

Workshop jsPsych

Session 1 - Les bases

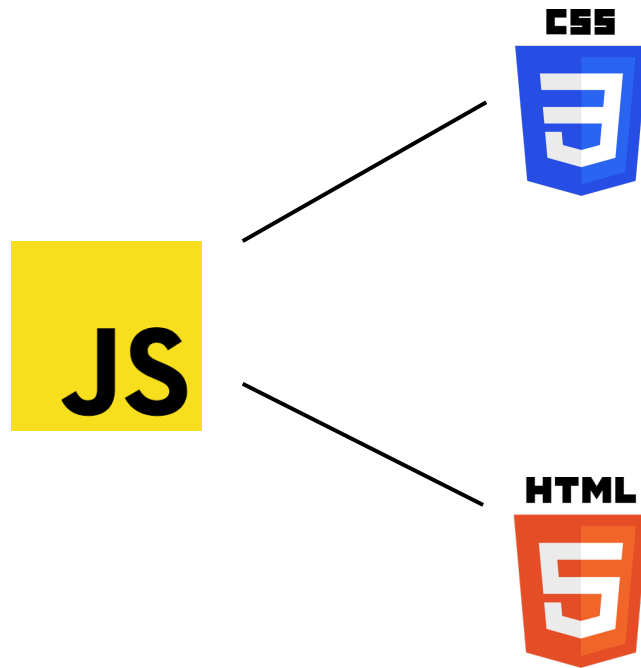


Objectifs de la session 1

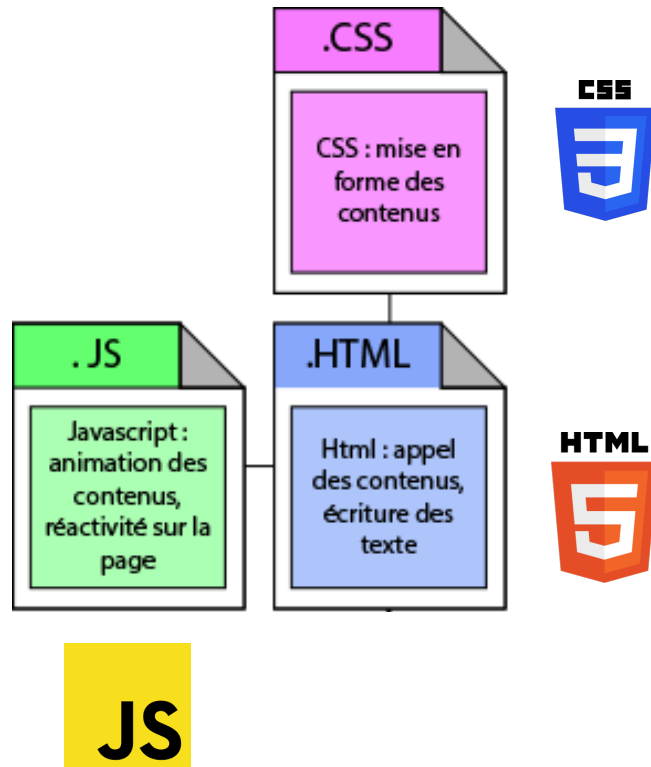
- Comprendre l'architecture *jsPsych*,
- Comprendre l'architecture web qui englobe notre code,
- Pouvoir utiliser *cognition.run* pour coder,
- Pouvoir mettre en place une expérience,
- Pouvoir récupérer les données de son expérience

