

Aran, un sistema de **planificación** orientado a **videojuegos**

autor

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tutores

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introducción

desarrollo

resultados

líneas futuras

demo

introducción

desarrollo

resultados

líneas futuras

demo

introducción
desarrollo
resultados
líneas futuras
demo

introducción

desarrollo

resultados

líneas futuras

demo

introducción
desarrollo
resultados
líneas futuras

demo

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videojuegos



XBOX 360





XBOX 360

Microsoft



XBOX 360

noviembre
2005

XBOX LIVE

Community Games

XBOX LIVE
Community Games

finales
2008

XBOX LIVE

Community Games



XBOX LIVE

Community Games



XBOX LIVE

Community Games



XBOX LIVE

Community Games



1



CREATE



Hardware



Hardware





Hardware





Hardware





Common Language Runtime



Hardware





**Base Class
Library**



Common Language Runtime



Hardware





**Base Class
Library**



**XNA
Framework**

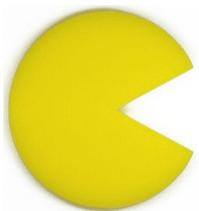


Common Language Runtime



Hardware





Videojuego



**Base Class
Library**



**XNA
Framework**



Common Language Runtime



Hardware





Aran



**Base Class
Library**



**XNA
Framework**



Common Language Runtime



Hardware





Aran



**Base Class
Library**



Common Language Runtime



Hardware





Aran



**Base Class
Library**



Common Language Runtime

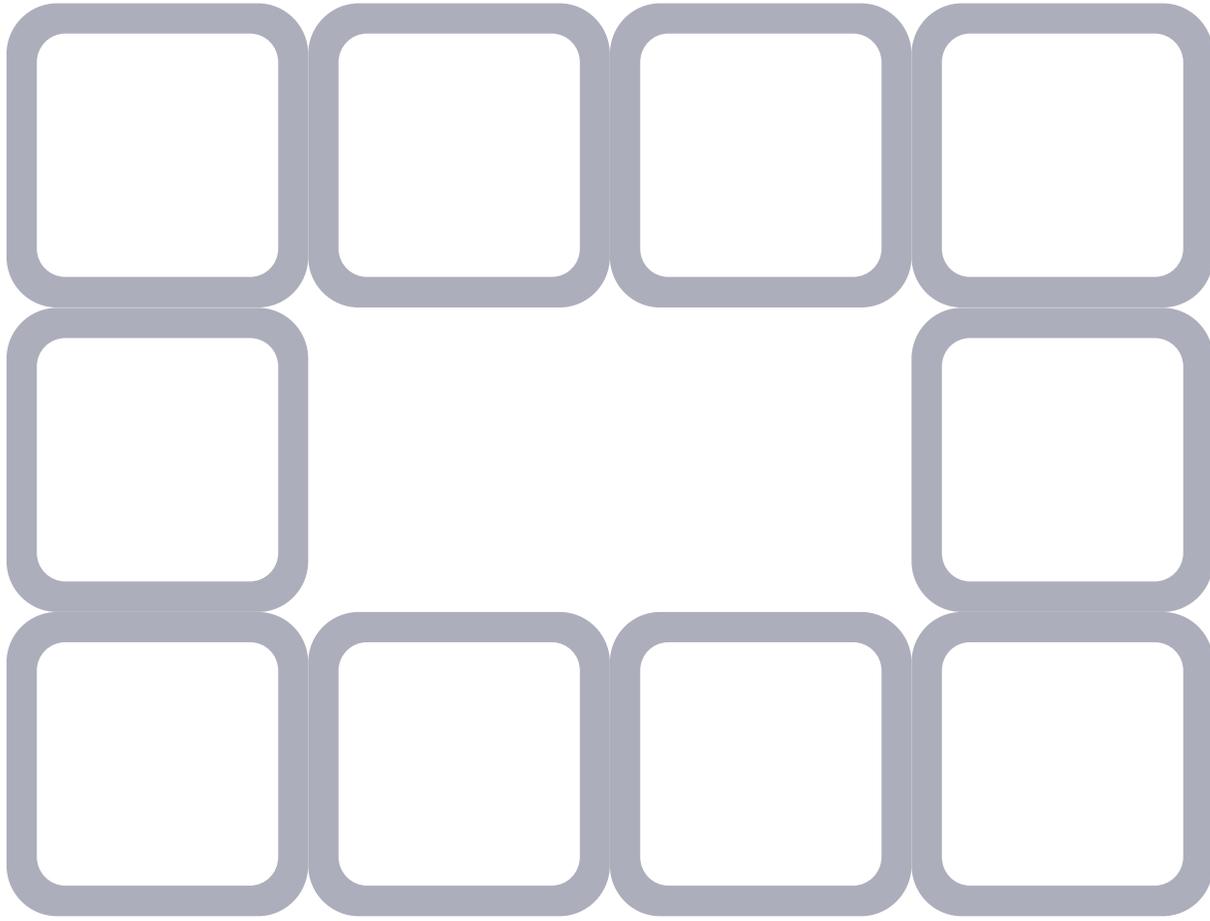


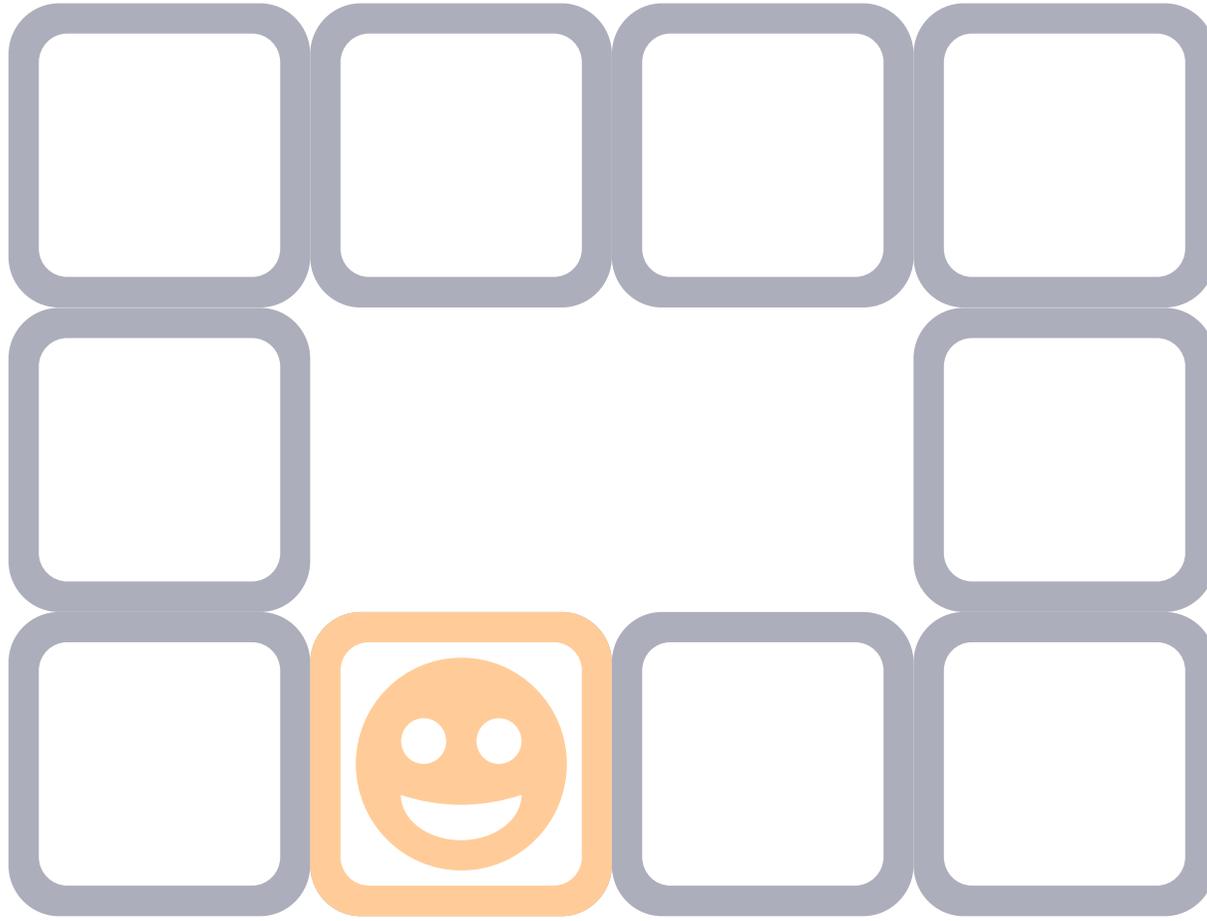
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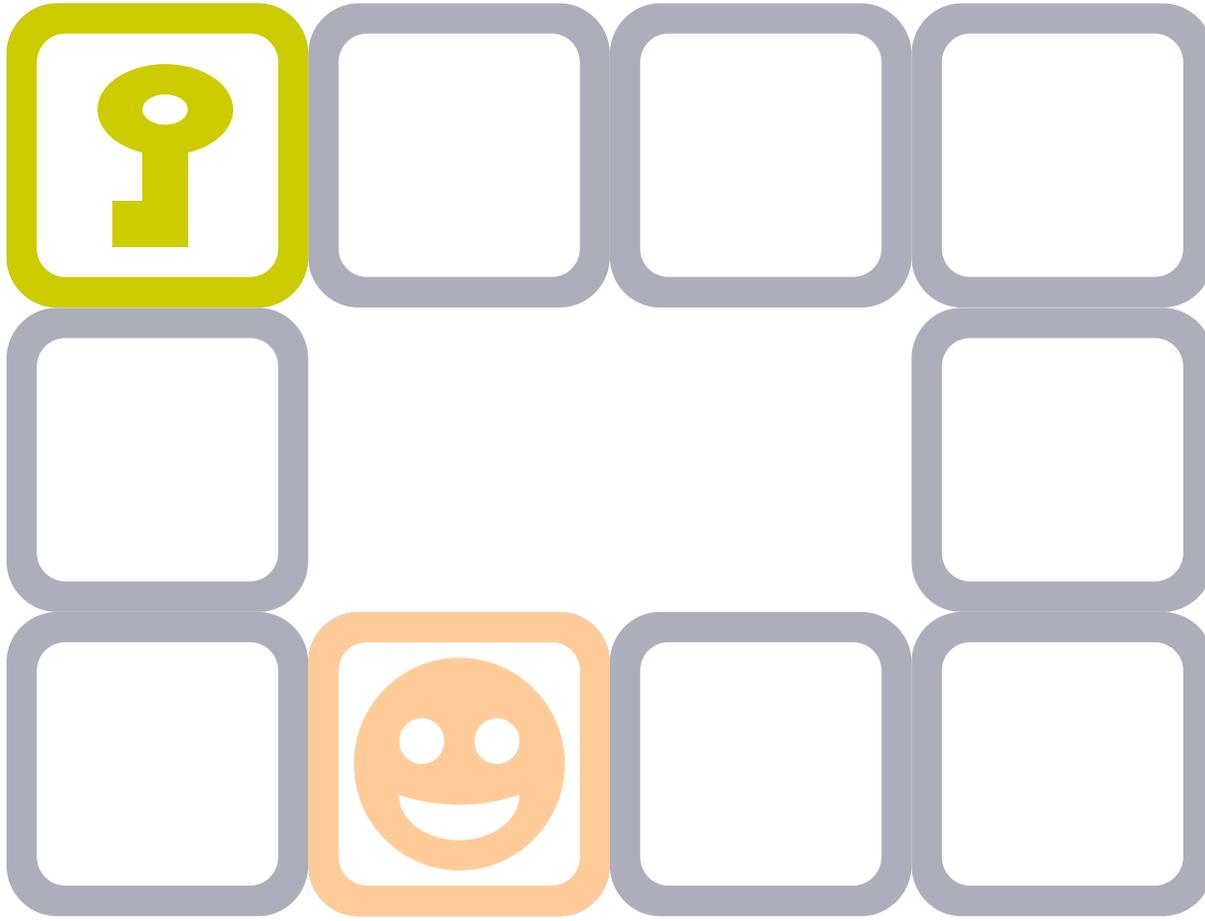


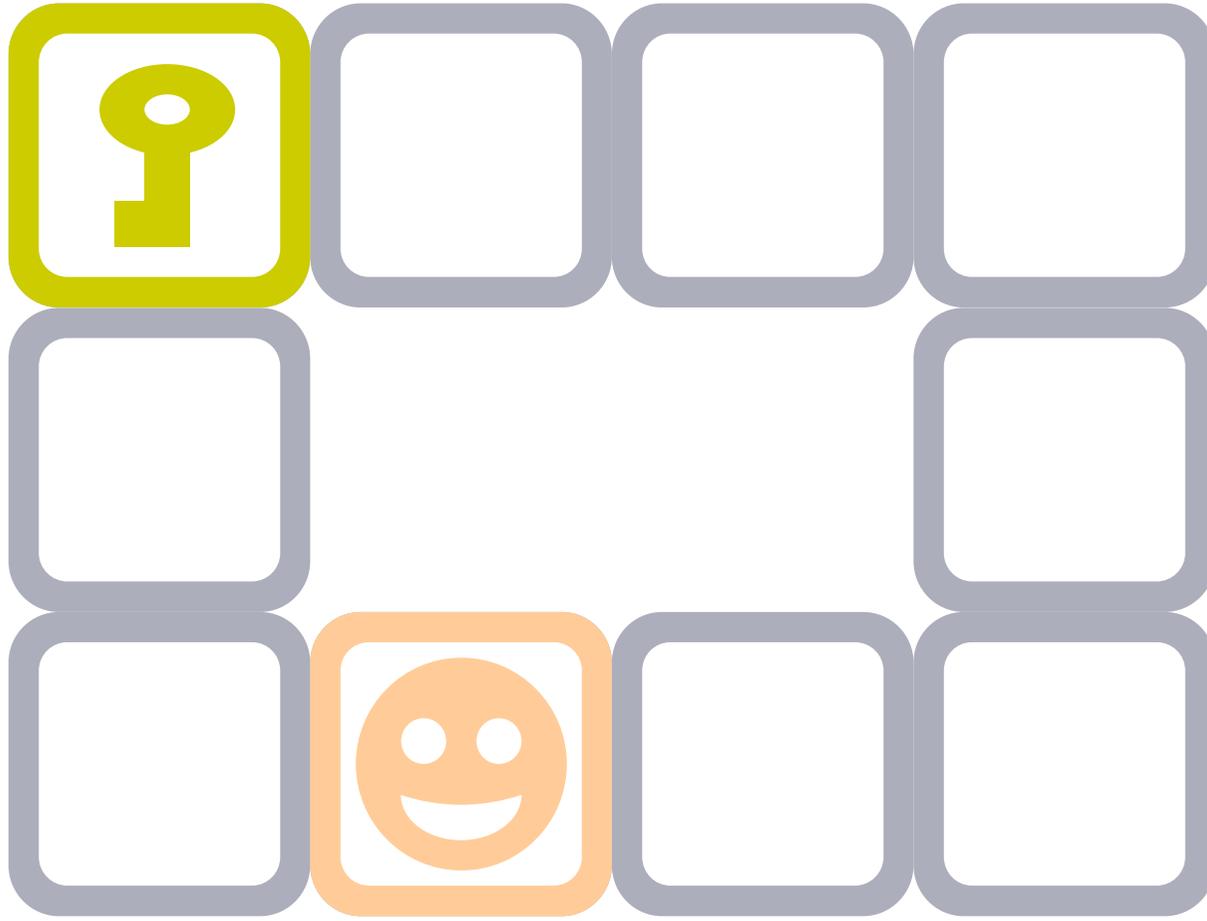
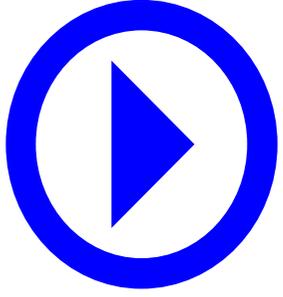
introducción

