar

Es correcto.

<%= sol[2] %>

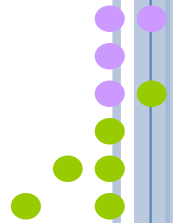
Completar

Eliminar

Es correcto.

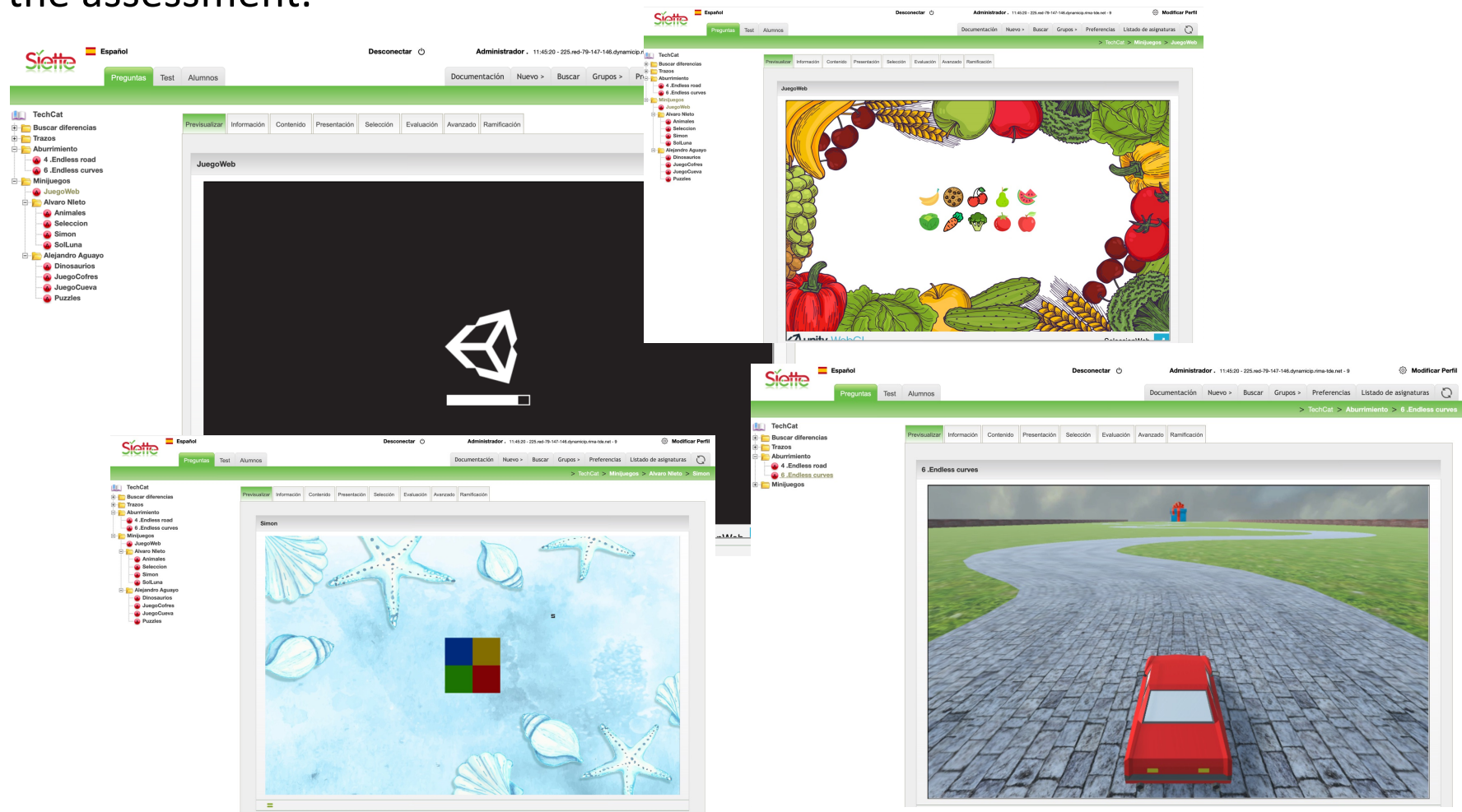
Añadir Patrones

Ejemplo válido



INTERACTIVE TASKS – UNITY SERIOUS GAMES

- To evaluate kid's executive functions some item have been implemented using Unity (interactive games programming framework).
- While playing, the game collects data and sends it to Siette to accomplish the assessment.



INTERACTIVE TASKS – BUILT-IN INTERACTIVE ITEMS

- Two columns matching

Preview Information **Content** Display Selection Evaluation Advanced Branches Analyzer Sessions

Stem
Link each of these images with the European country in which they are located Edit

Background image

Canvas size X

Left column
Left column type Images Texts

Images
demo/pxitems/Berlin.jpg + -
demo/pxitems/Berlin2.jpeg -
demo/pxitems/Londres.jpg -
demo/pxitems/Madrid.jpg -
demo/pxitems/Paris.jpg -
demo/pxitems/Paris2.jpg -

Images size X 200

Right column
Right column type Images Texts

Texts
France + -
United Kingdom -
Spain -
Germany -

Background color

Font size 18

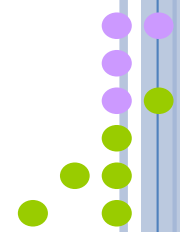
Relations
Relation type Multiple -
Correct relations Edit
Line color

Always display choices in the same order Yes No

Swap left and right columns

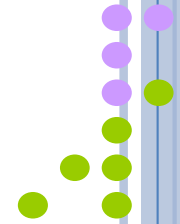
Enlazar cada una de estas imágenes con el país europeo en el que se encuentran ?

Alemania
Francia
España
Reino Unido



INTERACTIVE TASKS – BUILT-IN INTERACTIVE ITEMS

- Sorting items



Preview Information **Content** Display Selection Evaluation Advanced Branches Analyzer Sessions

Stem

```
Sort this expression:  
<%  
  
int x,y,z;  
boolean valida;  
  
do {  
  x = Random.nextInt(1,9);  
  y = Random.nextInt(1,9);  
  z = Random.nextInt(1,9);  
  valida = (x*y+z != x*z+y && x*y+z != z*y+x);  
} while(!valida);  
  
>%
```

Sorted texts

<%=x%> * <%=y%> + <%=z%> = <%=x*y+z%>

Pattern

<%=x%> * <%=y%> \+ <%=z%> = <%=x*y+z%>|<%=y%> * <%=z%>

Font size 24

Background image

Arrangement Horizontal Vertical

Hint

+ Add Hint

Sort this operation (* + =)

Sort this expression:

+ * 2 7 = 23 8



INTERACTIVE TASKS – BUILT-IN INTERACTIVE ITEMS

- Point into an image

Preview Information **Content** Display Selection Evaluation Advanced Branches

Stem
Point out where the pistil is in this image.