L'architecture jsPsych

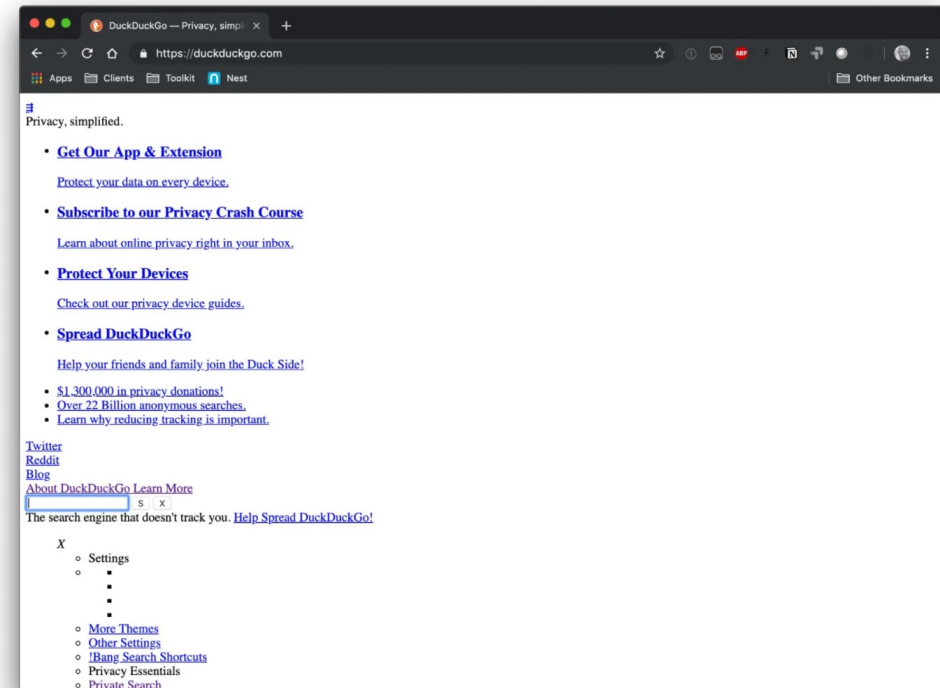
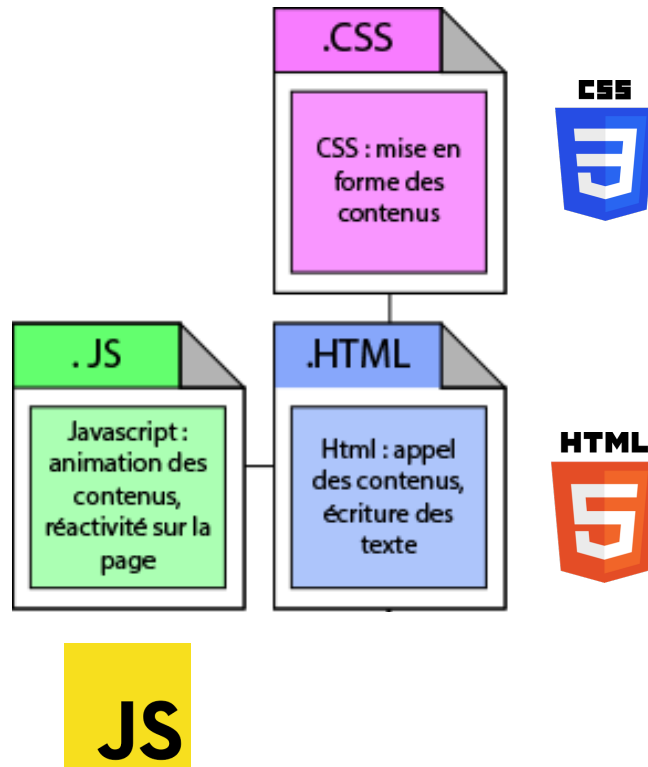
- Les trois langues du web