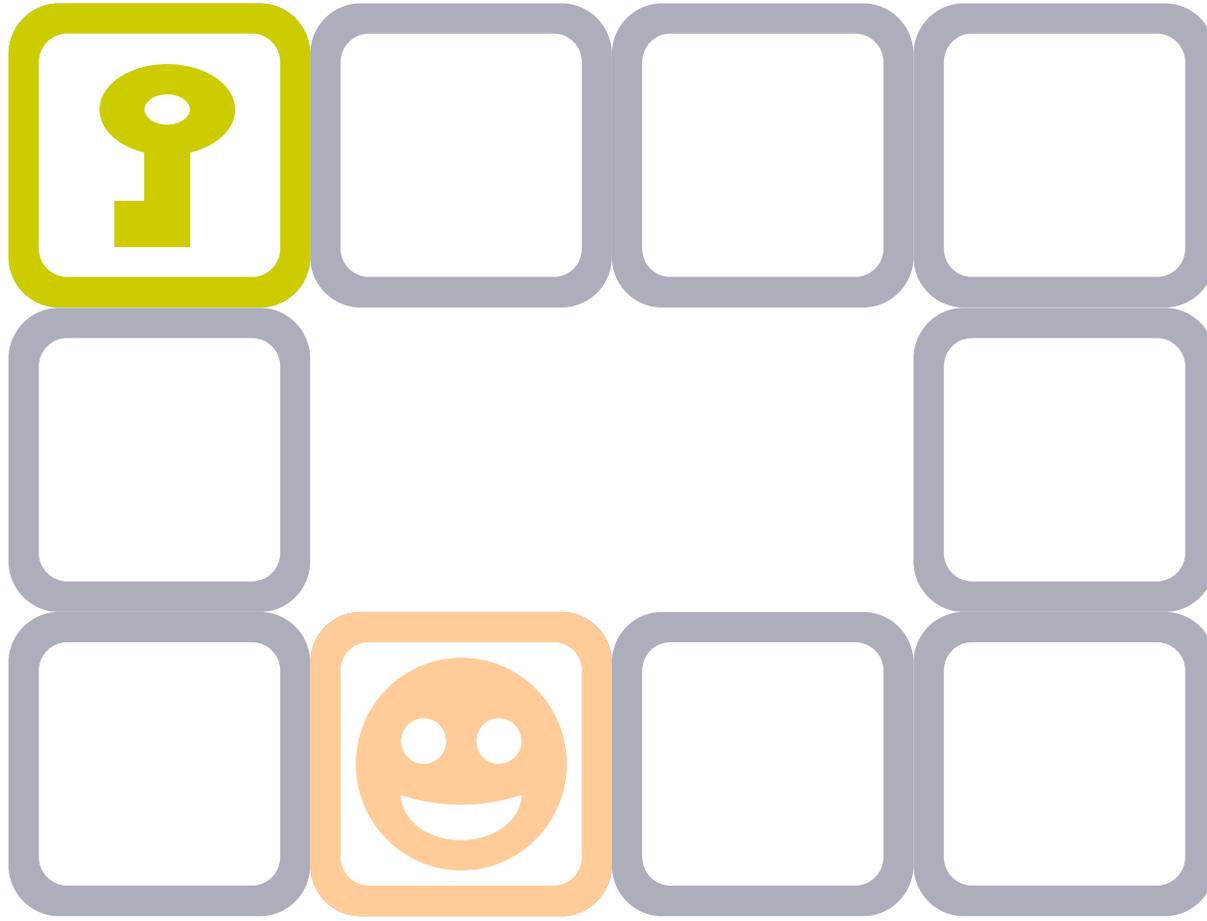
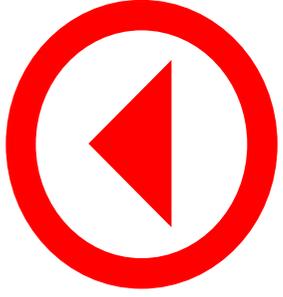
planificación

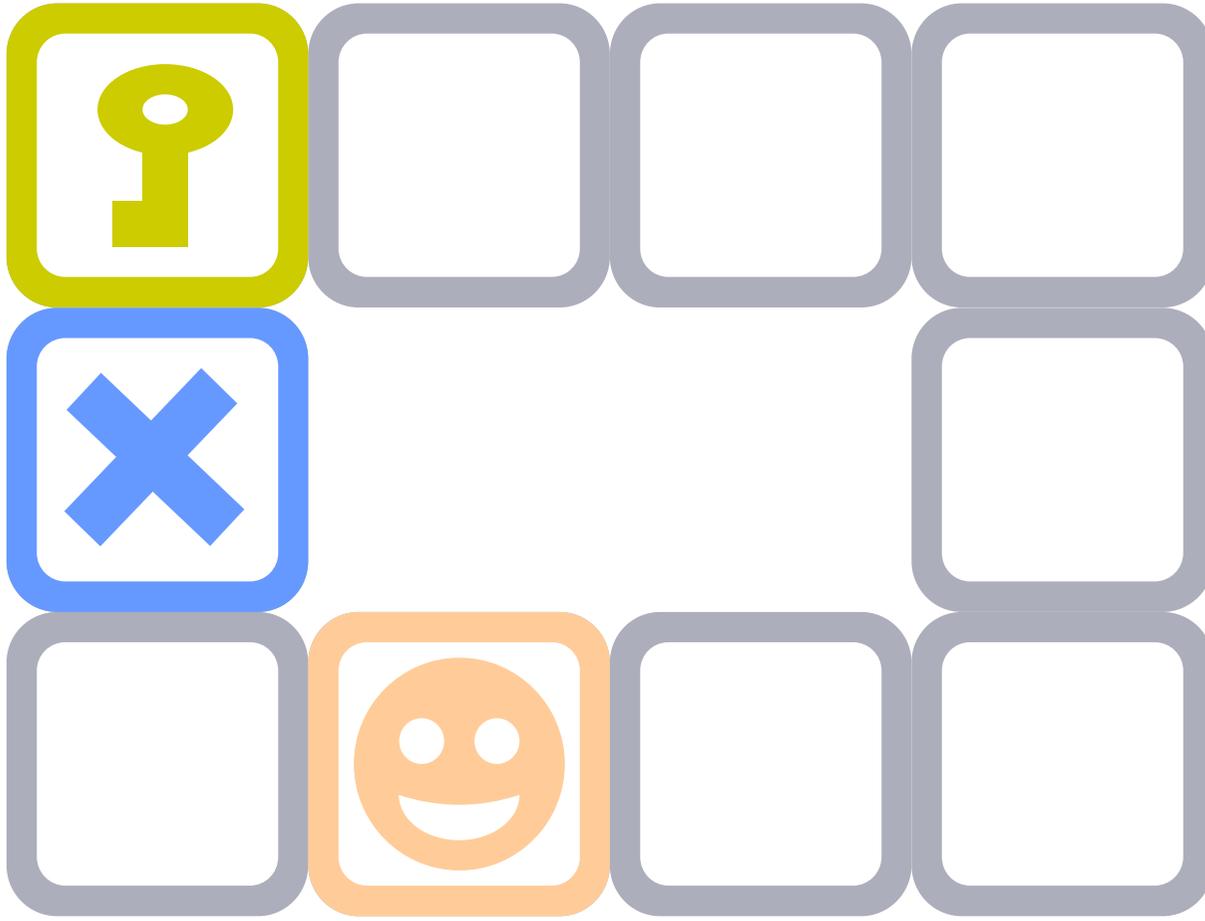


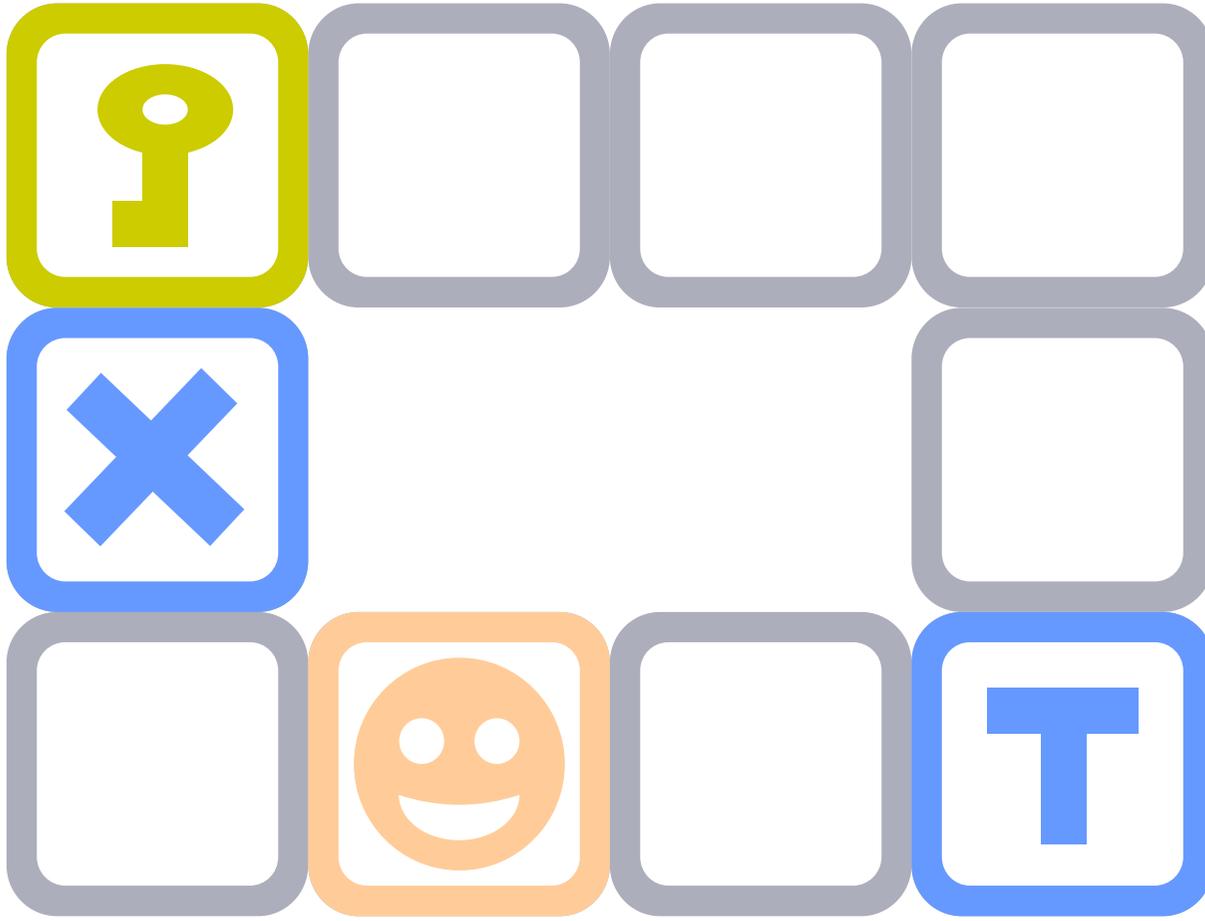




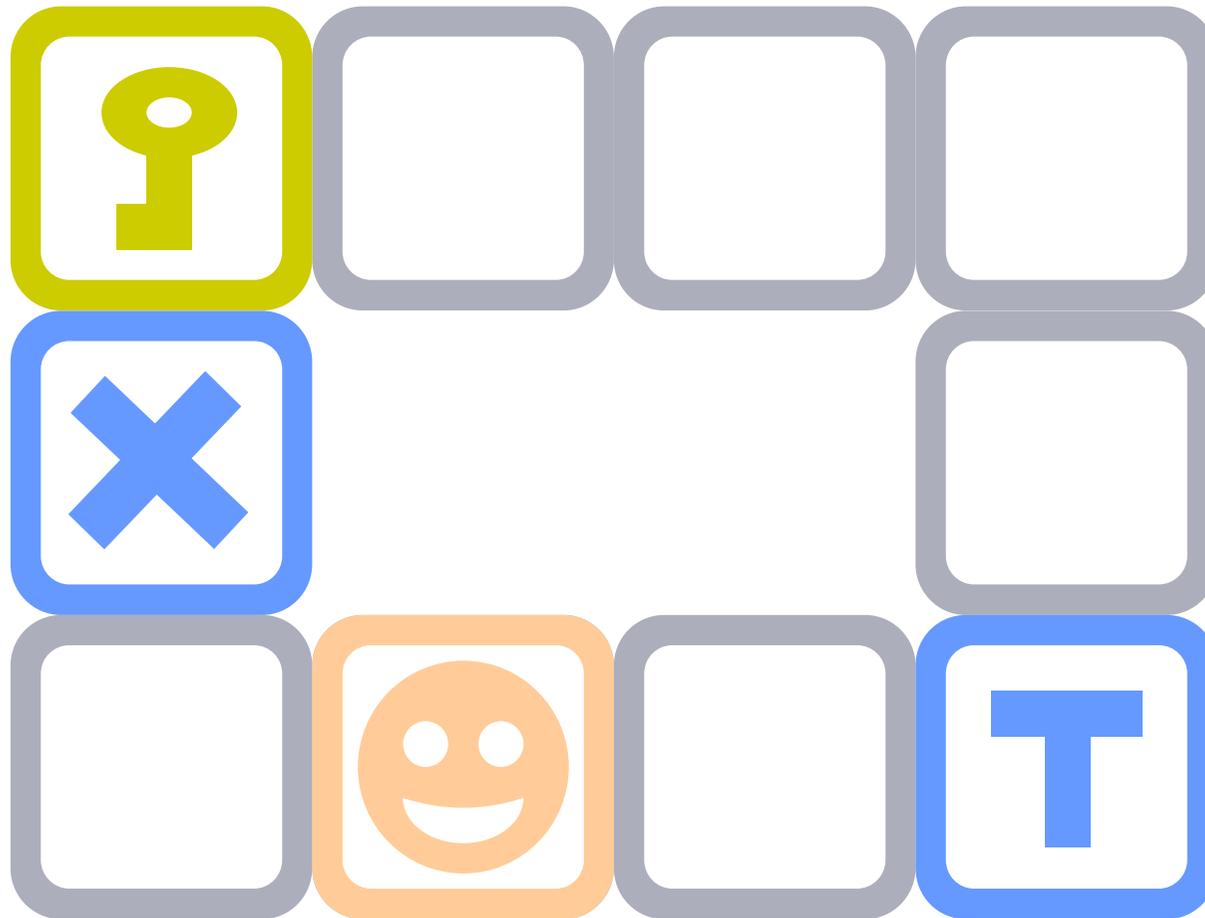


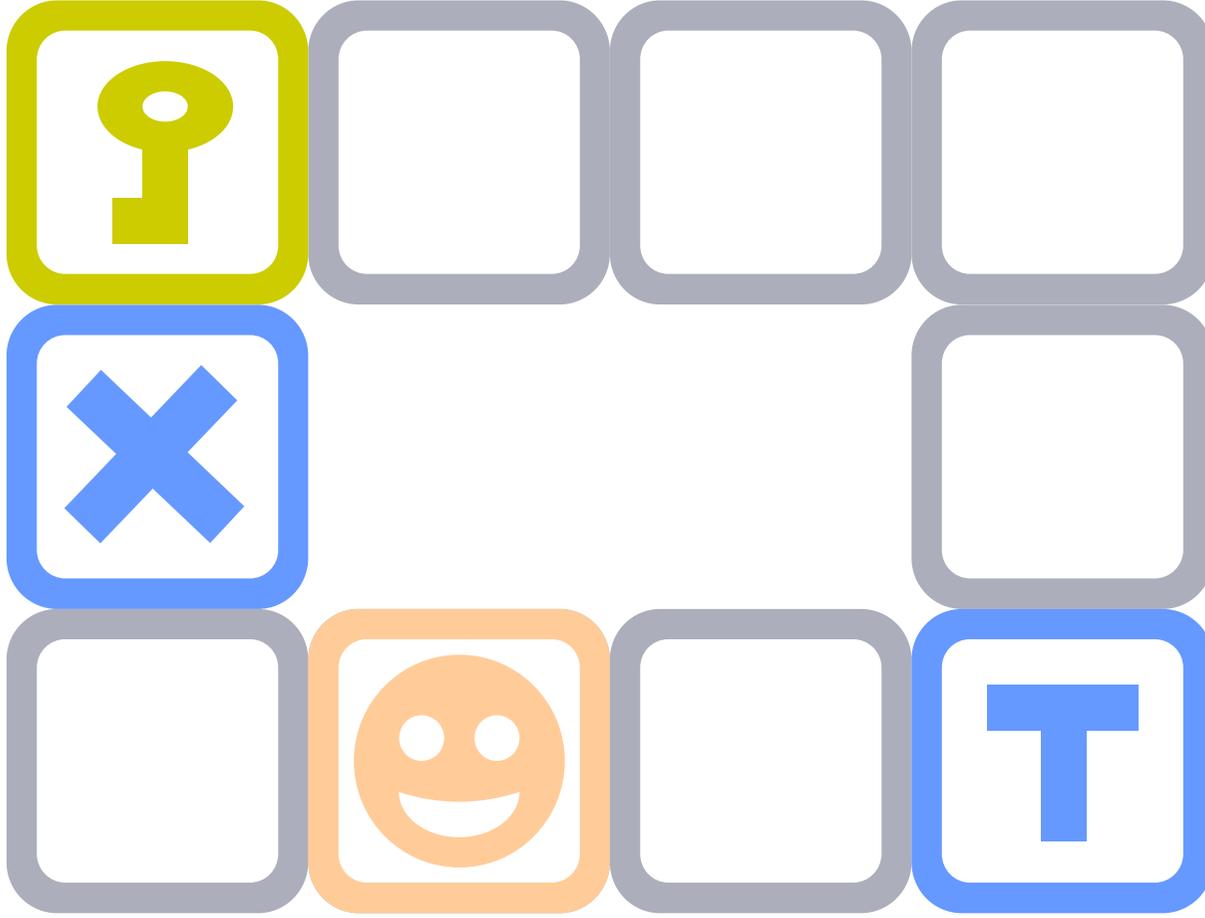
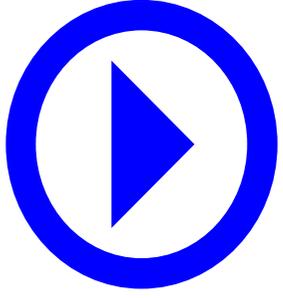