Background image pxitems/PartesFlor2.jpg

Image relative position Centered

Canvas size X

Image size X

Font size

Line color

Layout of answers

Texts
Pistilo

Hint

Feedback pattern not found

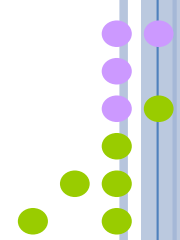
Feedback when the question is not answered

Preview Information **Content** Display Selection Evaluation Advanced Branches

Point the pistil

Point out where the pistil is in this image.

Feedback when the question is not answered



INTERACTIVE TASKS – BUILT-IN INTERACTIVE ITEMS

● Labeling

Previsualizar Información **Contenido** Presentación Selección Evaluación Avanzado Ramificación Analizador Sesiones

Enunciado
Indica el nombre de estos ríos

Imagen de fondo primaria/geografia/rios.gif

Posición relativa de la imagen Centrado

Tamaño del lienzo X

Tamaño de la imagen X

Máximo número de caracteres de las respuestas 15

Tamaño de letra

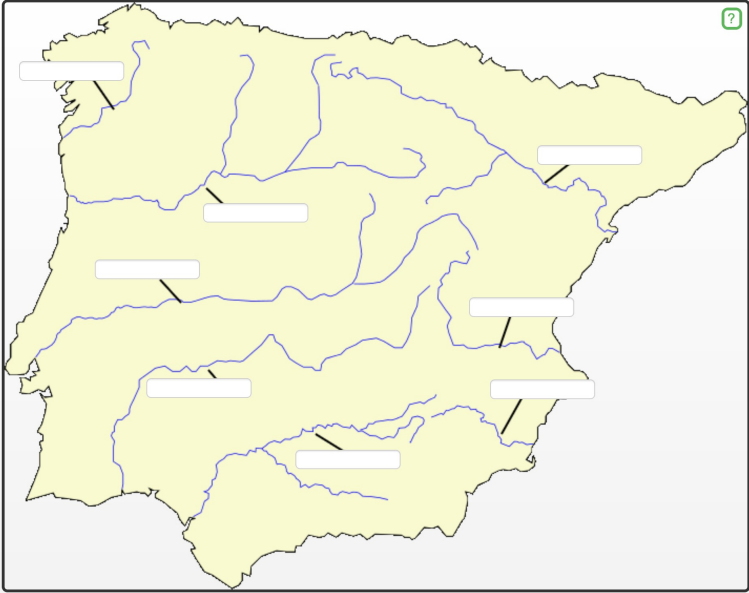
Color de la línea

Posición de las respuestas

Patrones y ejemplos de respuestas

Miño	Miño	<input type="button" value="Completar"/>	<input type="button" value="Eliminar"/>
Duero	Duero	<input type="button" value="Completar"/>	<input type="button" value="Eliminar"/>
Tajo	Tajo	<input type="button" value="Completar"/>	<input type="button" value="Eliminar"/>
Guadiana	Guadiana	<input type="button" value="Completar"/>	<input type="button" value="Eliminar"/>
Guadalquivir	Guadalquivir	<input type="button" value="Completar"/>	<input type="button" value="Eliminar"/>
Ebro	Ebro	<input type="button" value="Completar"/>	<input type="button" value="Eliminar"/>
Jucar	Jucar	<input type="button" value="Completar"/>	<input type="button" value="Eliminar"/>
Segura	Segura	<input type="button" value="Completar"/>	<input type="button" value="Eliminar"/>

Indica el nombre de estos ríos



A map of Spain with several rivers highlighted in blue. Each river has a white rectangular label box with a black line pointing to the river. The rivers are the Miño, Duero, Tajo, Guadiana, Guadalquivir, Ebro, Jucar, and Segura. A question mark icon is in the top right corner of the map area.

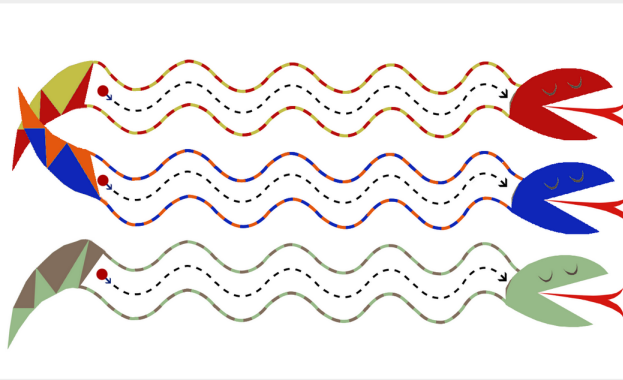


INTERACTIVE TASKS – SPECIAL PURPOSE INTERACTIVE ITEMS

- Kids drawing abilities (Executive functions assessment)

Previsualizar Información **Contenido** Presentación Selección Evaluación Avanzado Ramificación

Vista previa



Enunciado

Pinta con cuidado

Editar

Imagen visible

pxitems/traza_img/22_D.png

Tamaño

600 X 400

Variables predefinidas

Patrones

```
if (tiempoTotal <= 25000) {  
  return true;  
}
```

Completar
 Eliminar
 Es correcto.

```
if (levantaRaton == numeroTrazosDibujo) {  
  return true;  
}
```

Completar
 Eliminar
 Es correcto.

```
if (completado >= 70) {  
  return true;  
}
```

Completar
 Eliminar
 Es correcto.

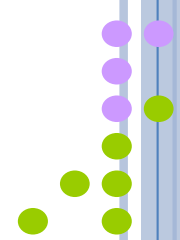
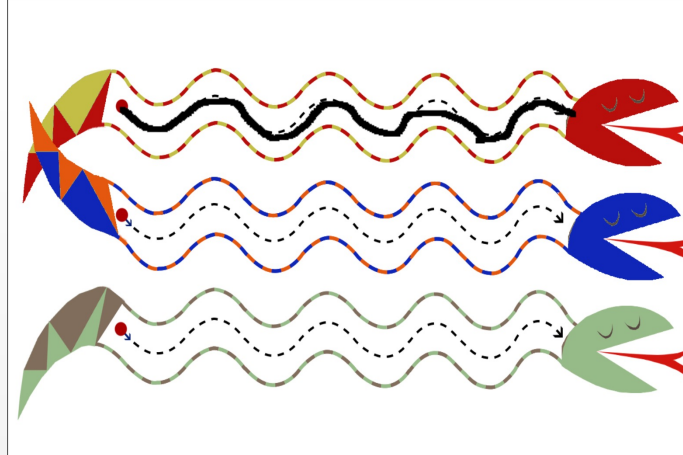
```
if (puntosCoincidentes/puntosDibujados >= 0.50) {  
  return true;  
}
```

Completar
 Eliminar
 Es correcto.