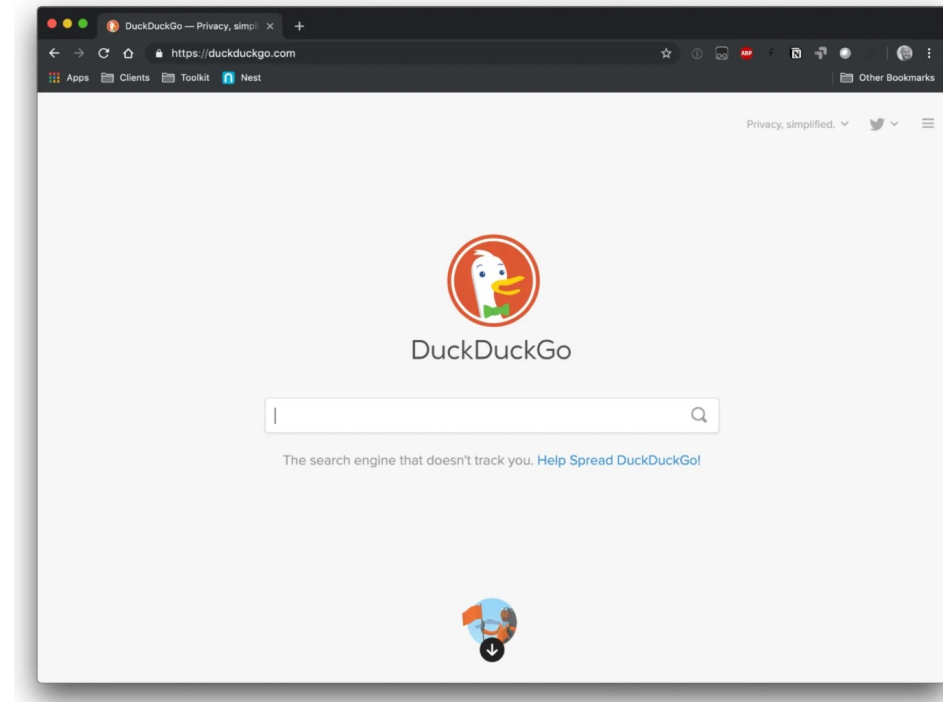
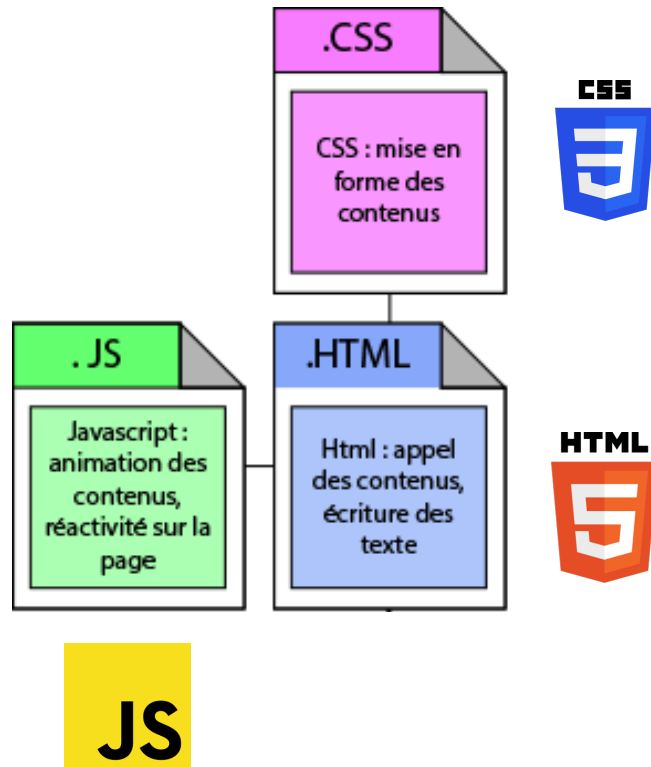
L'architecture jsPsych