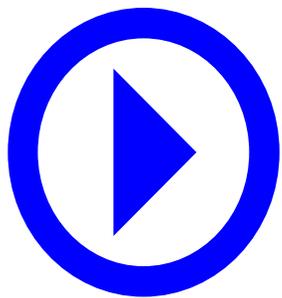




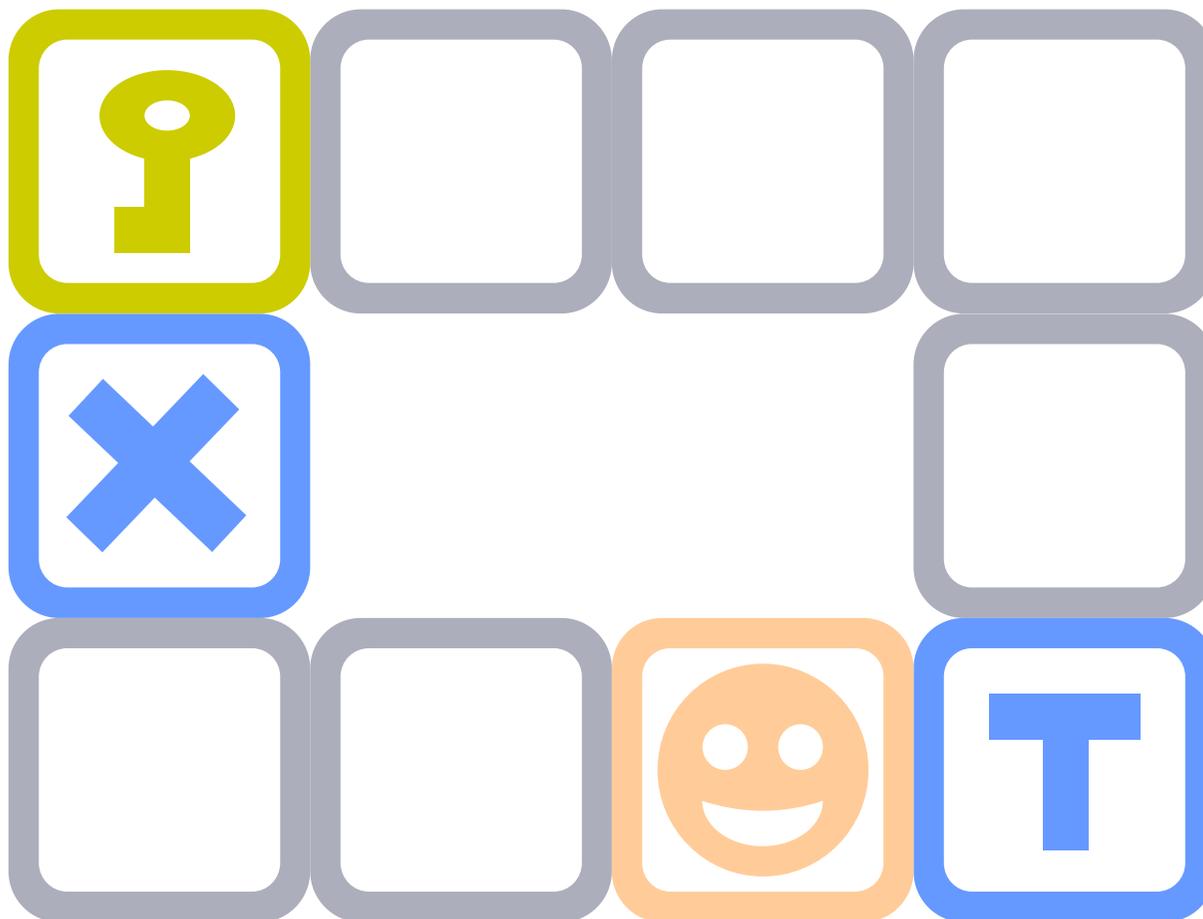
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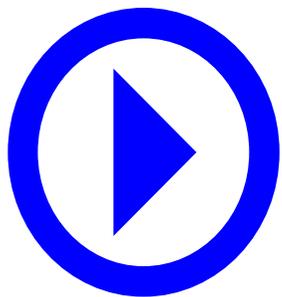




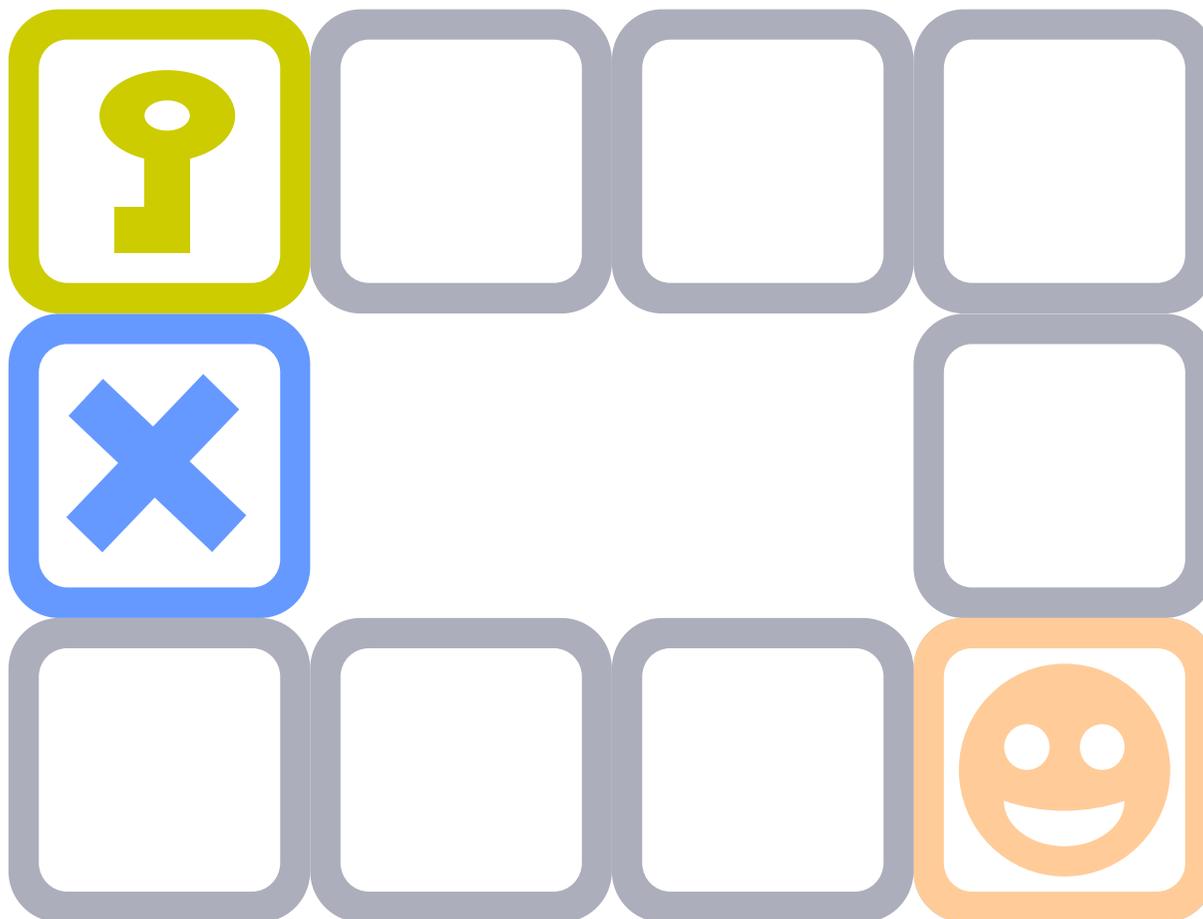


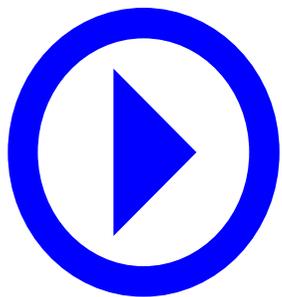
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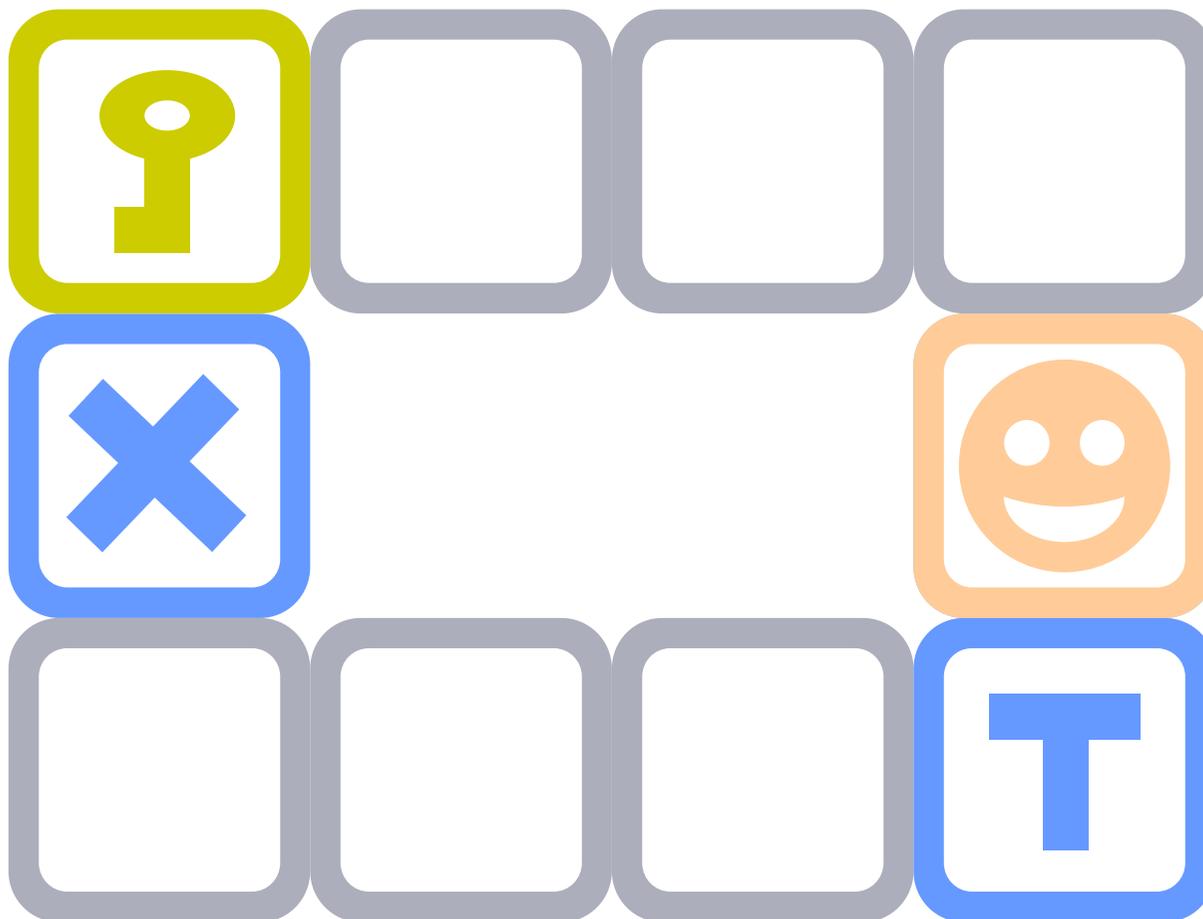


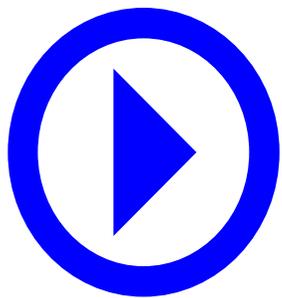
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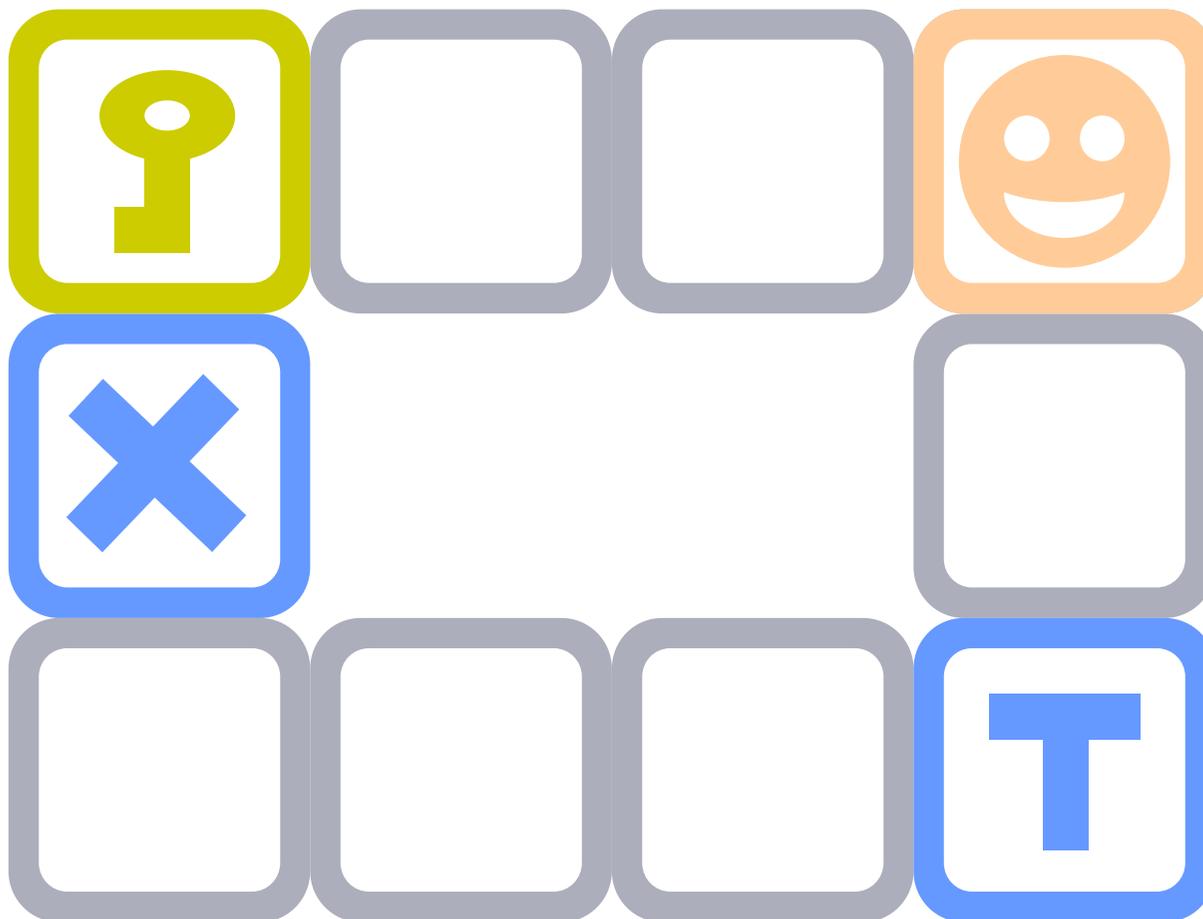


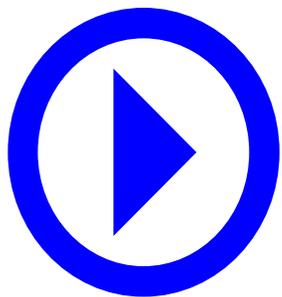
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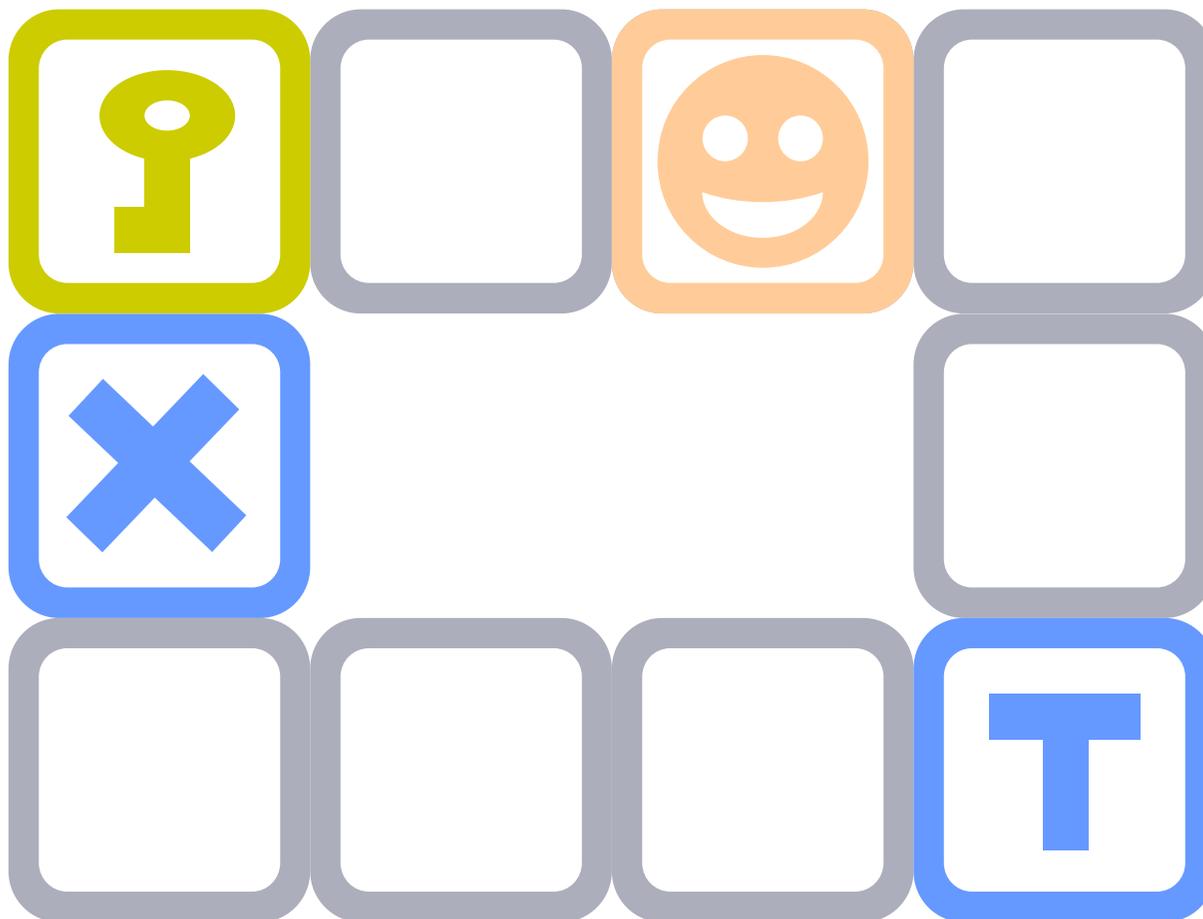