+ Añadir Patrones

Serpientes

Pinta con cuidado



INTERACTIVE TASKS – SPECIAL PURPOSE INTERACTIVE ITEMS

- Find the differences (Executive functions assessment)

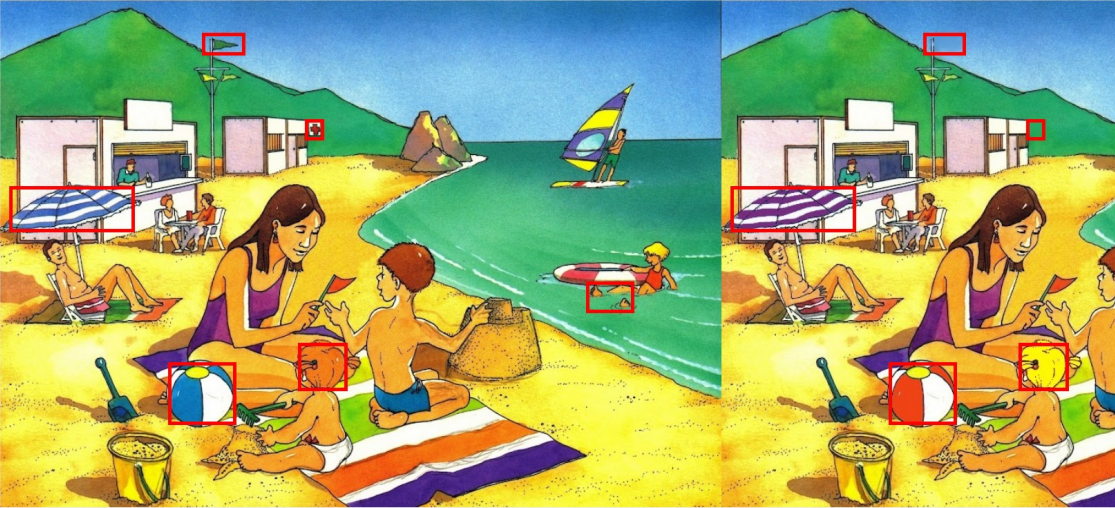
Previsualizar Información **Contenido** Presentación Selección Evaluación Avanzado Ramificación

Enunciado


```
<link href="https://fonts.googleapis.com/css?family=Vibur" rel="stylesheet">
<style type="text/css">
```

Editar

Imágenes



Bunca las 6 diferencias entre estas dos imágenes:



Número de diferencias 6

Imagen diferente techcat/diff/dif_playa_con.jpg

Imagen diferente* techcat/diff/dif_playa_sin.jpg

Sonido acierto techcat/diff/ok.wav

Sonido fallo techcat/diff/fail.mp3

Sonido de introducción techcat/diff/intro.wav

Sonido final techcat/diff/success.wav

Tamaño de las imágenes 400 X

Disposición Horizontal Vertical

Ayuda

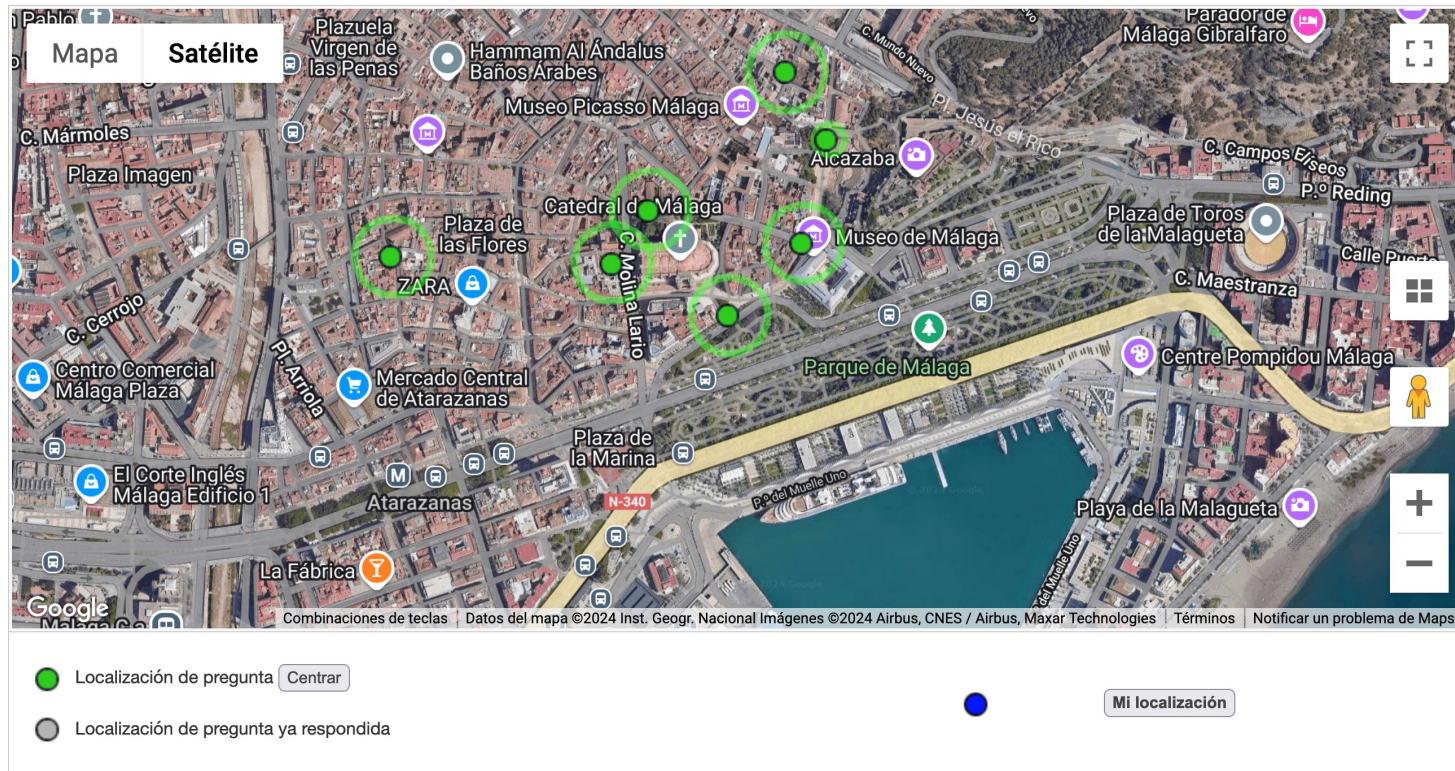
+ Añadir Ayuda

●●●●○○

LOCATION AWARE ASSESSMENT

LOCATION AWARE ASSESSMENT

- Assessment can be restricted to a specific geolocation
- Question are. triggered when you reach a certain position (outdoor and large scale use) or when you scan a give QR code (indoor or precise location)