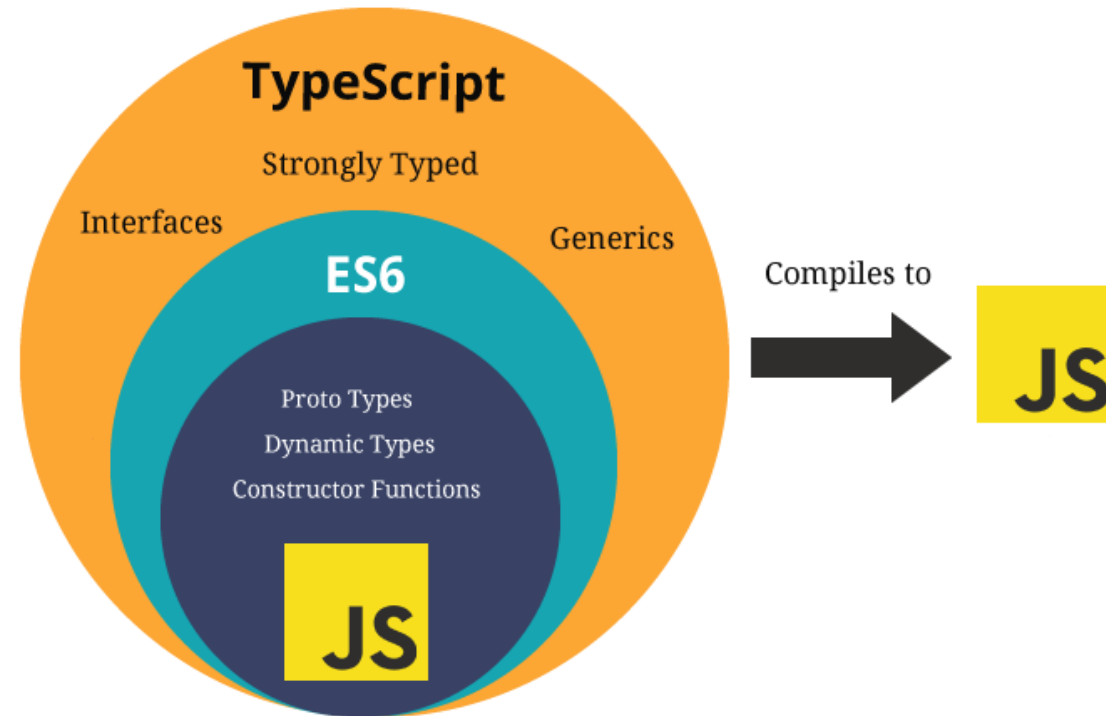
L'architecture jsPsych



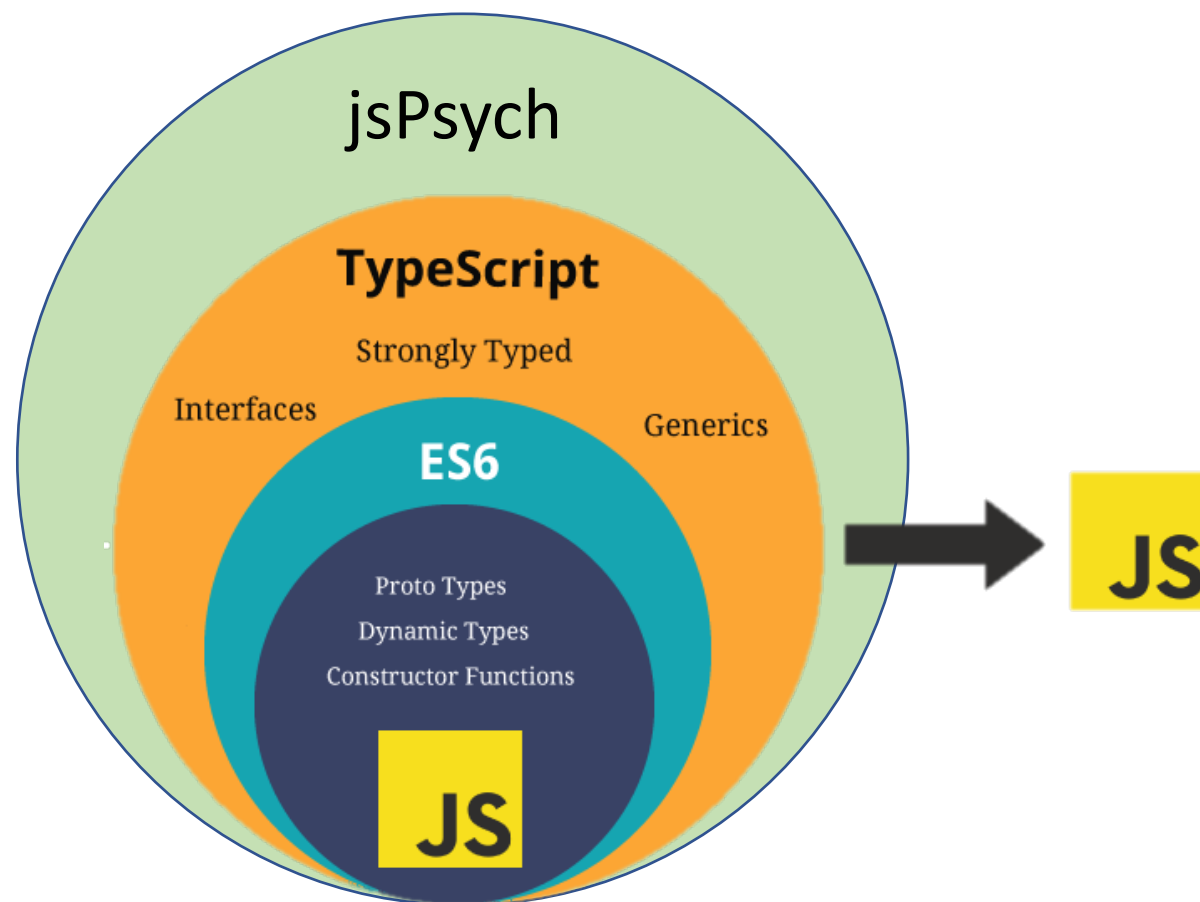
L'architecture jsPsych



L'architecture jsPsych



L'architecture jsPsych





jsPsych

- Présentation de la syntaxe

```
experience3.html
1 <!DOCTYPE html>
2 <html>
3 <head>
4 <title>My experiment</title>
5 <script src="https://unpkg.com/jspsych@7.0.0"></script>
6 <script src="https://unpkg.com/@jspsych/plugin-html-keyboard-response@1.0.0"></script>
7 <script src="https://unpkg.com/@jspsych/plugin-image-keyboard-response@1.0.0"></script>
8 <script src="https://unpkg.com/@jspsych/plugin-preload@1.0.0"></script>
9 <link href="https://unpkg.com/jspsych@7.0.0/css/jspsych.css" rel="stylesheet" type="text/css" />
10 </head>
11 <body></body>
12 <script>
13
14 /* Je lance jsPsych et je lui dit de me montrer les data à la fin */
15 var jsPsych = initJsPsych({
16   on_finish: function() {
17     jsPsych.data.displayData();
18   }
19 });
20
21 /* Je crée la timeline de l'expérience */
22 var timeline = [];
23
24 /* On va précharger les média pour éviter la latence dans le navigateur */
25 var preload = {
26   type: jsPsychPreload,
27   images: ['img/blue.png', 'img/orange.png']
28 };
29 timeline.push(preload);
30
31 /* Je définie le message d'accueil comme un trial */
32 var welcome = {
33   type: jsPsychHtmlKeyboardResponse,
34   stimulus: "Bienvenue dans l'expérience test. Appuyez sur une touche pour commencer."
35 };
36 timeline.push(welcome);
37
38 /* On montre les instructions */
39 var instructions = {
40   type: jsPsychHtmlKeyboardResponse,
41   stimulus:
42     <p>Dans cette expérience, un cercle va apparaître au centre de l'écran.</p><p>Si le cercle est <strong>Bleu</strong>,
43     <p>Si le cercle est <strong>Orange</strong>, appuyez sur la lettre J aussi vite que vous le pouvez.</p>
44     <div style='width: 700px;'>
45       <div style='float: left;'><img src='img/blue.png'></div>
46       <p class='small'><strong>Appuyez la lettre F</strong></p></div>
47       <div style='float: right;'><img src='img/orange.png'></div>
48       <p class='small'><strong>Appuyez la lettre J</strong></p></div>
49     </div>
50     <p>Appuyez sur une touche pour commencer.</p>
51   ,
52   post_trial_gap: 2000
53 };