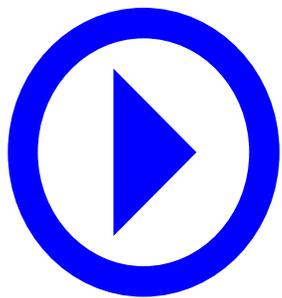
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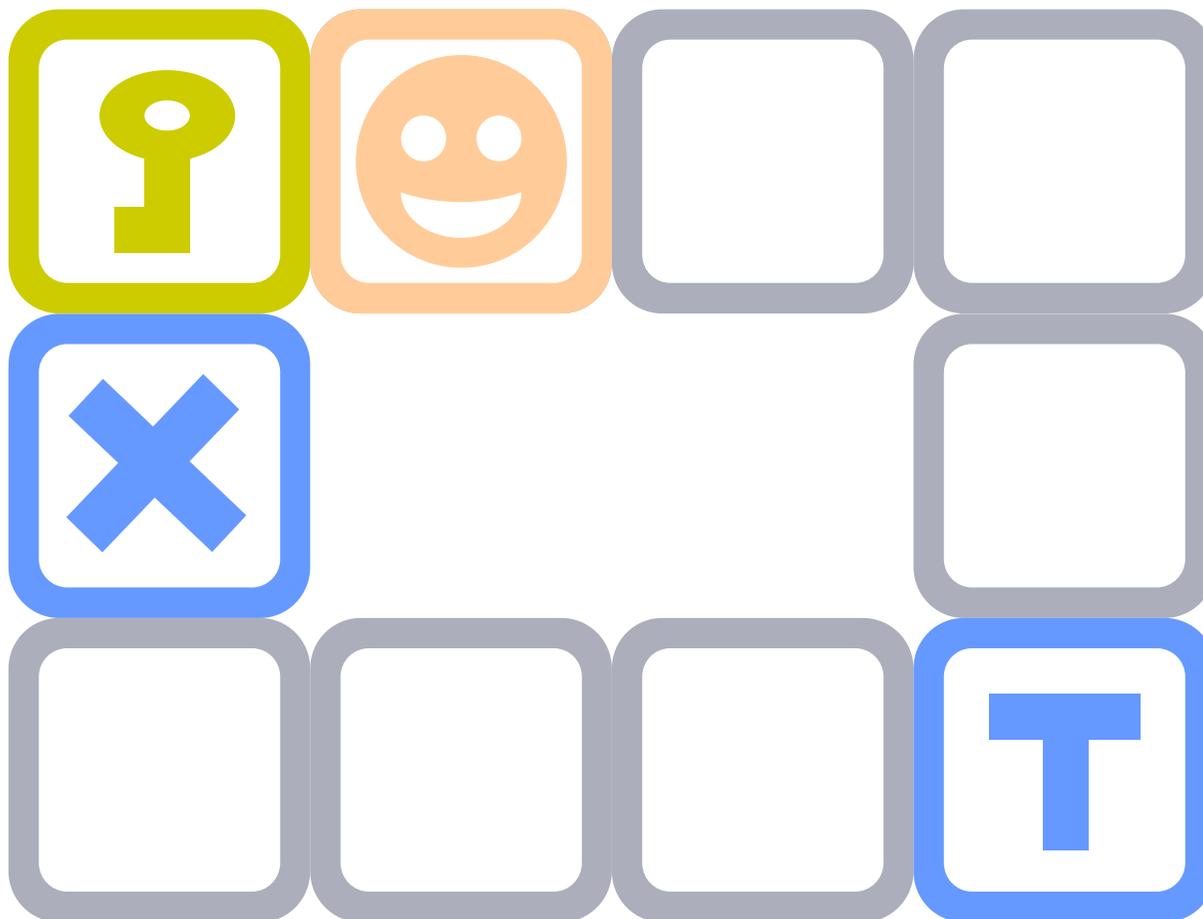


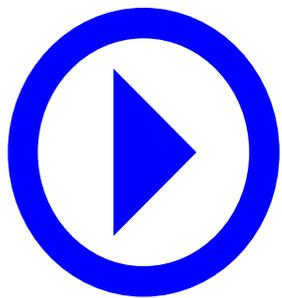
5) Ir izquierda



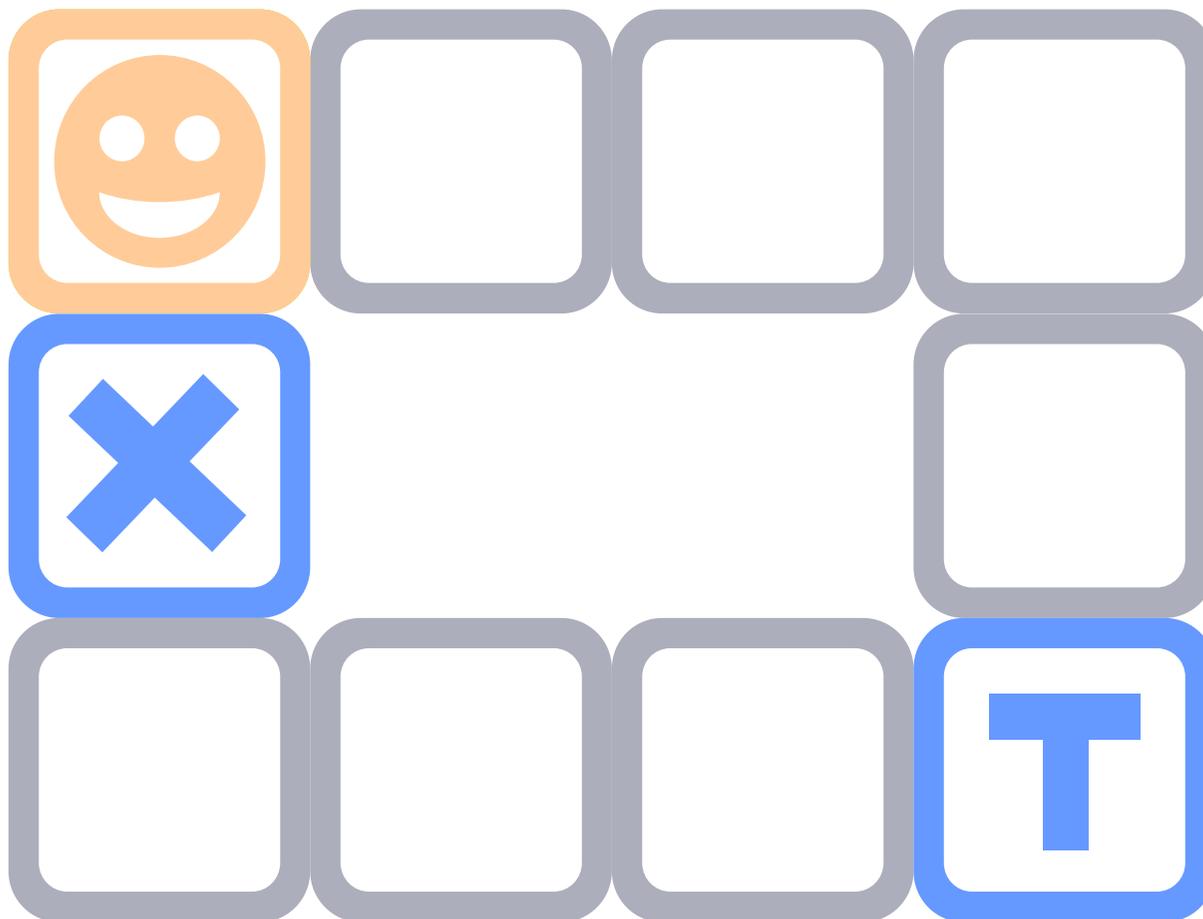


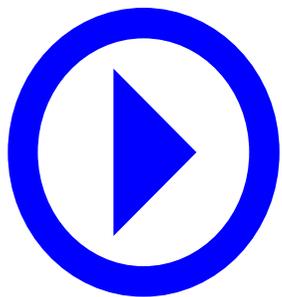
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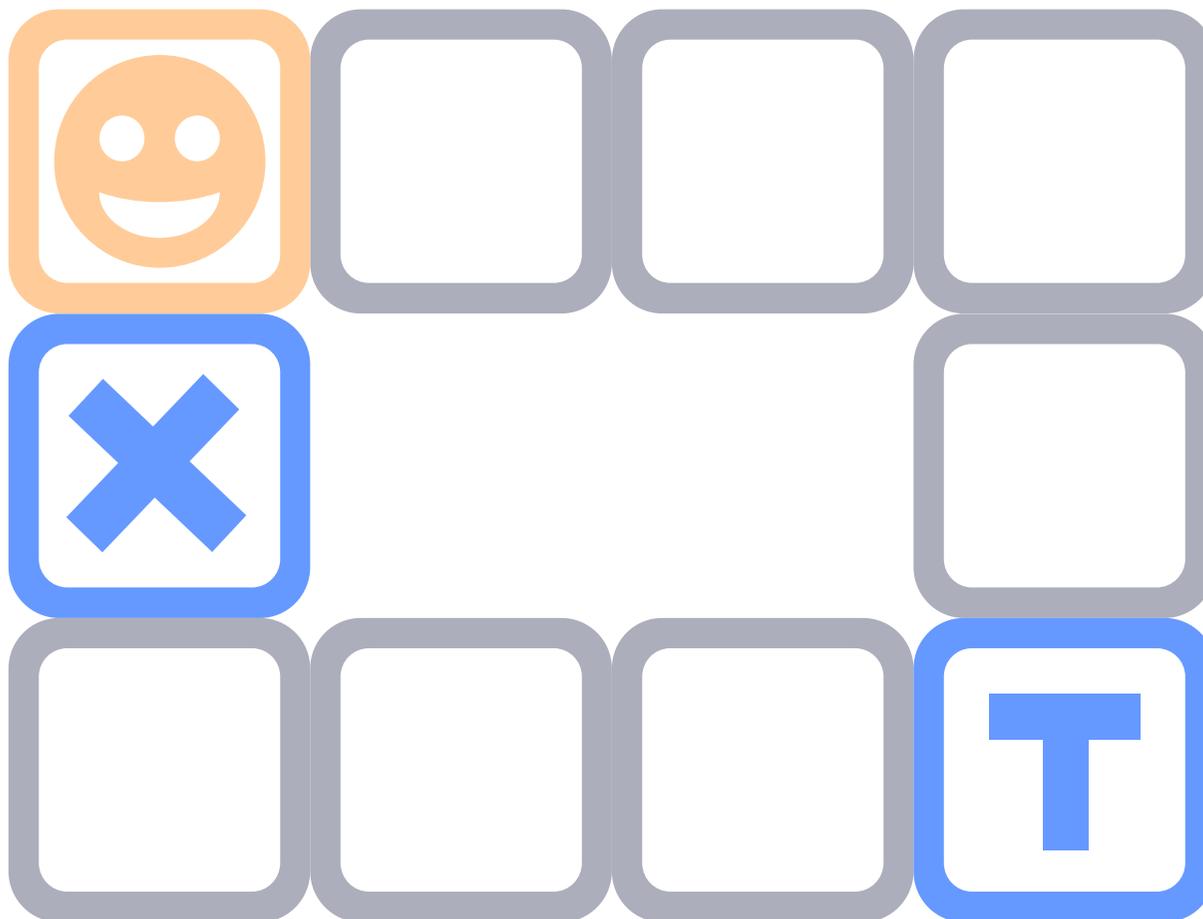


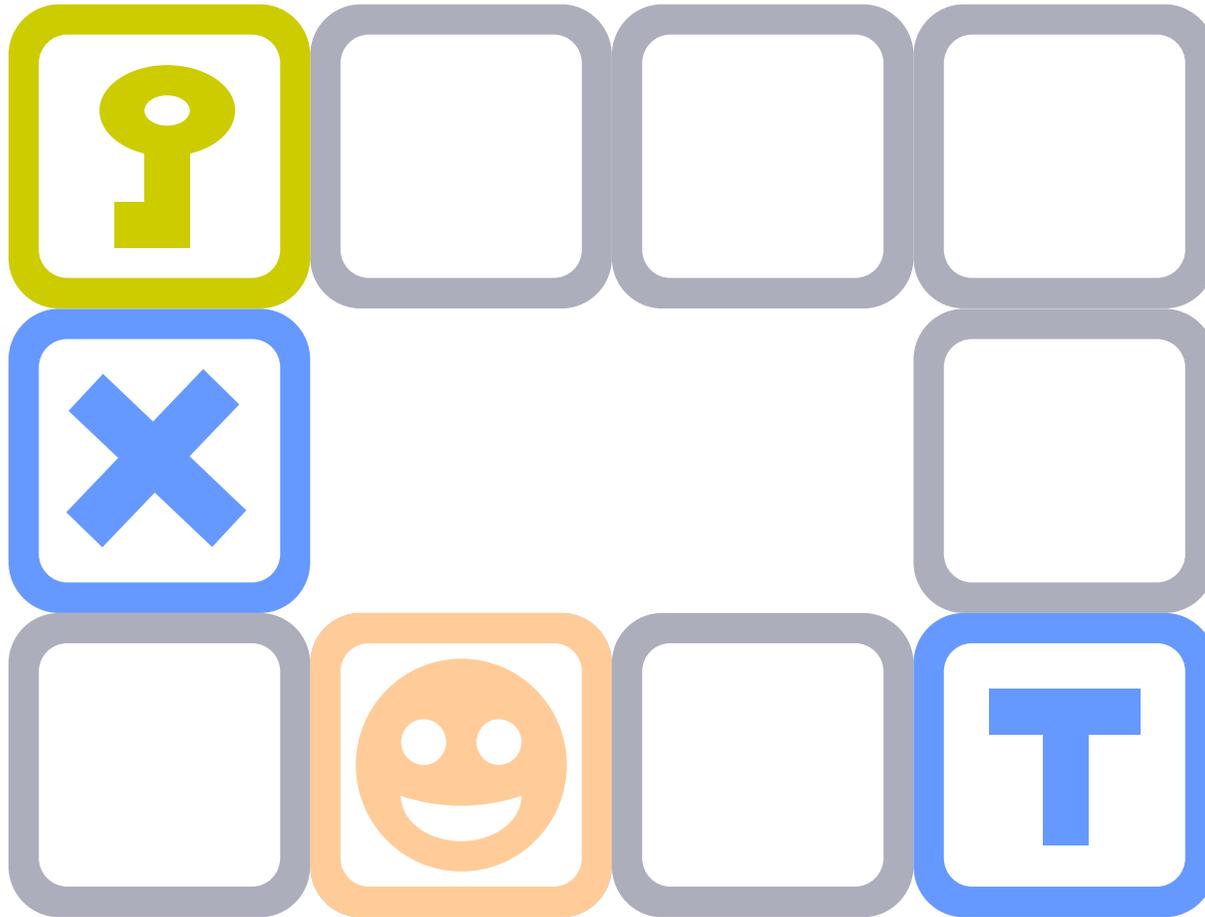
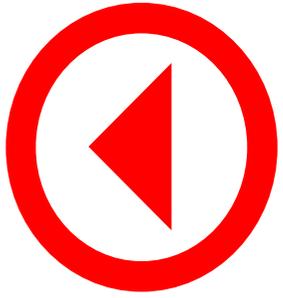
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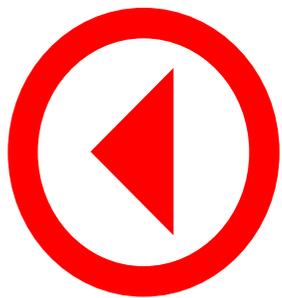