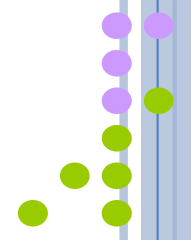
LOCATION AWARE ASSESSMENT

- Question's location is defined throw-out the authoring tool

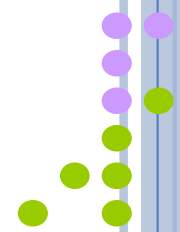
The screenshot displays a web-based interface for location-aware assessment. The main component is a Google Maps view of Málaga, Spain, with a blue circle highlighting a specific location. The map shows various landmarks such as Plaza Carbon, Plaza del Siglo, Museo Picasso Málaga, Catedral de Málaga, and Plaza del Obispo. Below the map, there are several buttons: 'Actualizar', 'Mi localización', 'Obtener localización', and 'Buscar dirección'. A form below these buttons contains the following fields:

- Lat/Lng: 36.72013568513906 -4.420068653291351
- Radio: 50.0 m (dropdown menu)
- IdLoc: (empty text field)
- Dirección: Pl. Obispo, 9, Distrito Centro, 29015 Málaga, España
- Referencia: (empty text field)

At the bottom of the form are two buttons: 'Guardar cambios' and 'Cerrar'. To the right of the map, there is a sidebar with a 'Sesiones' tab and a 'seleccionados' section. Below this, there is a 's antagonistas' section and a 'gunta antagonista' section with a 'Relación simétrica' checkbox. At the bottom of the sidebar, there are input fields for 'io' (value: 50.0), a unit dropdown (value: m), and buttons for 'GPS', 'QR', and 'Editar'.



LOCATION AWARE ASSESSMENT – BOTANY APPLICATION



A study was conducted on brushwood in the Pandera Heights (Jaen) with the aim of making a map of combustible areas. During fieldwork the bush shown in the image below was found. Write its scientific name.



Rhamnus alaternus
 Quescus coccifera

In order to recognise the upper side of the leaf it is important to observe the following features:

- There are no evidence of thorns.
- The leaves alternate.
- The main nerves are highlighted in the bundle.
- Although immature, the fruits show that they will be pulpy and relatively red.

This image shows a fruit found in the western area of the Spanish Pyrenees. Write its scientific name.



Acer pseudoplatanus
 Acer platanoiswa

The species can be identified by the double samara where the wings form an approximate right-angle and by the large nut.



Preview Information Content Display Selection Evaluation Advanced Branches Analyzer Sessions

Available topics
 UPM – Vegetation of Spain

1

Sclerophyll type

2

Remove antagonistic question Simetric relationship

723893 Radius 2.0 m QR Edit

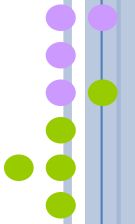
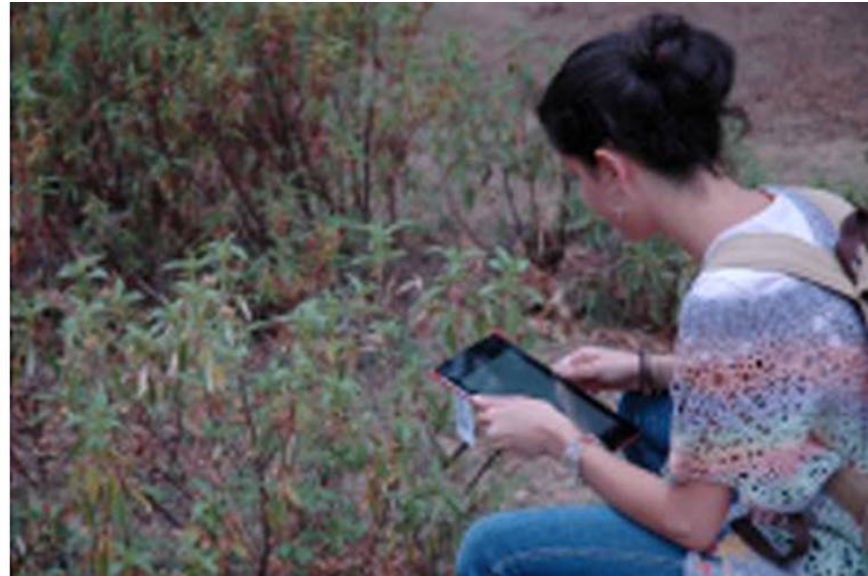
chart (imagen PNG, 350 x 350 píxeles)

3

Lat/Lng: 40.44841 -3.723893
 Radius: 2.0 m GPS & QR
 LocId:
 Address:
 Reference:

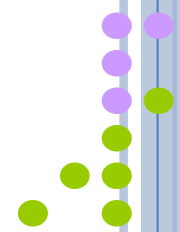
Save changes Close

LOCATION AWARE ASSESSMENT – BOTANY APPLICATION



GAMIFICATION

GAMIFICATION – SCORING COMPARISON



- At the end of the test you can get your score compared with the average

Tema	Preguntas			Calificación [0.0-100.0]	Gráfica del nivel de conocimiento
	Hechas	Correctas	Incorrectas		
Geografía	10	4	6	40,00	

- ..or a scoring table

	NOMBRE	APELLIDOS	PUNTOS
1	Eyerusalem	Ghezmu	8021
2	Pablo	Castillo Domínguez	7583
3	Alice	Rivas	7083
4	Labadie	Mathieu	7083
5	Manon	Larue	6979
6	Selena Zenobia Emperatriz	Brink	6792
7	Victoria Celeste	Grasso Fede	6708
8	María	Casado López	6667
9	Simone	Schaaf	6646
10	Gema María	Cano García	6604
11	Antonio Jesús	Cordón Navas	6563



GAMIFICATION – SYNCHRONIZED TESTS

- To take a sync test all users should select the same subject /test and enter the sync mode

The screenshot displays three browser windows illustrating the Siette platform's interface for synchronized tests. The left window, titled 'SIETTE - Take a test', shows a user named John Doe in 'Collaborative Mode' with a 'Take a test - My subjects' page. It features a list of subjects: 'Con', 'Demo (English)', 'MCAS', and 'Primary school', with 'Synchronized mode' selected. A green 'All subjects' button is visible. The middle window, titled 'SIETTE - Available tests', shows a user named Jane Doe in 'Primary school' mode. It displays a list of tests: 'Fun with flags (Competition)', 'Names of trees', 'The universe, planets and stars', and 'What's the time?'. The right window, titled 'www.siette.org/generador/LeerTe...', shows a user named Jack Doe in 'Primary school' mode. It displays a list of tests: 'Fun with flags (Competition)', 'Names of trees', 'The universe, planets and stars', and 'What's the time?'. The bottom of the image shows a Mac OS taskbar with various application icons.

GAMIFICATION – SYNCHRONIZED TESTS

- To take a sync test all users should select the same subject /test and enter the sync mode

The image shows three browser windows side-by-side, illustrating the Siette platform interface for selecting tests. Each window displays a table of available tests with columns for a flag icon, a group of people icon, and the test name. The tests listed are:

Flag	Group	Test Name
🚩	👥	Fun with flags (Competition)
🚩	👥	Names of trees
🚩	👥	The universe, planets and stars.
🚩	👥	What's the time?