54 timeline.push(instructions)
55
56 /* On défini une variable de timeline les stimulus */
57
58 var test_stimuli = [
59   { stimulus: "<div style='float: right;'><img src='img/blue.png'></div>", correct_response: 'f' },
60   { stimulus: "<div style='float: right;'><img src='img/orange.png'></div>", correct_response: 'j' }
61 ];
62
63 /* Maintenant on ajoute une croix de fixation entre les présentations */
64
65 var fixation = {
66   type: jsPsychHtmlKeyboardResponse,
67   stimulus: '<div style="font-size:60px;">+</div>',
68   choices: "NO_KEYS",
69   trial_duration: function(){
70     return jsPsych.randomization.sampleWithoutReplacement([250, 500, 750, 1000, 1250, 1500, 1750, 2000], 1)[0];
71   },
72   // ...
73 }
```



jsPsych - syntaxe

Sublime text, Visual studio code, ...



jsPsych - syntaxe

```
var jsPsych = initJsPsych({}) ;
```

```
<script>
```



jsPsych - syntaxe

```
var jsPsych = initJsPsych({});
```

<script>

```
var timeline = [];
```



jsPsych - syntaxe

```
var jsPsych = initJsPsych({});
```

<script>

```
var timeline = [] ;
```

```
jsPsych.run(timeline) ;
```



jsPsych - syntaxe

```
var jsPsych = initJsPsych({});
```

<script>

```
var timeline = [];
```

Experiment code to type here

```
jsPsych.run(timeline);
```



jsPsych - syntaxe

```
var jsPsych = initJsPsych({});
```

<script>

```
var timeline = [];
```

Trial 1

```
jsPsych.run(timeline);
```



jsPsych - syntaxe

```
var jsPsych = initJsPsych({});
```

<script>

```
var timeline = [];
```

Trial 1

Trial 2

```
jsPsych.run(timeline);
```




jsPsych - syntaxe

```
var jsPsych = initJsPsych({});
```

<script>

```
var timeline = [];
```

Trial 1

Trial 2

...

Trial n

```
jsPsych.run(timeline);
```



jsPsych - syntaxe

```
var jsPsych = initJsPsych({});
```

<script>

```
var timeline = [];
```

Trial 1

```
jsPsych.run(timeline);
```



jsPsych - syntaxe

```
var jsPsych = initJsPsych({}) ;
```

<script>

```
var timeline = [] ;
```

```
var trial1;
```

```
jsPsych.run(timeline) ;
```



jsPsych - syntaxe

```
var jsPsych = initJsPsych({}) ;
```

<script>

```
var timeline = [] ;
```

```
var trial1 = {  
  type:  jsPsychPlugin  
  param1:  
  param2:  
  param3:  
  ...  
};
```

```
jsPsych.run(timeline) ;
```