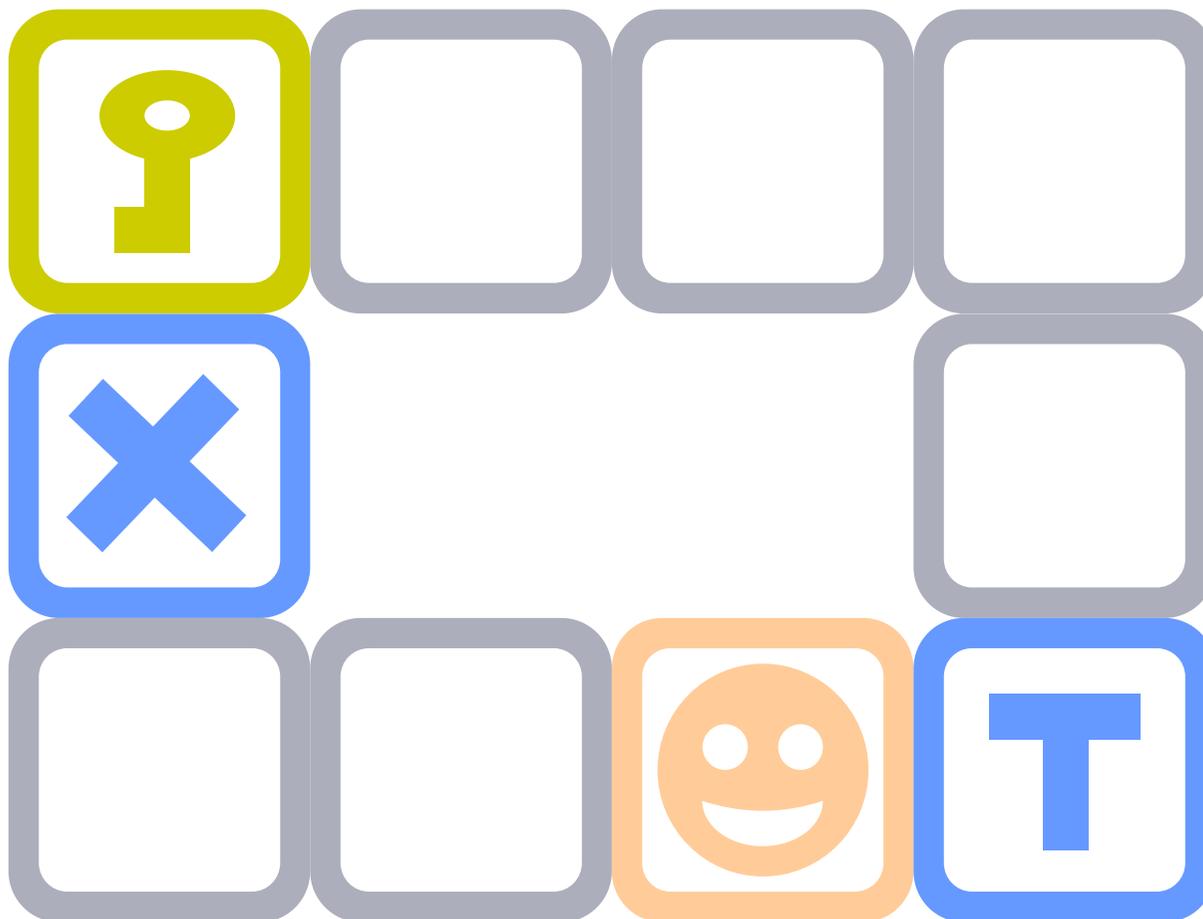
8) Coger llave

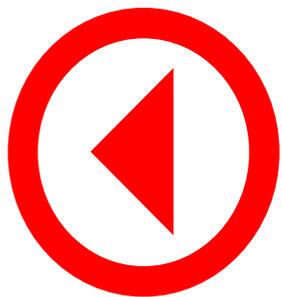




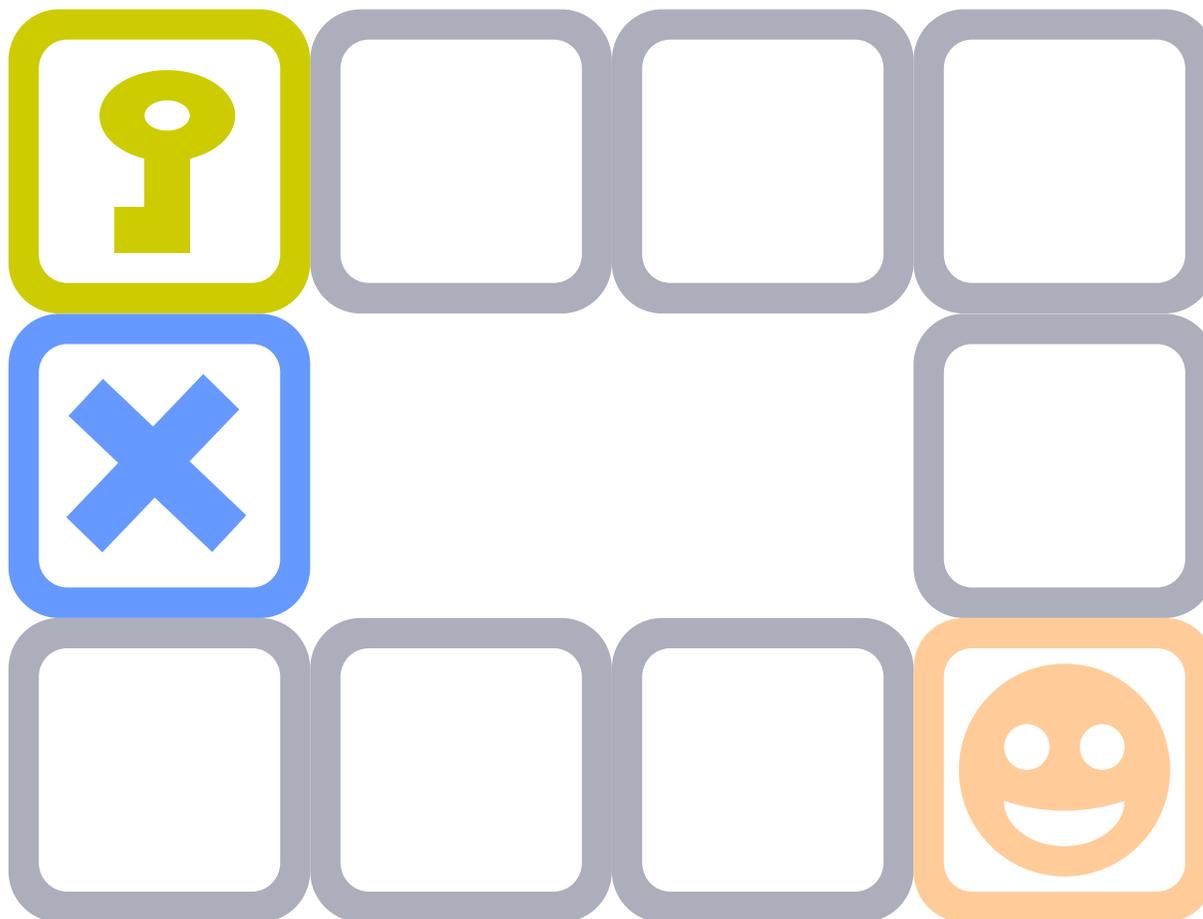


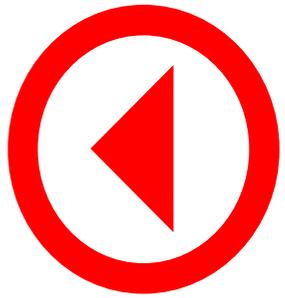
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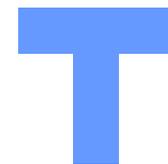
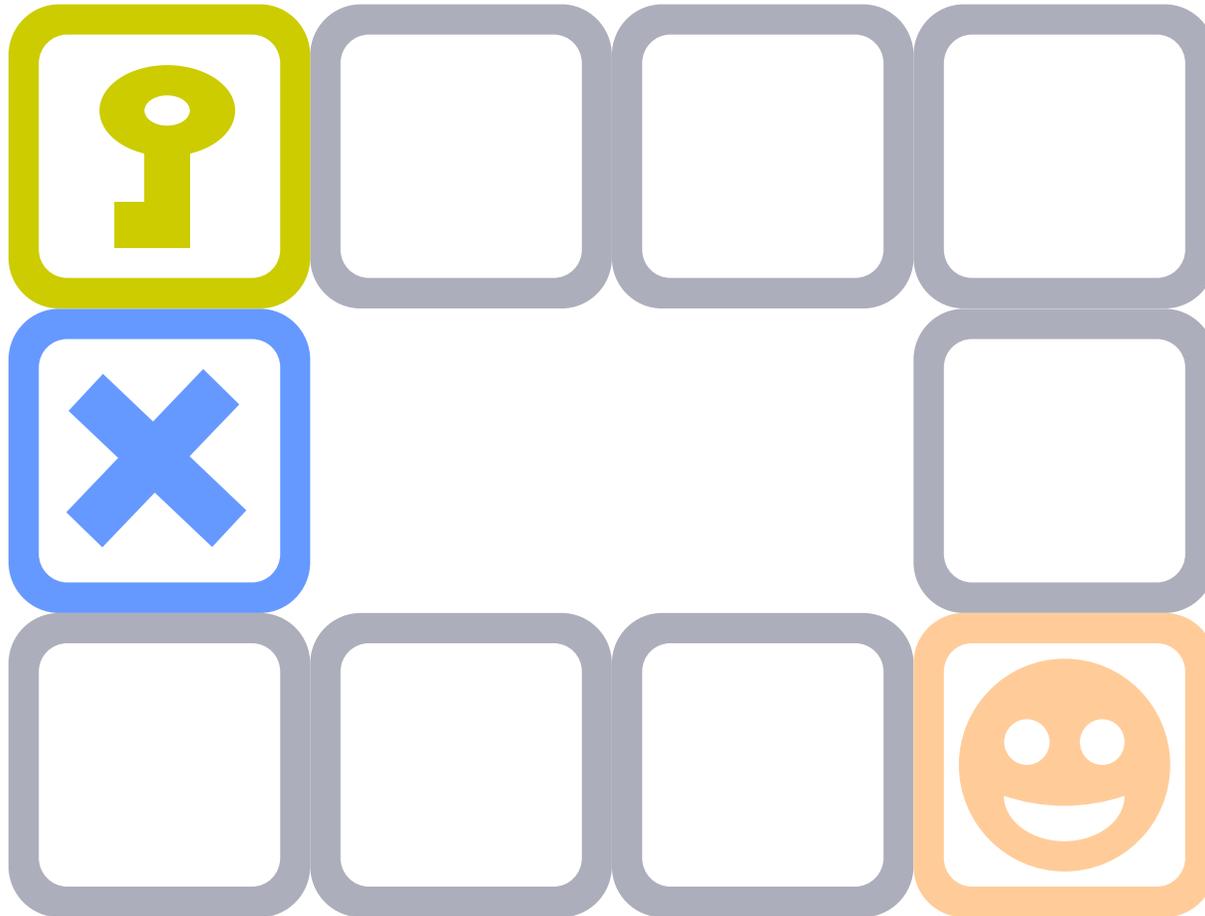


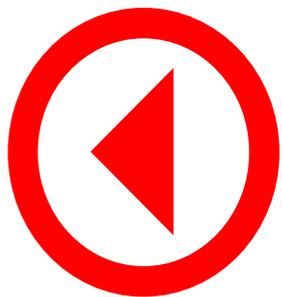
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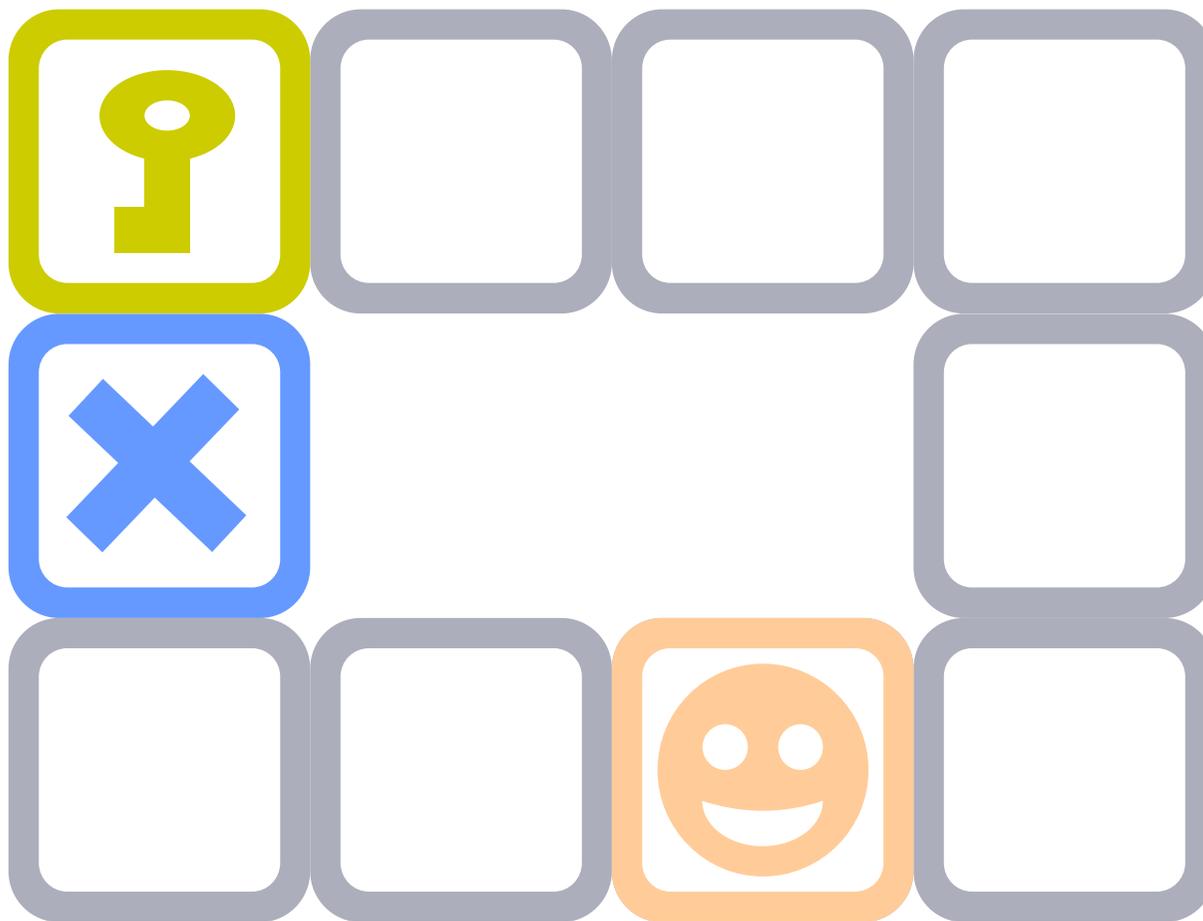


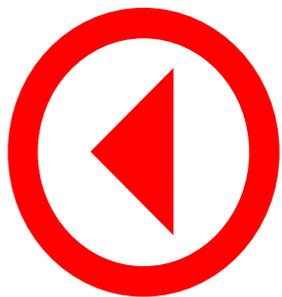
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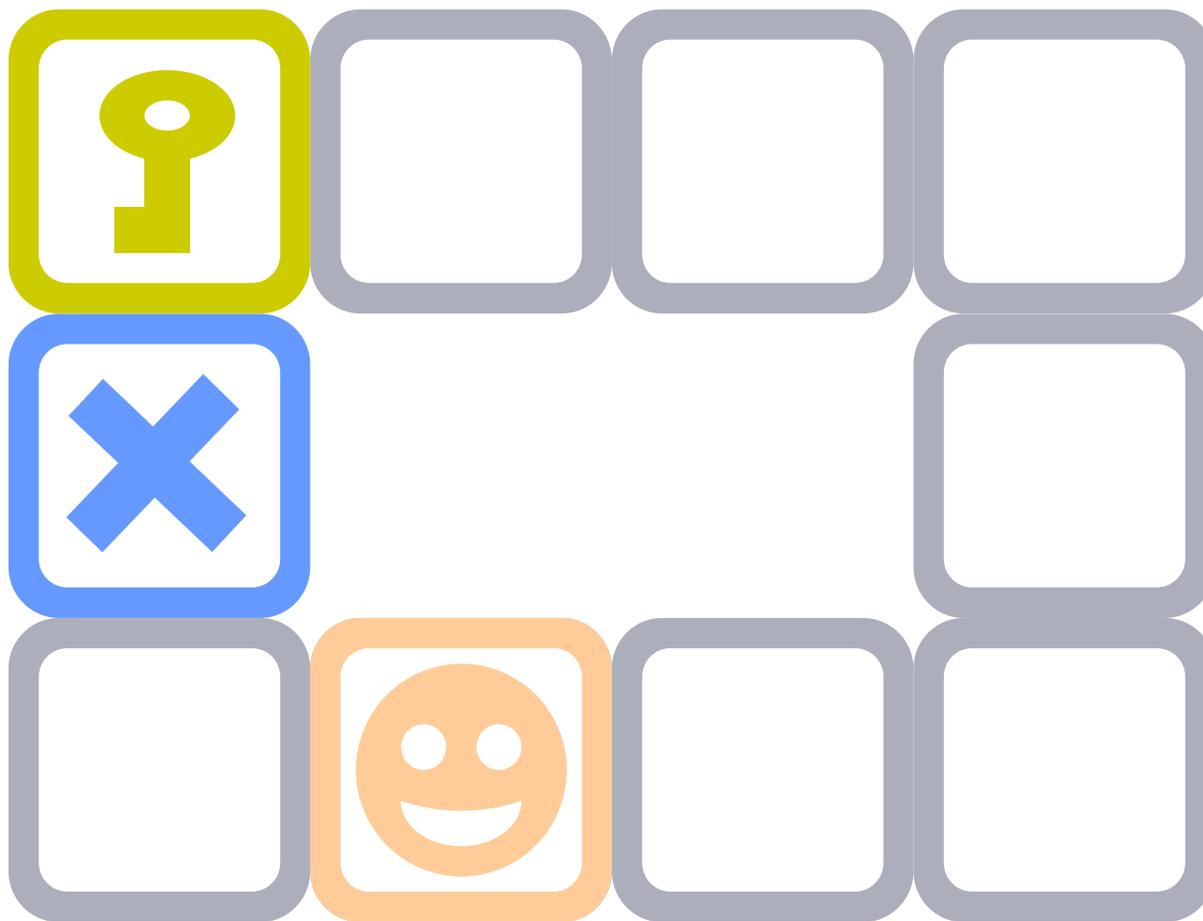