The windows are titled "John Doe", "Jane Doe", and "Jack Doe", all under the "Primary school" category. The browser address bars show the Siette website URL. The bottom of the image shows a macOS dock with various application icons.

GAMIFICATION – SYNCHRONIZED TESTS

- One of them should create a group
- (Or they can be predefined by a “teacher”)

The screenshot displays three browser windows illustrating the Siette platform's interface for creating and managing tests. The windows are arranged side-by-side, showing different user perspectives.

Left Window (John Doe): Shows the "Active Groups" page for a test titled "Fun with flags (Competition)". The page indicates "There are currently no active groups for this test." and provides two buttons: "Back to the list of tests" and "Create new group".

Middle Window (Jane Doe): Shows the "Available tests" page for "Primary school". It lists four tests, each with a red flag icon and a group icon:

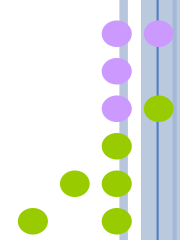
Test Title	Group Icon
Fun with flags (Competition)	Group icon
Names of trees	Group icon
The universe, planets and stars.	Group icon
What's the time?	Group icon

Right Window (Jack Doe): Shows the "Primary school" page for "Fun with flags (Competition)". It lists four tests, each with a red flag icon and a group icon:

Test Title	Group Icon
Names of trees	Group icon
The universe, planets and stars.	Group icon
What's the time?	Group icon

GAMIFICATION – SYNCHRONIZED TESTS

- One of them should create a group....
- and define the number of players



The screenshot displays three browser windows from the Siette platform. The left window, titled 'Create new group', shows a form for 'Group Data' with fields for 'PIN' (GCRY) and 'Max. No. of participants' (3), and a 'Send' button. The middle window, titled 'Active Groups', displays a message: 'There are currently no active groups for this test.' with buttons for 'Back to the list of tests' and 'Create new group'. The right window, titled 'Fun with flags (Competition)', shows a table of test questions:

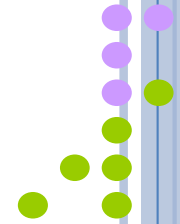
Icon	Question
	Names of trees
	The universe, planets and stars.
	What's the time?

A small inset window in the bottom right corner shows a calendar or schedule view.



GAMIFICATION – SYNCHRONIZED TESTS

- When groups are created, users can join the group



The image displays three browser screenshots of the SIETTE application interface, illustrating the group management process. Each screenshot shows a table of active groups and a 'Create new group' button.

Left Screenshot (User: John Doe): Shows a table with one group entry.

PIN	Creation Date	Status	Max. No. of participants	Members	Actions
GCROY	2024/11/23 19:23:51	Waiting	3	JohnDoe (John Doe)	Get out Remove

Middle Screenshot (User: Jane Doe): Shows a table with one group entry.

PIN	Creation Date	Status	Max. No. of participants	Members	Actions
GCROY	2024/11/23 19:23:51	Waiting	3	JohnDoe (John Doe)	Join in

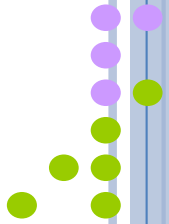
Right Screenshot (User: Jack Doe): Shows a table with one group entry.

PIN	Creation Date	Status	Max. No. of participants	Members	Actions
GCROY	2024/11/23 19:23:51	Waiting	3	JohnDoe (John Doe)	Join in



GAMIFICATION – SYNCHRONIZED TESTS

- The test will automatically start when the number of players is reached



The image displays three browser screenshots of the Siette application interface, illustrating the state of active groups during a synchronized test.

Left Screenshot (John Doe): Shows a table with one active group. The group is named 'GCROY', created on 2024/11/23 at 19:23:51, with a status of 'Waiting' and 3 participants. The members listed are 'johndoe (John Doe)' and 'janedoe (Jane Doe)'. The action button is 'Get out Remove'.

PIN	Creation Date	Status	Max. No. of participants	Members	Actions
GCROY	2024/11/23 19:23:51	Waiting	3	johndoe (John Doe) janedoe (Jane Doe)	Get out Remove

Middle Screenshot (Jane Doe): Shows the same table as the left screenshot, but with the action button labeled 'Get out'.

PIN	Creation Date	Status	Max. No. of participants	Members	Actions
GCROY	2024/11/23 19:23:51	Waiting	3	johndoe (John Doe) janedoe (Jane Doe)	Get out

Right Screenshot (Jack Doe): Shows a table with one active group, similar to the previous screenshots, but with a 'Join in' action button. Below the table is a green button labeled 'Create new group'.

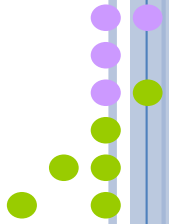
PIN	Creation Date	Status	Max. No. of participants	Members	Actions
GCROY	2024/11/23 19:23:51	Waiting	3	johndoe (John Doe) janedoe (Jane Doe)	Join in

Below the table is a green button labeled 'Create new group'.



GAMIFICATION – SYNCHRONIZED TESTS

- The test will automatically start when the number of players is reached



The screenshot displays three browser windows from the Safari browser. The first window, titled 'John Doe', shows a table of active groups for a competition. The second window, titled 'Jane Doe', shows the same table. The third window, titled 'Jack Doe', shows the test configuration page for 'Fun with flags (Competition)'. The configuration page includes a table of settings and a progress bar for the number of participants.

PIN	Creation Date	Status	Max. No. of participants	Members	Actions
GCROY	2024/11/23 19:23:51	Waiting	3	johndoe (John Doe) janedoe (Jane Doe)	Get out Remove

PIN	Creation Date	Status	Max. No. of participants	Members	Actions
GCROY	2024/11/23 19:23:51	Waiting	3	johndoe (John Doe) janedoe (Jane Doe)	Get out

Selected topics	Flags
Evaluation criterion	Percentage
Total time	No
Minimum number of questions:	10
Maximum number of questions	10
Number of questions in each page	1
Allow returning to a previous question	No
Show solutions...	At the end of the test
Hint	No

Number of participants:

This exercise is synchronized, you must wait until a minimum number of participants is connected

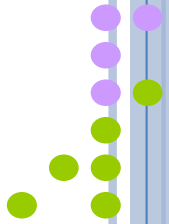
1

Begin test



GAMIFICATION – SYNCHRONIZED TESTS

- The test will automatically start when the number of players is reached



The screenshot displays three browser windows from the Safari browser, illustrating a synchronized test environment. The windows are arranged side-by-side, showing different stages of the test interface for three participants: John Doe, Jane Doe, and Jack Doe.