jsPsych - syntaxe

jsPsychPlugin.js

```
var jsPsych = initJsPsych({});
```

<script>

```
var timeline = [];
```

```
var trial1 = {  
  type: jsPsychPlugin  
  param1:  
  param2:  
  param3:  
  ...  
};
```

```
jsPsych.run(timeline);
```



jsPsych - syntaxe

jsPsychPlugin.js

```
var jsPsych = initJsPsych({});
```

<script>

```
var timeline = [];
```

```
var trial1 = {  
  type: jsPsychPlugin  
  param1:  
  param2:  
  param3:  
  ...  
};
```

```
timeline.push(trial1);
```

```
jsPsych.run(timeline);
```



jsPsych - syntaxe

Petit détour par la timeline :

```
Array = [];
```



jsPsych - syntaxe

Petit détour par la timeline :

```
Array = [];
```

```
Array = [a, b, c, d, e, f];
```




jsPsych - syntaxe

Petit détour par la timeline :

```
Array = [];
```

```
Array = [a, b, c, d, e, f];
```

```
Array.push(G);
```

méthode .push()



jsPsych - syntaxe

Petit détour par la timeline :

```
Array = [];
```

```
Array = [a, b, c, d, e, f];
```

```
Array.push(G);
```

méthode .push()

```
Array = [a, b, c, d, e, f, G]
```



jsPsych - syntaxe

Petit détour par la timeline :

```
Array = [];
```

```
Array = [a, b, c, d, e, f];
```

Attention : les indices commencent à 0 !

```
Array.push(G);
```

méthode .push()

```
Array = [a, b, c, d, e, f, G]
```



jsPsych - syntaxe

Petit détour par la timeline :

```
Array = [];
```

```
Array = [a, b, c, d, e, f];
```

Attention : les indices commencent à 0 !

```
Array.push(G);
```

méthode .push()

```
Array = [a, b, c, d, e, f, G]  
         /  /  /  /  /  /  /  
        0  1  2  3  4  5  6
```



jsPsych - syntaxe

Petit détour par la timeline :

```
Array = [];
```



jsPsych - syntaxe

Petit détour par la timeline :

```
timeline = [];
```



jsPsych - syntaxe

Petit détour par la timeline :

```
timeline = [];
```

```
timeline = [ trial 1, trial2, trial3, ...];
```



jsPsych - syntaxe

Petit détour par la timeline :

```
timeline = [];
```

```
timeline = [ trial 1, trial2, trial3, ...];
```

```
timeline.push(trialN);
```




jsPsych - syntaxe

Petit détour par la timeline :

```
timeline = [];
```

```
timeline = [ trial 1, [ trial2A, trial2B, ... ], trial3, ...];
```

```
timeline.push(trialN);
```



jsPsych - syntaxe

Petit détour par la timeline :

```
timeline = [];
```

```
timeline = [ trial 1, [ trial2A, trial2B, [...], ... ], trial3, ...];
```

```
timeline.push(trialN);
```



jsPsych - syntaxe

Petit détour par la timeline :

```
timeline = [];
```

```
timeline = [ trial 1, [ trial2A, trial2B, [...], ... ], trial3, ...];
```



```
timeline.push(trialN);
```



jsPsych - syntaxe

```
var jsPsych = initJsPsych({});
```

<script>

```
var timeline = [] ;
```

Trial 1

Trial 2

...

Trial n

```
jsPsych.run(timeline) ;
```



jsPsych - syntaxe

```
var jsPsych = initJsPsych({});
```

<script>

```
var timeline = [] ;
```

Trial 1

Timeline.push

Trial 2

Timeline.push

Trial n

Timeline.push

```
jsPsych.run(timeline) ;
```



jsPsych - syntaxe

jsPsychPlugin.js

```
var jsPsych = initJsPsych({});
```

<script>

```
var timeline = [];
```

```
var trial1 = {  
  type: jsPsychPlugin  
  param1:  
  param2:  
  param3:  
  ...  
};
```

```
timeline.push(trial1);
```

```
jsPsych.run(timeline);
```



jsPsych

- Paramètres communs des plugins :
 - *on_start, on_load, on_finish*
 - *data*
 - *post_trial_gap*
 - *css_classes*



jsPsych - syntaxe

```
var jsPsych = initJsPsych({});
```

<script>

```
var timeline = [] ;
```

```
var trial1 = {  
  type:  jsPsychPlugin  
  param1:  
  ...  
};
```