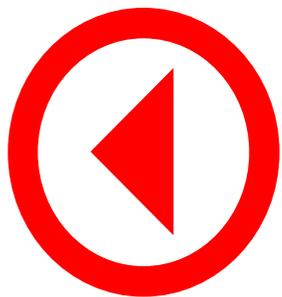
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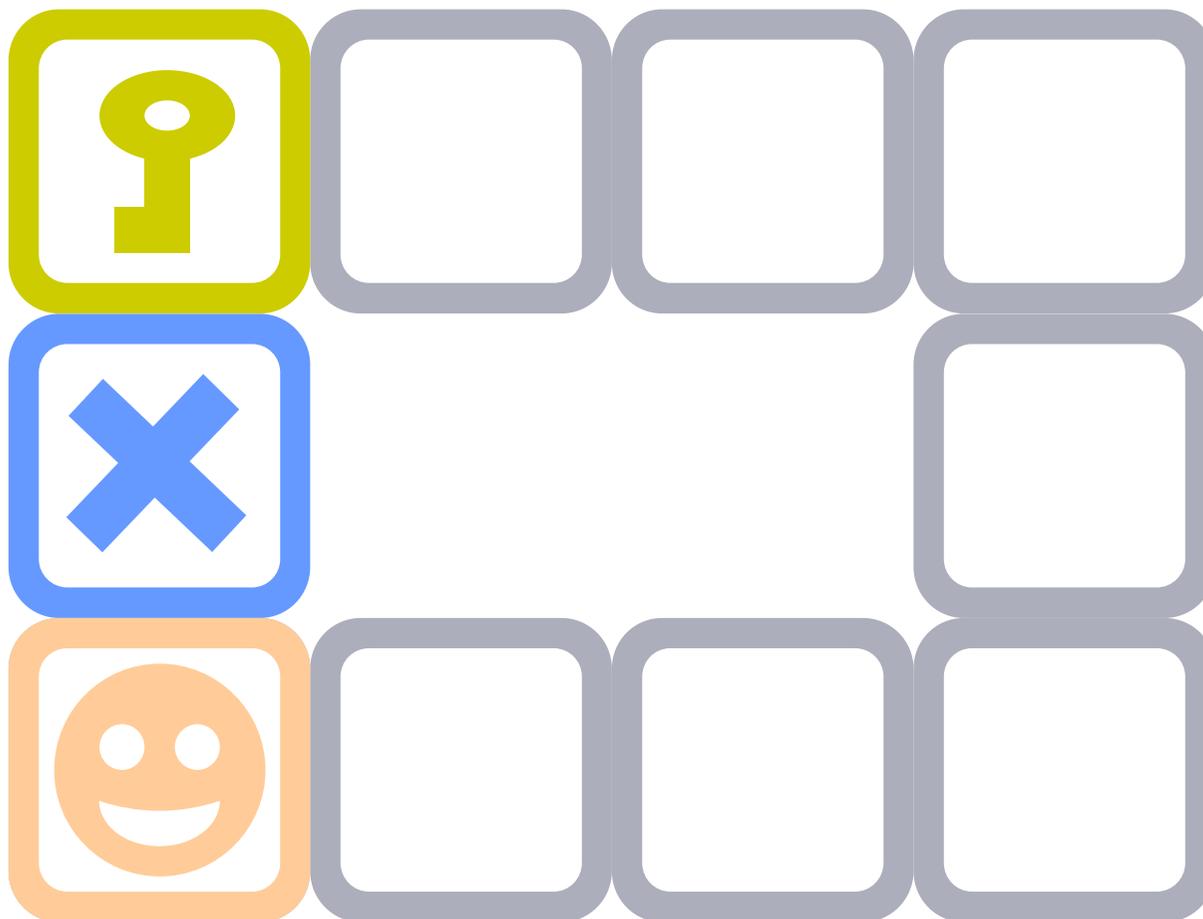


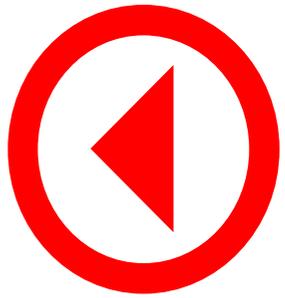
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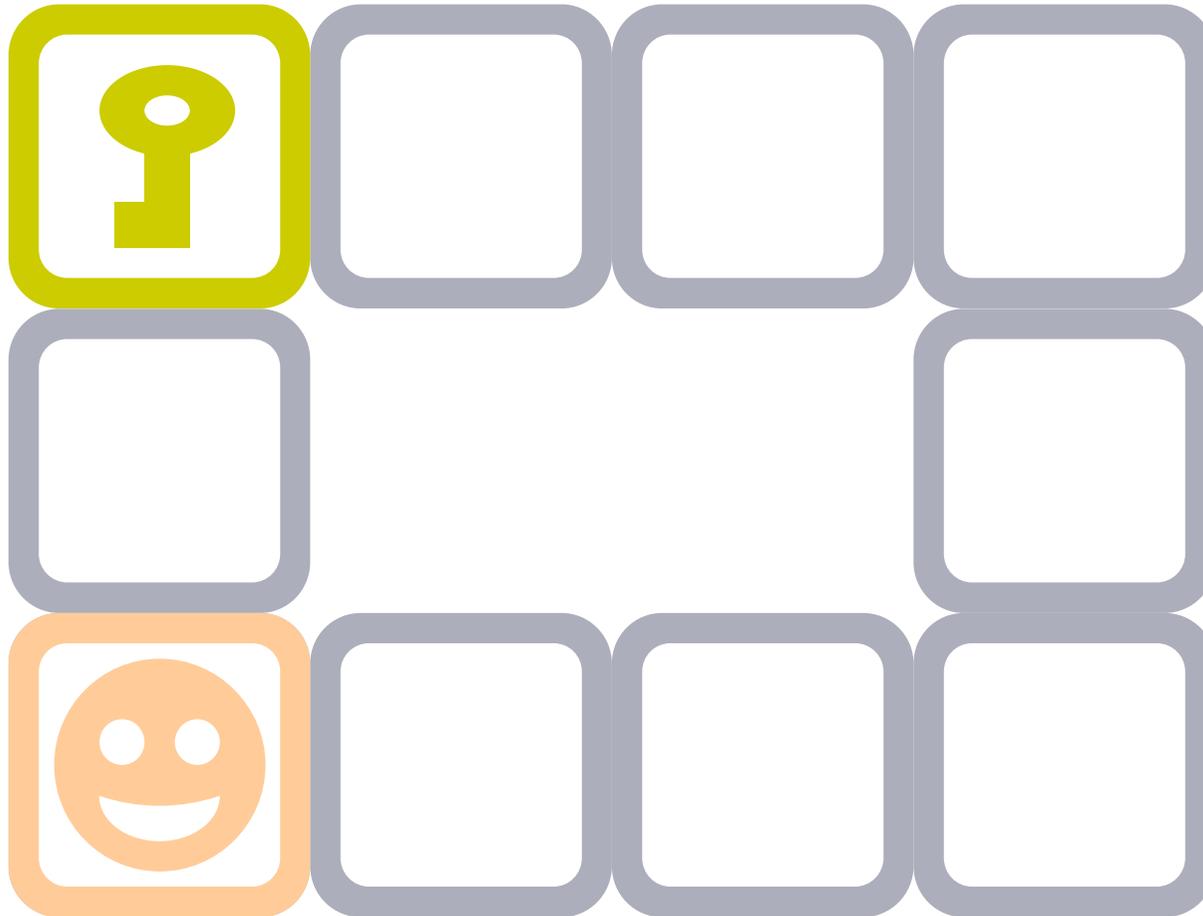


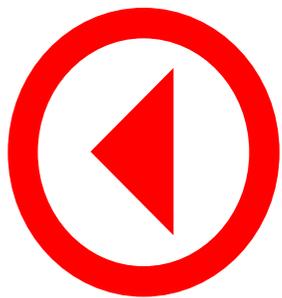
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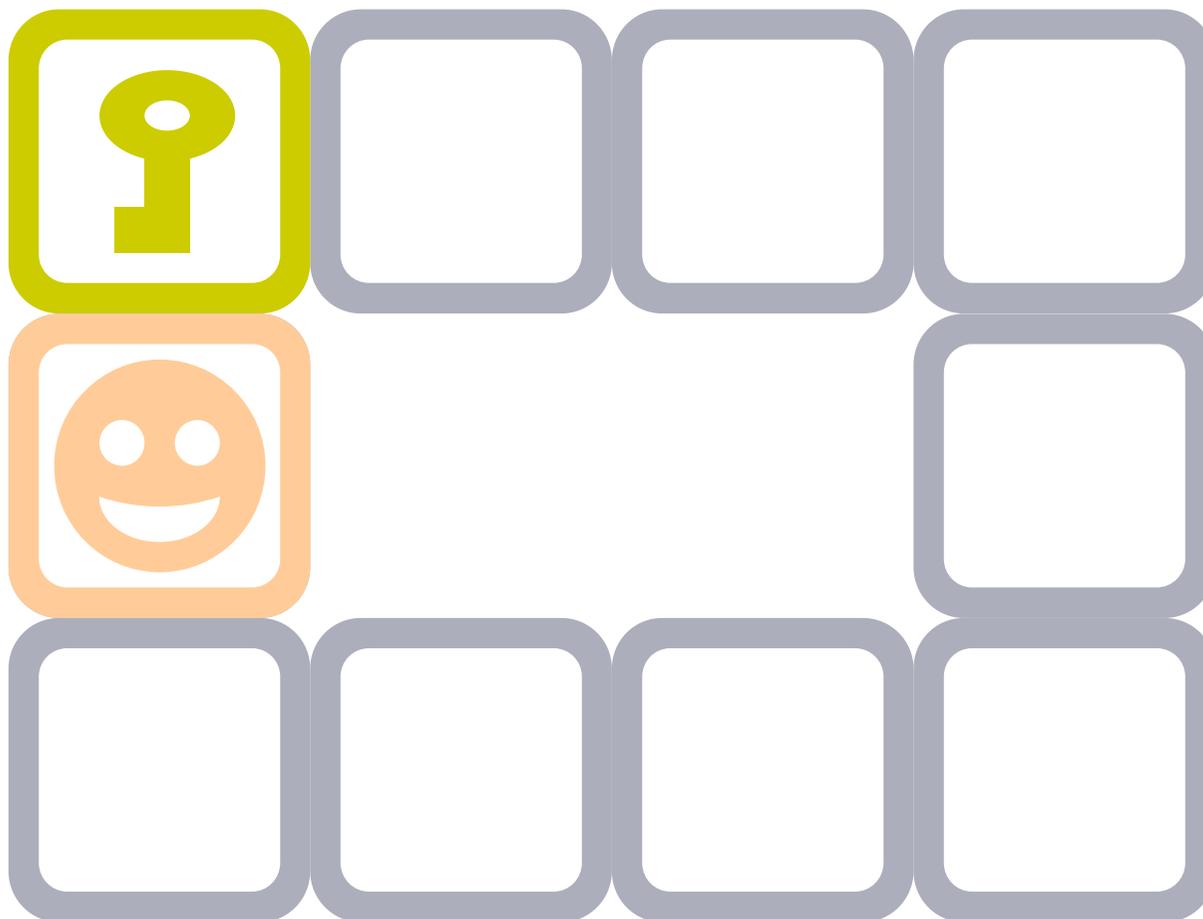


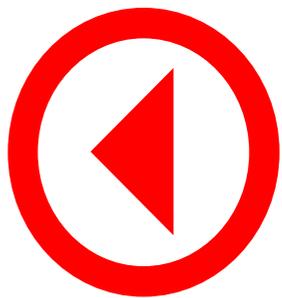
7) Usar martillo



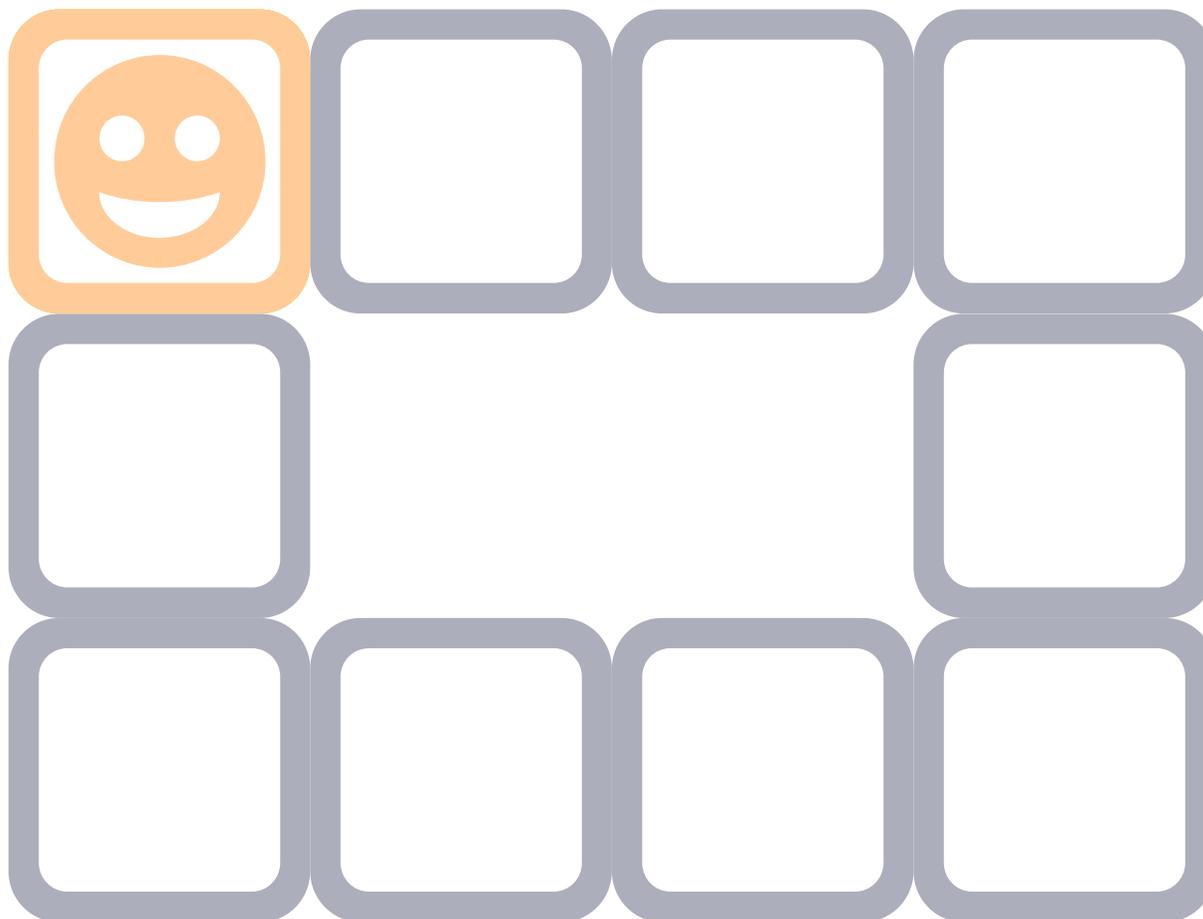


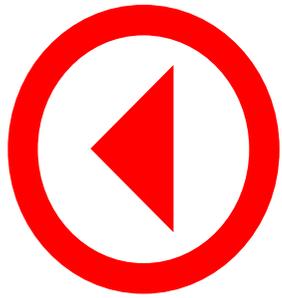
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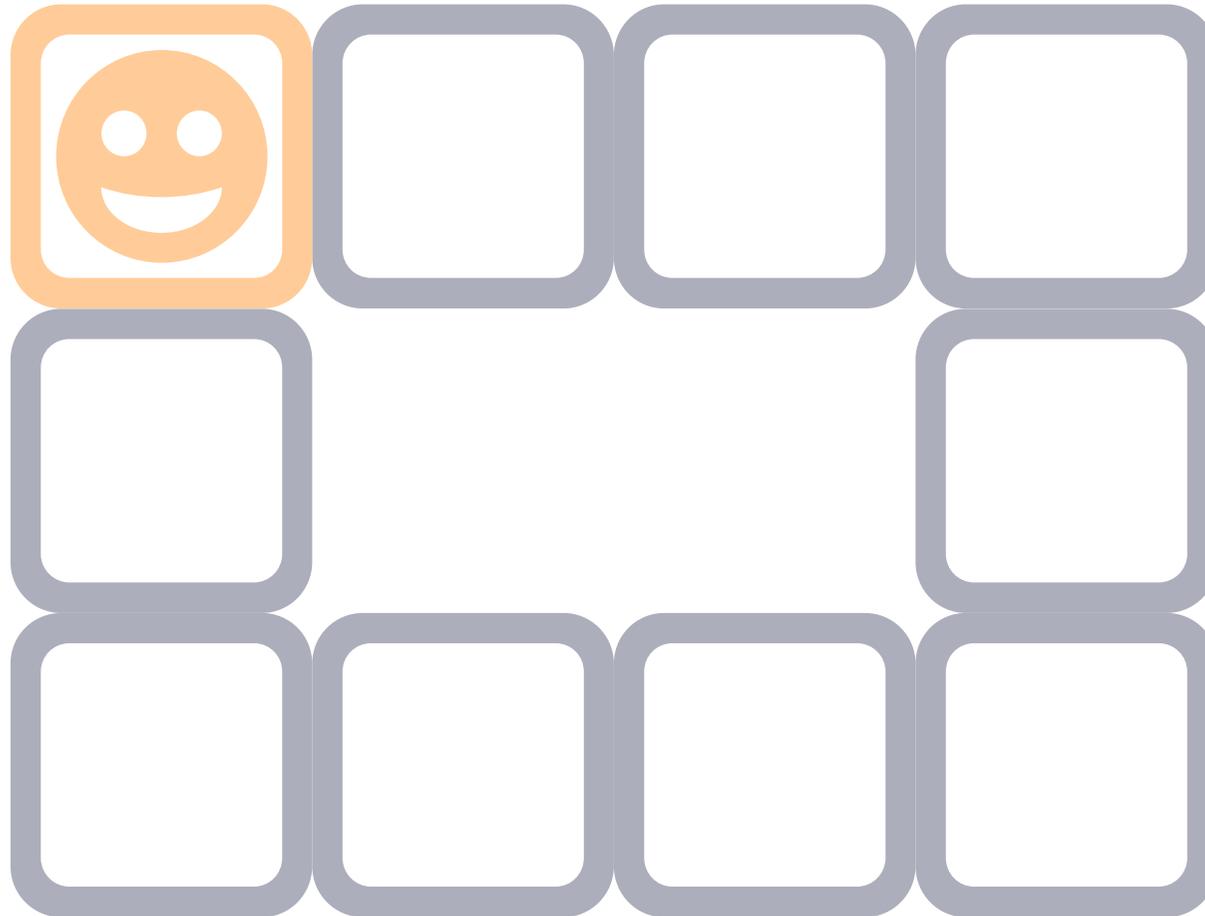