- John Doe's window:** Shows the test start screen. The question is "Question number 1: What country is this flag from?" with a flag of Colombia (yellow, blue, and red horizontal stripes). Below the flag is an empty text input field and a green "Next question" button. The timer shows 00:01:25.
- Jane Doe's window:** Shows the "Fun with flags (Competition)" information screen. It includes a table with test parameters and a progress bar for the number of participants.
- Jack Doe's window:** Shows the test start screen, identical to John Doe's, with the same question and flag. The timer shows 00:01:28.

Selected topics	Flags
Evaluation criterion	Percentage
Total time	No
Minimum number of questions:	10
Maximum number of questions	10
Number of questions in each page	1
Allow returning to a previous question	No
Show solutions...	At the end of the test
Hint	No

Number of participants: 3

This exercise is synchronized, you must wait until a minimum number of participants is connected

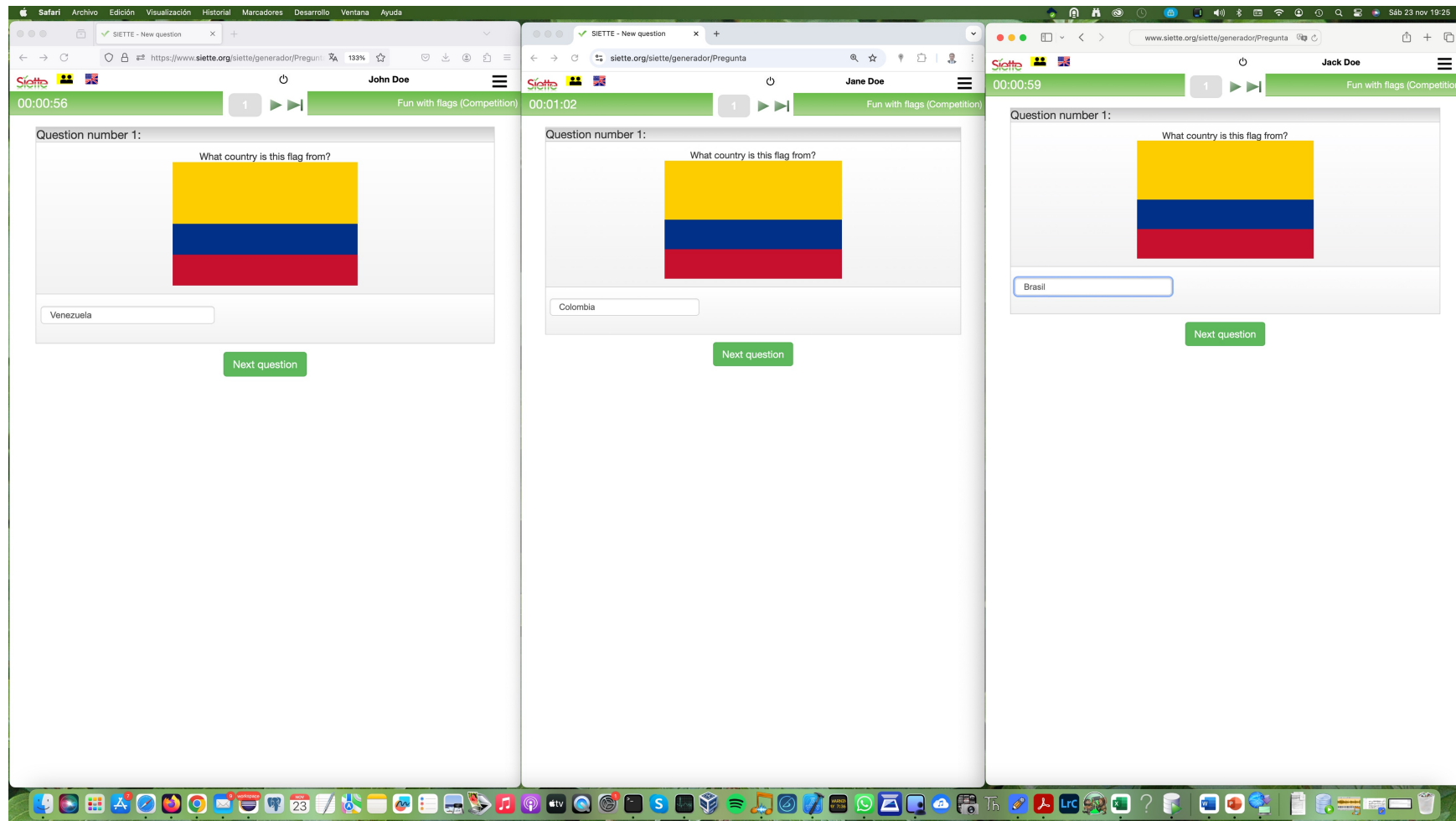
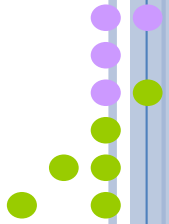
2

Begin test



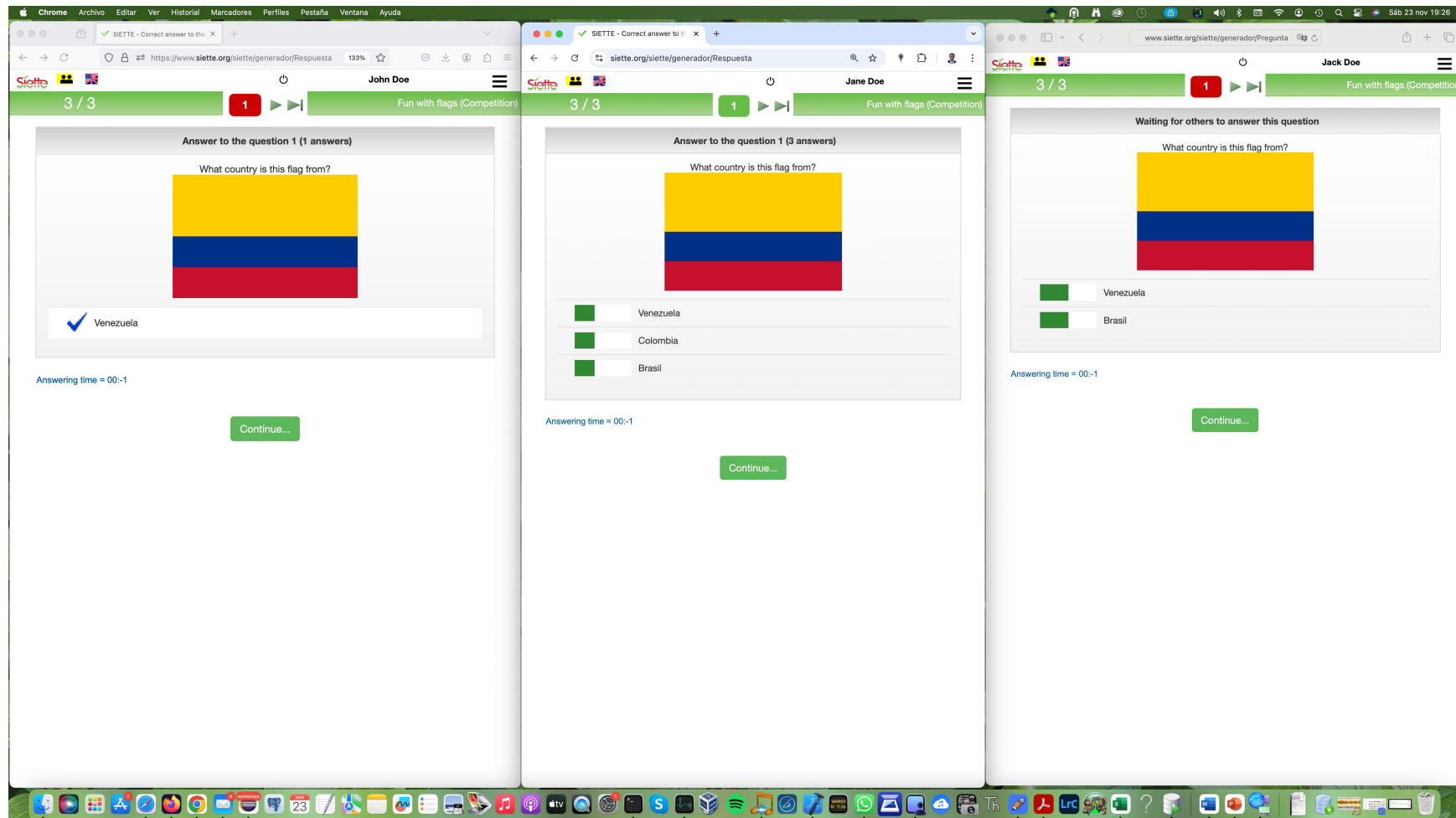
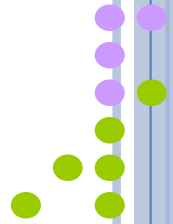
GAMIFICATION – SYNCHRONIZED TESTS