Timeline.push

```
jsPsych.run(timeline) ;
```




jsPsych - syntaxe

```
var jsPsych = initJsPsych({});
```

<script>

```
var timeline = [] ;
```

```
  on_start:
```

```
  on_load:
```

```
  var trial1 = {  
    type:  jsPsychPlugin  
    param1:  
    ...  
  };
```

```
  on_finish:
```

```
    Timeline.push
```

```
jsPsych.run(timeline) ;
```



jsPsych - syntaxe

```
var jsPsych = initJsPsych({}) ;
```

<script>

```
var timeline = [] ;
```

```
  on_start:
```

```
  on_load:
```

```
  var trial1 = {  
    type:  jsPsychPlugin  
    param1:  
    ...  
  };
```

```
  on_finish:
```

```
  Post_trial_gap: (ITI)
```

```
    Timeline.push
```

```
jsPsych.run(timeline) ;
```

jsPsych

- Présentation des principaux plugins

List of Plugins

These are the plugins that are included in the jsPsych release.

Additional plugins may be available in the [community-contributed-plugins](#).

For an overview of what plugins are and how they work, see our [plugins overview](#).

| Plugin | Description |
|--|---|
| audio-button | Shows a sequence of images at a specified frame rate. Records key presses (including long-press behavior) made by the subject while they are viewing the stimulus. |
| audio-button-response | Plays an audio file and allows the subject to respond by clicking a button to click. The button can be randomized independently (e.g., using images in place of standard buttons). |
| audio-keyboard-response | Plays an audio file and allows the subject to respond by pressing a key. |
| audio-slider-response | Plays an audio file and allows the subject to respond by moving a slider to indicate a value. |
| call-function | Executes an arbitrary function call. Useful for displaying anything to the subject, and the subject is usually assumed that they will have some measure of the cost of performing tasks at specified times in the experiment, such as saving data. |
| canvas-button-response | Shows a stimulus on a HTML5 canvas element, and records a button click response. Useful for displaying dynamic, parametrically-defined graphics, and for controlling the positioning of multiple graphical elements (shapes, text, images). |
| canvas-keyboard-response | Shows a stimulus on a HTML5 canvas element, and records a key press response. Useful for displaying dynamic, parametrically-defined graphics, and for controlling the positioning of multiple graphical elements (shapes, text, images). |
| canvas-slider-response | Shows a stimulus on a HTML5 canvas element, and asks the subject to respond by moving a slider to indicate a value. Useful for displaying dynamic, parametrically-defined graphics, and for controlling the positioning of multiple graphical elements (shapes, text, images). |
| navigate-on-stimulus | The subject responds to an animation and can be given feedback about their response. |
| navigate-on-key | The subject responds to an HTML5-formatted stimulus using the keyboard and can be given feedback about the correctness of their response. |
| navigate-on-image | The subject responds to an image using the keyboard and can be given feedback about the correctness of their response. |
| choice | Plugins for displaying a choice task and checking participants' answers against a correct solution. |
| external-html | Displays an external HTML page (such as a consent form) and lets the subject respond by clicking a button or pressing a key. Plugins can validate their responses, which is useful for making sure that a subject has completed consent before starting the experiment. |
| eye-track | Displays a set of images on the screen in various locations. Subjects can click and drag the images to move them around the screen. Records all the movements made by the subject, so the sequence of movements can be reconstructed from the data. |
| full-screen | Toggles the experiment to and out of full-screen mode. |
| html-button-response | Displays an HTML-formatted stimulus and allows the subject to respond by clicking a button to click. The button can be randomized independently (e.g., using images in place of standard buttons). |
| html-keyboard-response | Displays an HTML-formatted stimulus and allows the subject to respond by pressing a key. |
| html-slider-response | Displays an HTML-formatted stimulus and allows the subject to respond by moving a slider to indicate a value. |
| implicit-learn | The implicit association task, using HTML-formatted stimuli. |
| implicit-image | The implicit association task, using images as stimuli. |
| image-button-response | Displays an image and allows the subject to respond by clicking a button to click. The button can be randomized independently (e.g., using images in place of standard buttons). |
| image-keyboard-response | Displays an image and allows the subject to respond by pressing a key. |
| image-slider-response | Displays an image and allows the subject to respond by moving a slider to indicate a value. |
| task-sequences | For displaying task sequences to the subject. Allows the subject to navigate between pages of instructions, sub-tasks, or buttons. |
| visual-R | Displays many of stimuli in a row selected for free visually-mechanical responses, typically on 'hot' or 'cold' as a particular criteria (e.g., impression, performance, similarity). The participant is required to respond with a button corresponding to an attribute (e.g., hot/cold and right/wrong) on the stimuli. |
| visual-feedback | Through trials images, audio, and video files into the browser's memory. Images are loaded in the background, in order to improve stimulus and response timing, and to avoid displaying the flow of the experiment. |
| visual-matching | The subject interacts with a stimulus by modifying a parameter of the stimulus and observing if the change in the stimulus is real-time. |
| visual | Controls the display so that materials display with a known physical size. |
| same-different-text | A same-different judgment task. An HTML-formatted stimulus is shown, followed by a brief gap, and then a second stimulus is shown. The subject indicates whether the stimuli are the same or different. |
| same-different-image | A same-different judgment task. An image is shown, followed by a brief gap, and then another stimulus is shown. The subject indicates whether the stimuli are the same or different. |
| visual-matching-text | A set of items are displayed on the screen and one of them changes color. The subject presses a key that corresponds to the different color (as fast as possible). |
| visual-matching-image | A set of items are displayed on the screen and one of them changes color. The subject clicks the key that changed color as fast as possible. |
| survey-free-form | Presents a custom HTML form, allows for saving multiple kinds of form input. |
| survey-like | Displays free-style questions. |
| survey-multiple-choice | Displays multiple choice questions with one answer allowed per question. |
| survey-multiple-choice | Displays multiple choice questions with multiple answers allowed per question. |
| survey-text | Shows a prompt with a text box. The subject writes a response and then submits by clicking a button. |
| video-button-response | Displays a video file with many options for controlling playback. Subject responds to the video by pressing a button. |