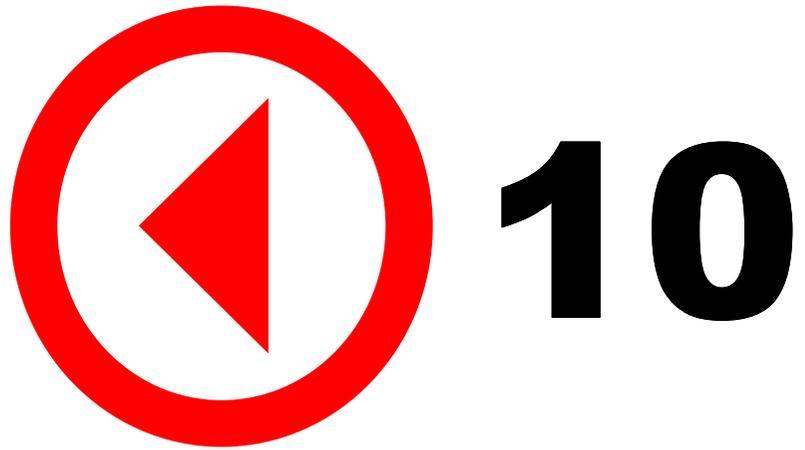
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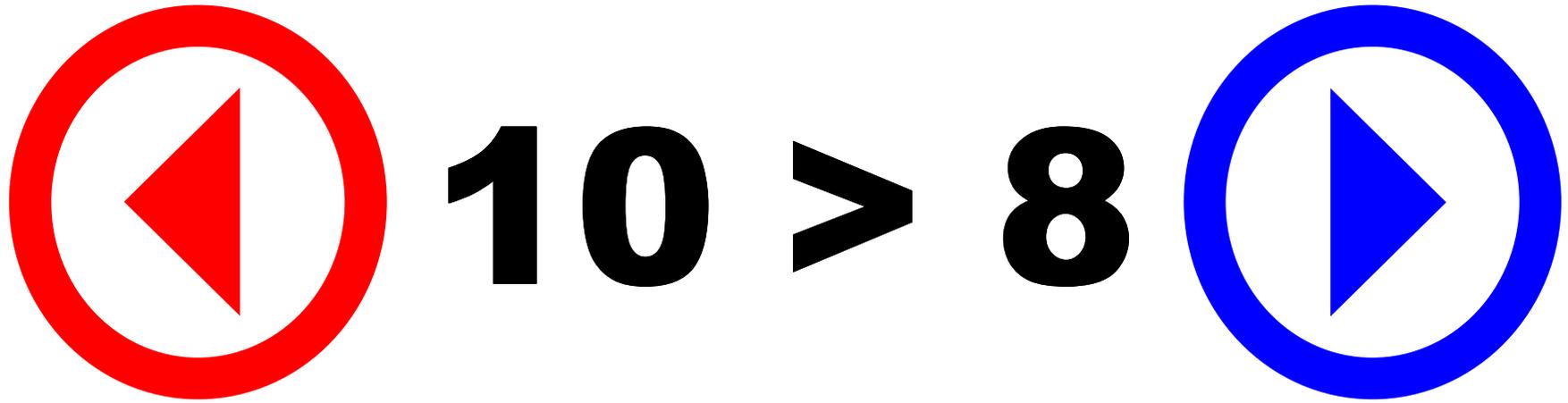


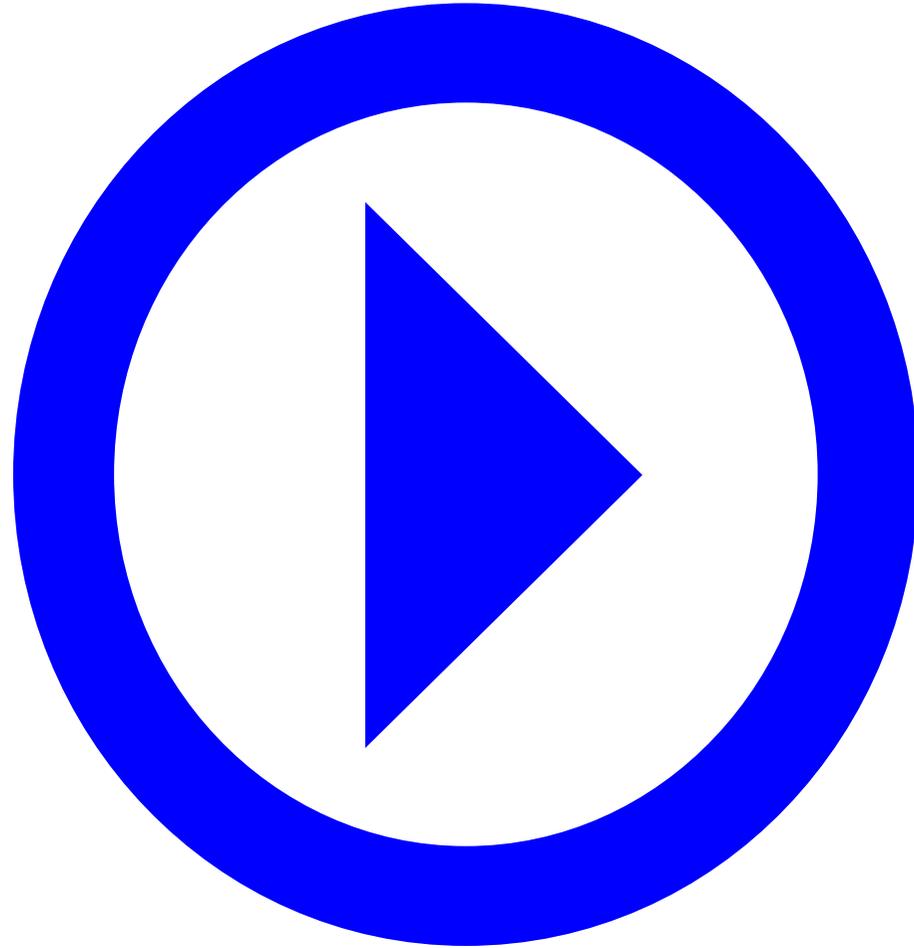


10) Cogger llave









introducción

motivación

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no existe



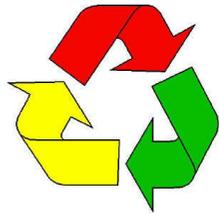
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complejo



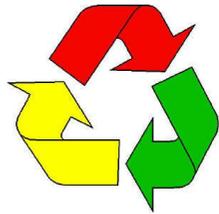
reutilizable



no existe



complejo



reutilizable



comercial



19

millones

32%



introducción

objetivos



en inglés



en inglés



libre



en inglés



libre



funcional



en inglés



libre



funcional



eficiente



en inglés



libre



funcional



eficiente



flexible



en inglés



libre



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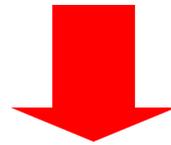
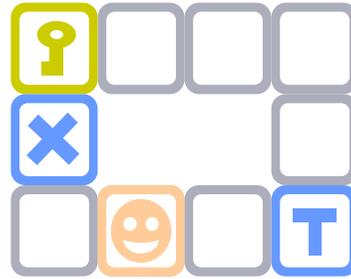


documentado

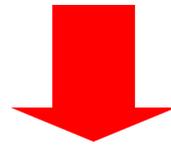
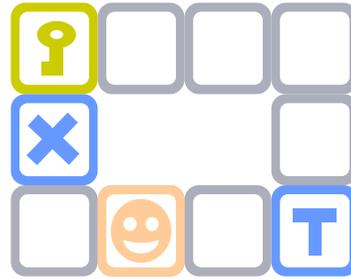
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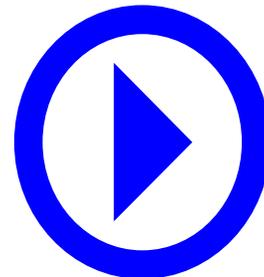
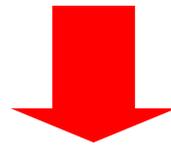
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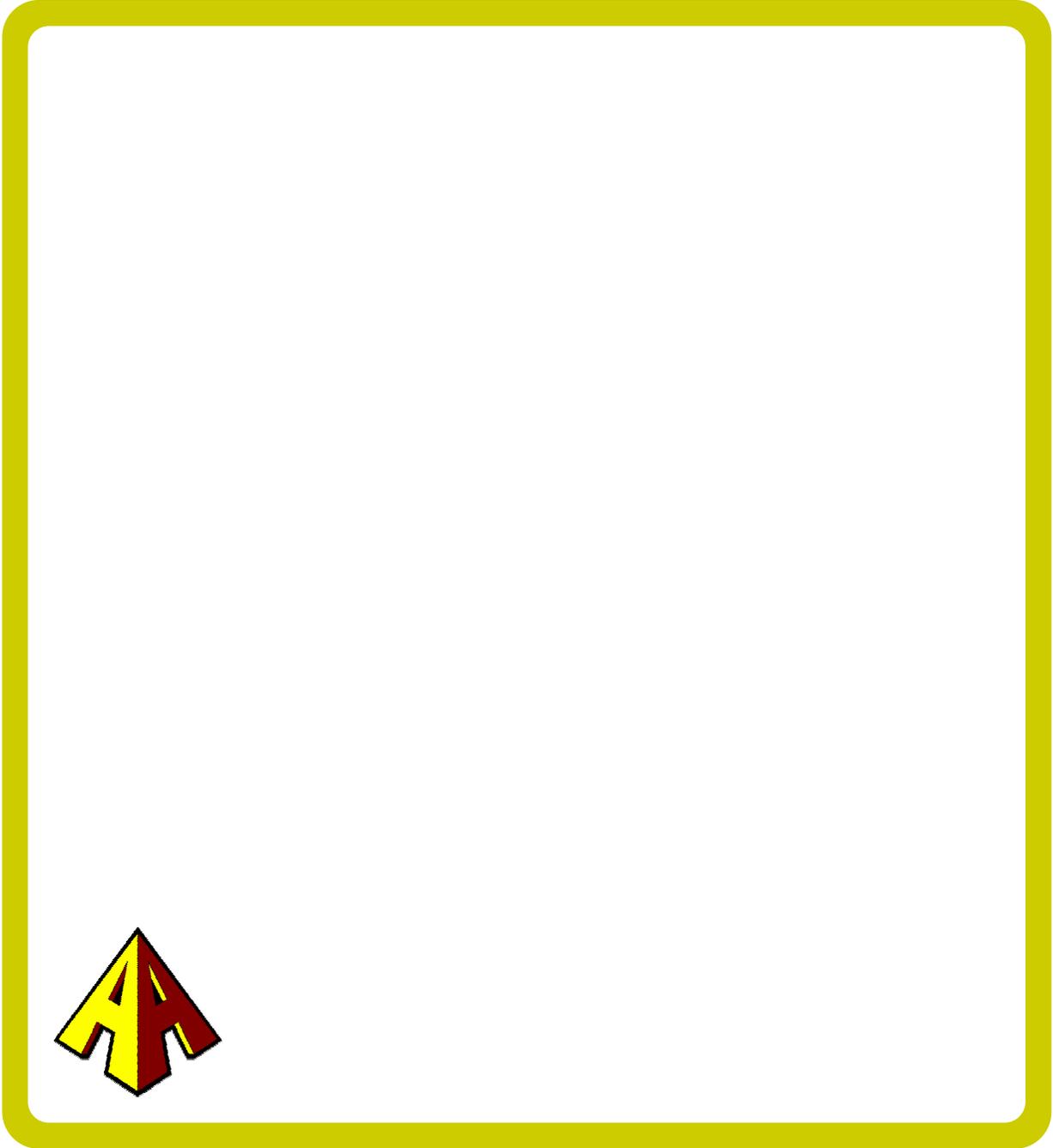
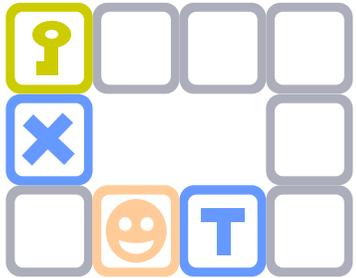


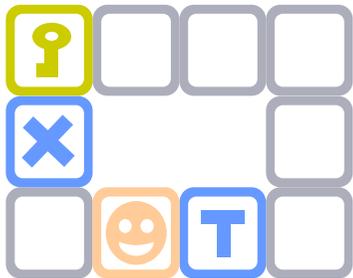
Planificación



 **Planificación**

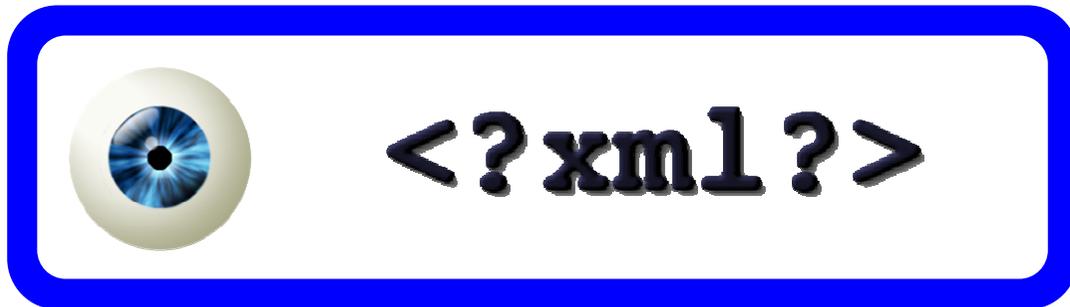


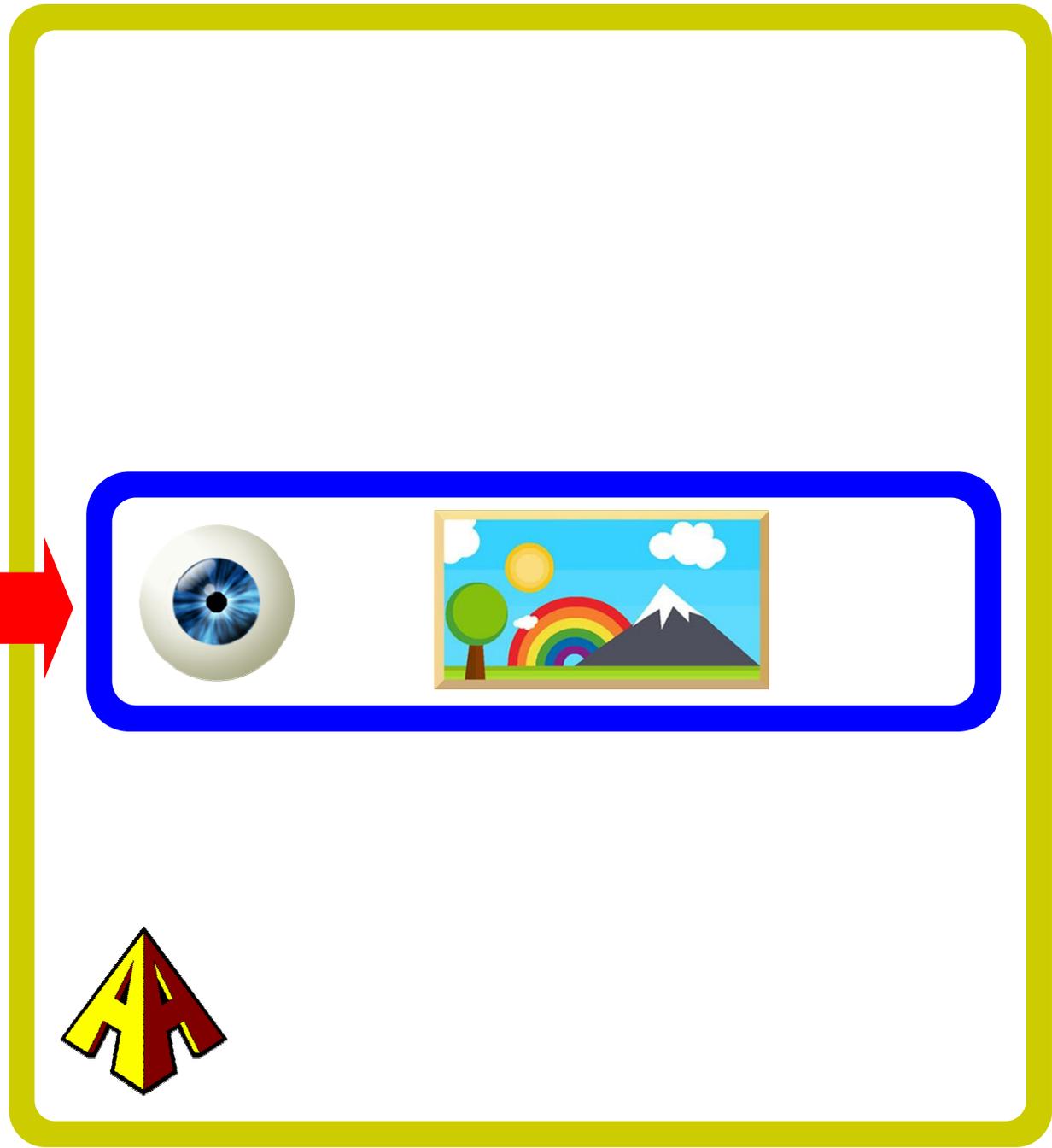


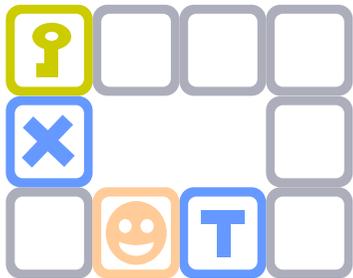


**Representación
Específica**



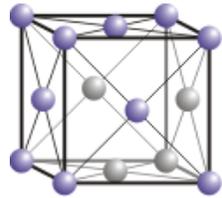
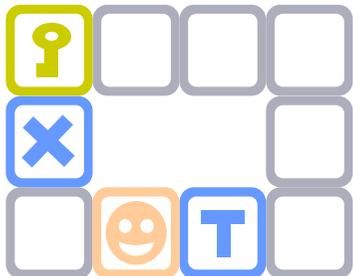