- The same question is posed to all players, even though the question is generated from the same template



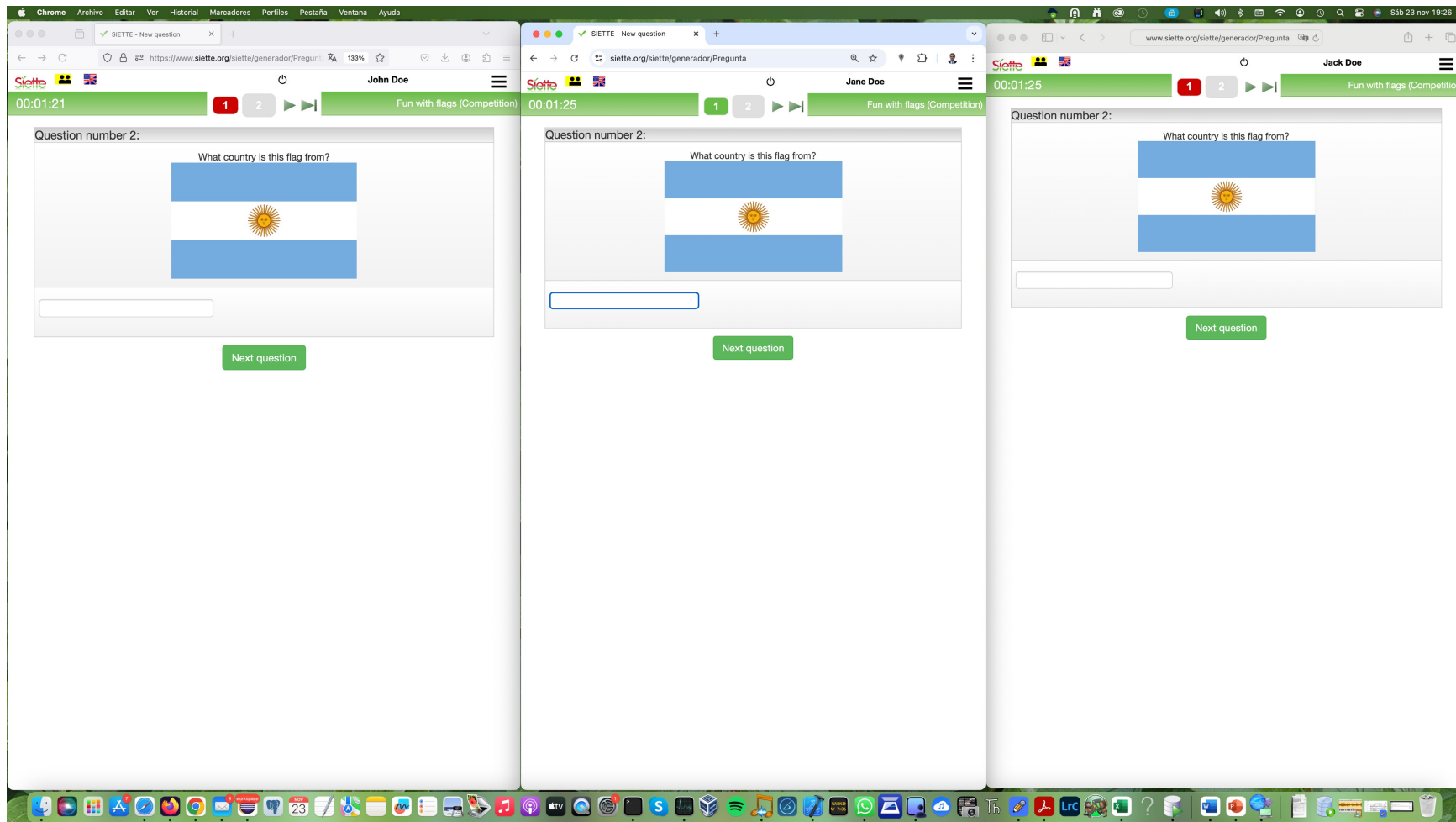
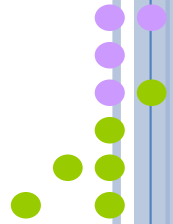
GAMIFICATION – SYNCHRONIZED TESTS

- Each player sends their answer. Once submitted, the other players' response is displayed. and wait until everyone has sent theirs.



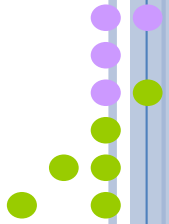
GAMIFICATION – SYNCHRONIZED TESTS

- When all the players have sent their answer, a new question is asked.



GAMIFICATION – SYNCHRONIZED TESTS

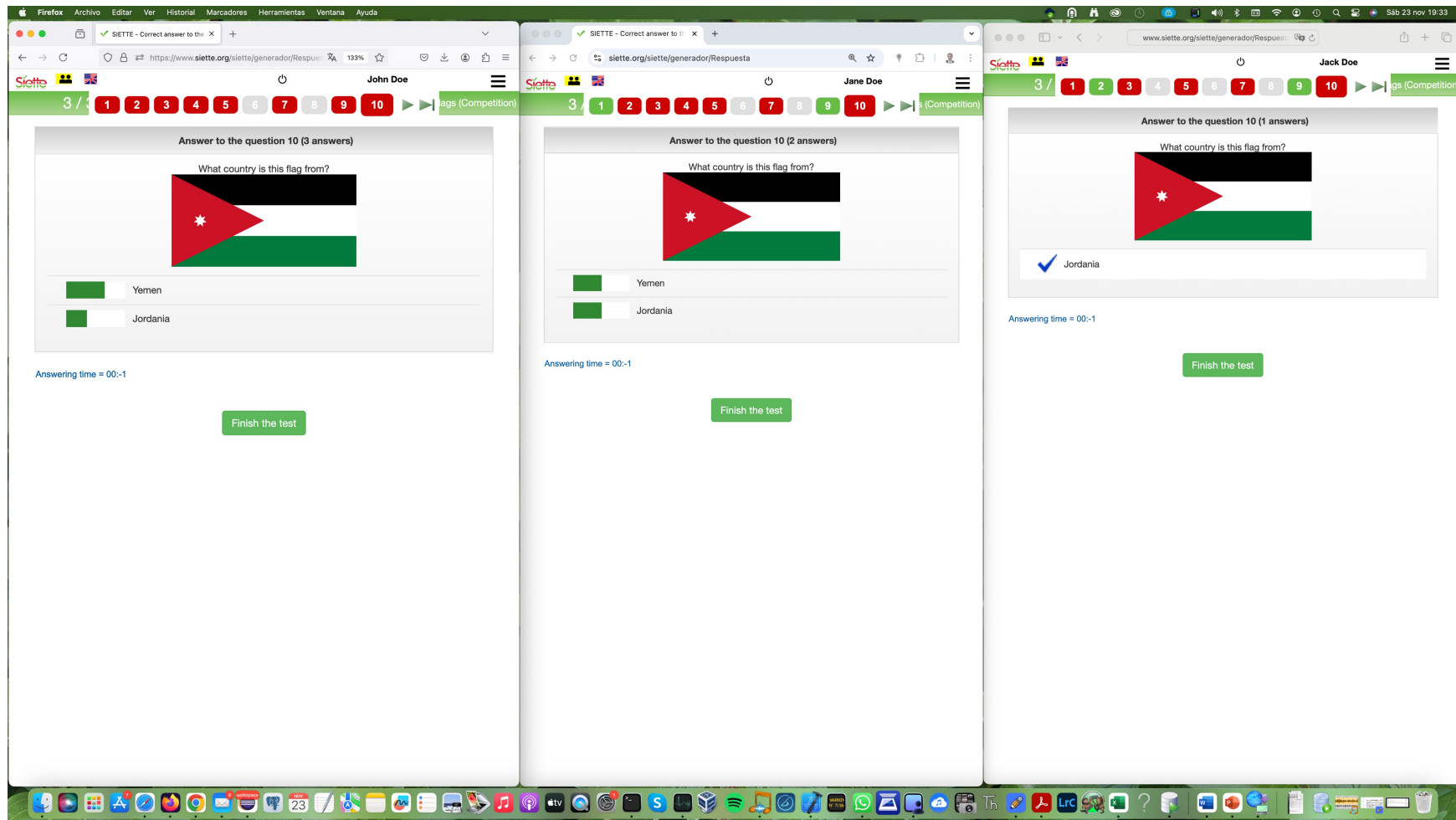
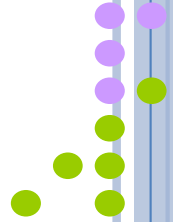
- Once the answer is sent (optionally) each player can know if their answer was correct or not.



The image displays three sequential screenshots of a web-based gamified test interface. The interface is titled 'Fun with flags (Competition)' and features a progress indicator at the top. The first screenshot shows 'John Doe' at 'Question number 2' with a timer of 00:00:52 and a progress bar at 1/3. The question is 'What country is this flag from?' with an image of the Argentine flag and a text input field containing 'Aregntina'. A 'Next question' button is visible. The second screenshot shows 'Jane Doe' at 'Answer to the question 2 (2 answers)' with a timer of 00:-1 and a progress bar at 2/3. The question is the same, and the answer options are 'Paraguay' and 'Argentina', both with green checkmarks. A 'Continue...' button is at the bottom. The third screenshot shows 'Jack Doe' at 'Answer to the question 2 (1 answers)' with a timer of 00:-1 and a progress bar at 1/3. The question is the same, and the answer is 'Argentina' with a green checkmark. A 'Continue...' button is at the bottom. A small inset window in the bottom right corner shows a grid of multiple test instances. The macOS dock is visible at the bottom of the screenshots.

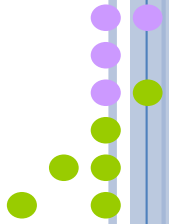
GAMIFICATION – SYNCHRONIZED TESTS

- The test continues until all questions have been posed.



GAMIFICATION – SYNCHRONIZED TESTS

- Then, the final scoring table is presented.



The image displays three browser screenshots from the Siette platform, illustrating the final scoring table and the test interface.

Left Screenshot: Final Scoring Table

Primaria
Fun with flags (Competition)

0.0 [View correction](#) [Retake the test](#) [Subject](#)


Test top list (1)

APELLIDOS	PUNTOS
1 Doe	0

Middle Screenshot: Question Interface

Waiting for others to answer this question

What country is this flag from?



Yemen
 Jordania


Answering time = 00:-1

[Finish the test](#)

Right Screenshot: Question Interface

Waiting for others to answer this question

What country is this flag from?



Yemen
 Jordania

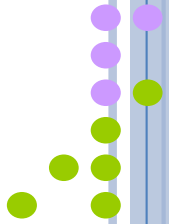
Answering time = 00:-1

[Finish the test](#)



GAMIFICATION – SYNCHRONIZED TESTS

- Then, the final scoring table is presented... and it is updated as the other players finish



The image displays three sequential browser screenshots of a gamified test interface. Each screenshot shows a score and a 'Test top list (3)' table.

Screenshot 1 (Left): Score: 0.0. The top list table is:

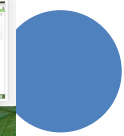
	APELLIDOS	PUNTOS
1	Doe	20
2	Doe	20
3	Doe	0

Screenshot 2 (Middle): Score: 20.0. The top list table is:

	APELLIDOS	PUNTOS
1	Doe	20
2	Doe	20
3	Doe	0

Screenshot 3 (Right): Score: 20.0. The top list table is:

	APELLIDOS	PUNTOS
1	Doe	20
2	Doe	20
3	Doe	0





<http://www.siette.org>