**Representación
Específica**



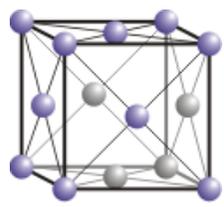
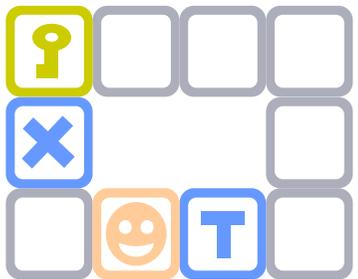


**Representación
Genérica**



**Representación
Específica**



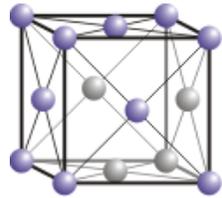
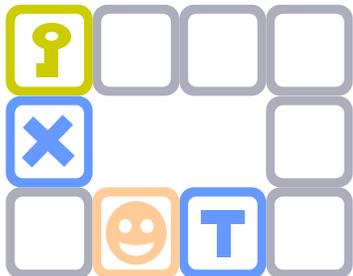


Representación
Genérica



Representación
Específica



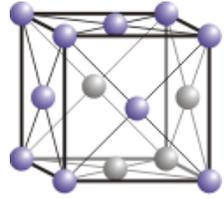
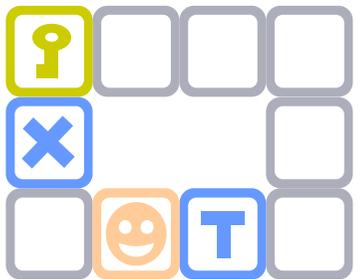


**Representación
Genérica**



**Representación
Específica**





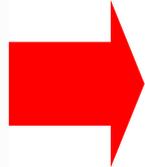
Representación Genérica



Representación Específica

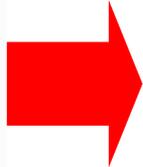






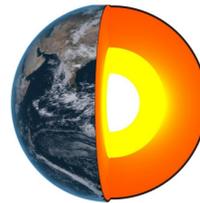
Traducción



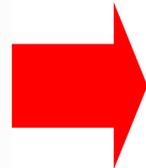


$f(x)$

**Extensión
Funcional**



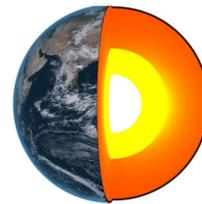
Núcleo



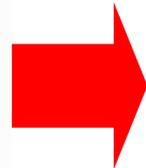
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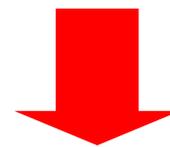
$f(x)$ **Extensión
Funcional**



Núcleo

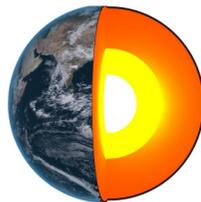


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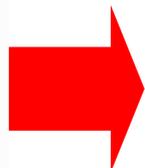


$f(x)$

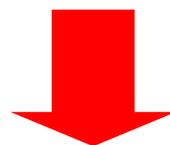
**Extensión
Funcional**



Núcleo

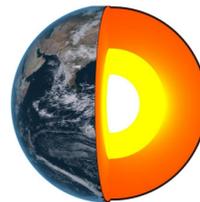


Traducción

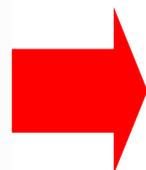


$f(x)$

**Extensión
Funcional**



Núcleo



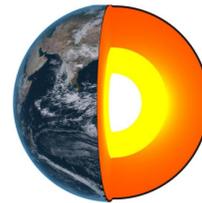
Traducción

Predicados estáticos

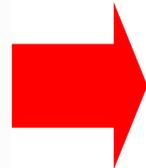


$f(x)$

**Extensión
Funcional**



Núcleo



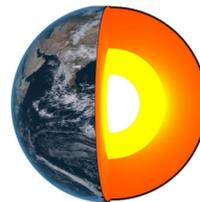
Traducción

Predicados estáticos
Predicados one-way

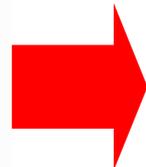


$f(x)$

**Extensión
Funcional**



Núcleo



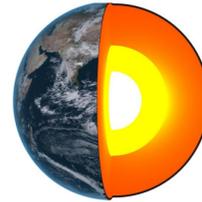
Traducción

*Predicados estáticos
Predicados one-way
Invariantes*

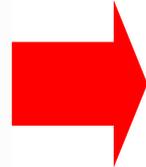


$f(x)$

**Extensión
Funcional**



Núcleo



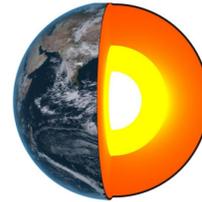
Traducción

*Predicados estáticos
Predicados one-way
Invariantes
Alcanzabilidad*

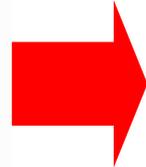


$f(x)$

**Extensión
Funcional**



Núcleo



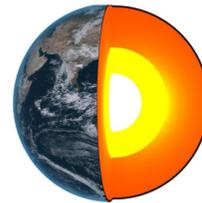
Traducción

*Predicados estáticos
Predicados one-way
Invariantes
Alcanzabilidad
Tipo raíz*

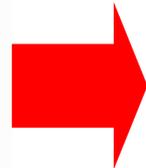


$f(x)$

**Extensión
Funcional**



Núcleo



Traducción

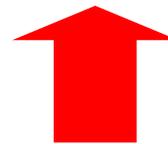
Predicados estáticos
Predicados one-way
Invariantes
Alcanzabilidad
Tipo raíz
Desigualdades







**Búsqueda
Genérica**





**Búsqueda
Específica**



**Búsqueda
Genérica**





**Búsqueda
Específica**



Búsqueda

Hill Climbing





**Búsqueda
Específica**



Búsqueda

*Hill Climbing
Beam Search*





**Búsqueda
Específica**



Búsqueda

*Hill Climbing
Beam Search
Dijkstra*





**Búsqueda
Específica**



Búsqueda

*Hill Climbing
Beam Search
Dijkstra
A**





Búsqueda Específica



Búsqueda Específica

Hill Climbing
Beam Search
Dijkstra
A*
Weighted A*





Búsqueda Específica



Búsqueda Específica

Hill Climbing

Beam Search

Dijkstra

A*

Weighted A*

Enforced Hill Climbing





**Búsqueda
Específica**



Búsqueda

**Independiente
de dominio**

*Hill Climbing
March*

A
Bread Hill Climbing*

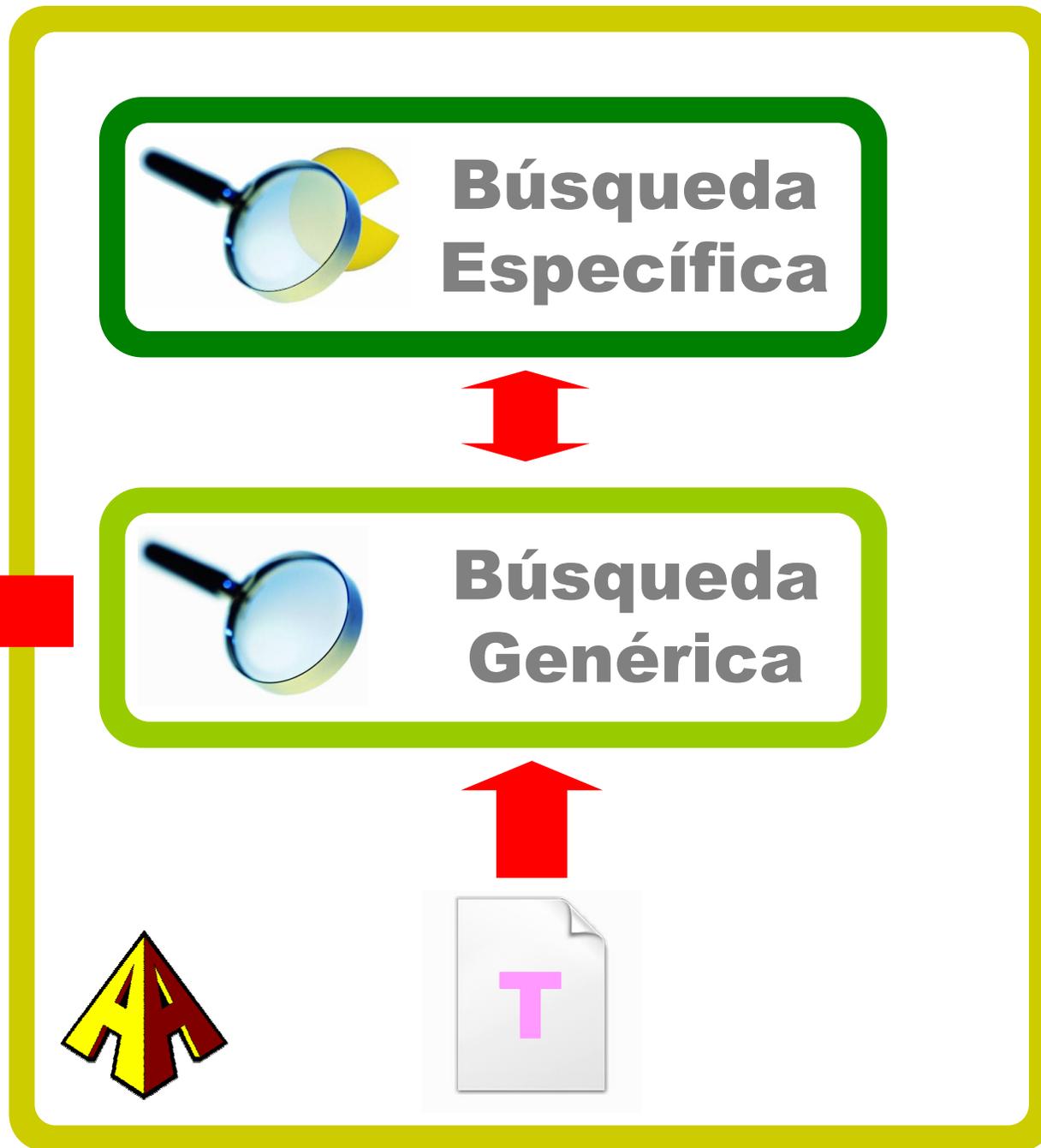
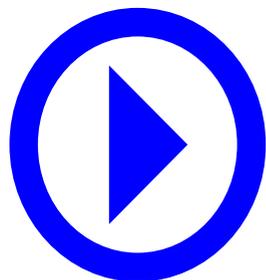


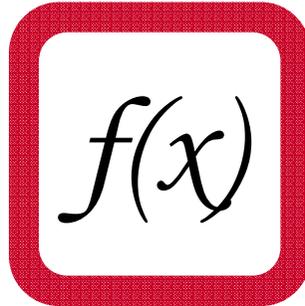
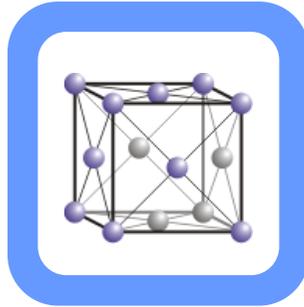
**Búsqueda
Específica**

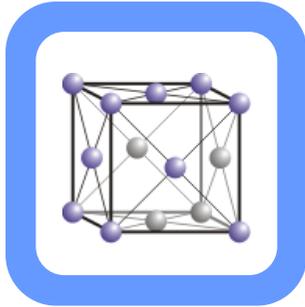


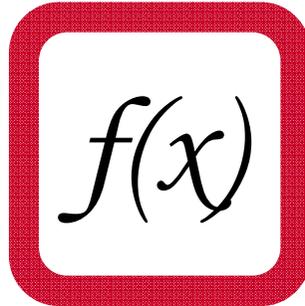
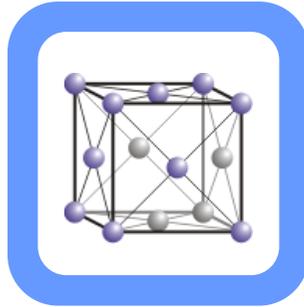
**Búsqueda
Genérica**











Interacción

resultados



tiempos

traducción

juego 5 ms

tiempos

traducción

juego 5 ms

XML 73 ms

tiempos

traducción

juego 5 ms

XML 73 ms

búsqueda

min 0 ms (todos)

máx 0 ms (todos)

nodos

generados

min 2 (EHC)

máx 3 (resto)

explorados

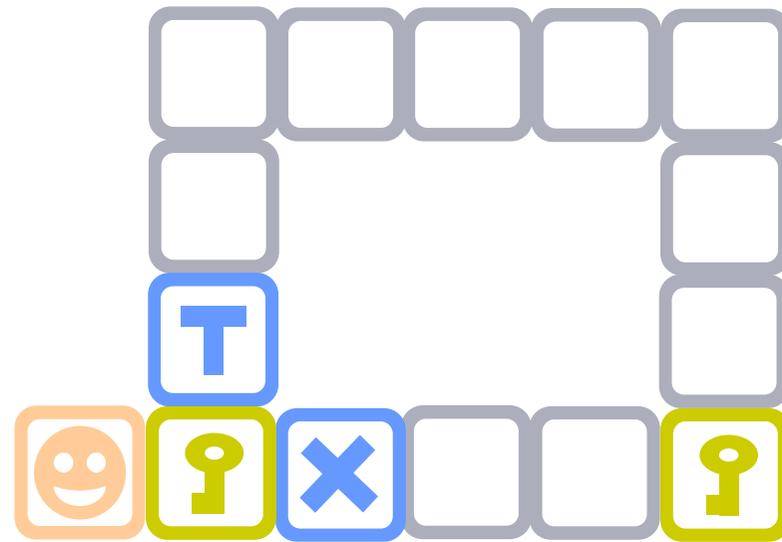
min 2 (todos)

máx 2 (todos)

soluciones

encontradas 100%

óptimas 100%



tiempos

traducción

juego 24 ms

XML 102 ms

tiempos

traducción

juego 24 ms

XML 102 ms

búsqueda

min 2 ms (HC, EHC, WA*)

máx 7 ms (BS 8-10)

nodos

generados

min 15 (EHC)

máx 152 (Dijkstra)

explorados

min 11 (EHC)

máx 74 (Dijkstra)

soluciones

encontradas 100%

óptimas 100%



tiempos

traducción

juego 94 ms

XML 166 ms

tiempos

traducción

juego 94 ms

XML 166 ms

búsqueda

min 30 ms (BS 2)

máx 1 s y 150 ms (Dijkstra)

nodos

generados

min 145 (BS 2)

máx 34.581 (Dijkstra)

explorados

min 61 (BS 2)

máx 14.774 (Dijkstra)

soluciones

encontradas 87%

óptimas 80%



tiempos

traducción

juego 250 ms

XML 253 ms

tiempos

traducción

juego 250 ms

XML 253 ms

búsqueda

min 339 ms (BS 4)

máx 3 m, 9 s y 368 ms (Dijkstra)

nodos

generados

min 859 (BS 4)

máx 1.192.692 (Dijkstra)

explorados

min 350 (BS 4)

máx 519.569 (Dijkstra)

soluciones

encontradas 80%

óptimas 7%

líneas futuras



lenguajes



lenguajes



algoritmos



lenguajes



algoritmos



heurísticas



lenguajes



algoritmos



heurísticas



eficiencia



lenguajes



algoritmos



heurísticas



eficiencia



paralelización



lenguajes



algoritmos



heurísticas



eficiencia



paralelización



juegos

demo