jsPsych

- 1) Boutons:

Is the pitch high or low?

```
var trial = {  
  type: jsPsychAudioButtonResponse,  
  stimulus: 'sound/tone.mp3',  
  choices: ['Low', 'High'],  
  prompt: "<p>Is the pitch high or low?</p>"  
};
```



jsPsych

- 2) Keyboard:

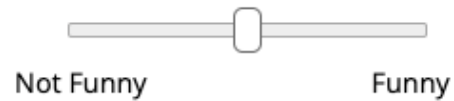
Is the pitch high or low? Press 'e' for low and 'i' for high.

```
var trial = {  
  type: jsPsychAudioKeyboardResponse,  
  stimulus: 'sound/tone.mp3',  
  choices: ['e', 'i'],  
  prompt: "<p>Is the pitch high or low? Press 'e' for low and 'i' for high.</p>",  
  response_ends_trial: true  
};
```



jsPsych

- 3) Interactions:



How funny is the joke?

Continue

```
var trial = {  
  type: jsPsychAudioSliderResponse,  
  stimulus: 'sound/speech_joke.mp3',  
  labels: ['Not Funny', 'Funny'],  
  prompt: '<p>How funny is the joke?</p>',  
}
```



jsPsych

*Ces grandes catégories fonctionnent avec les trois médias :
audio, vidéo, image*

A horizontal slider interface for rating a joke's funniness. The slider is positioned at approximately 25% towards the 'Funny' end. The labels 'Not Funny' and 'Funny' are at the ends of the slider. Below the slider, the text 'How funny is the joke?' is displayed. A 'Continue' button is at the bottom.

Not Funny Funny

How funny is the joke?

Continue

A horizontal slider interface for rating the likelihood of Team A winning a match. The slider is positioned at approximately 50% towards the '100% chance' end. The labels '100% chance', '50% chance', and '0% chance' are at the ends of the slider. Above the slider, the text 'How likely is it that team A will win this match?' is displayed. Below the slider, the text 'TEAM A' and 'TEAM B' are shown, followed by their respective records: '10 wins, 5 losses, 6 draws' and '6 wins, 4 losses, 11 draws'. A 'Continue' button is at the bottom.

How likely is it that team A will win this match?

TEAM A TEAM B

10 wins, 5 losses, 6 draws 6 wins, 4 losses, 11 draws

100% chance 50% chance 0% chance

Continue

A horizontal slider interface for rating a person's happiness/sadness. The slider is positioned at approximately 25% towards the 'happy' end. The labels 'happy' and 'sad' are at the ends of the slider. Above the slider, a video frame shows a smiling woman. Below the slider, the text 'How happy/sad is this person?' is displayed. A 'Continue' button is at the bottom.

happy sad

How happy/sad is this person?

Continue



jsPsych

- Les questionnaires:

Likert,

Multi-choice,

Multi-select,

Free-text,

Drop-down

html



jsPsych

- D'autres plugins importants:

Preload,

Browser check,

Full-screen,

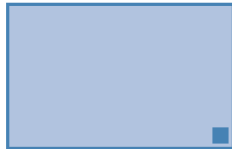
Instructions,

Call function,



jsPsych

- D'autres plugins:
Initialize-microphone
Resize,



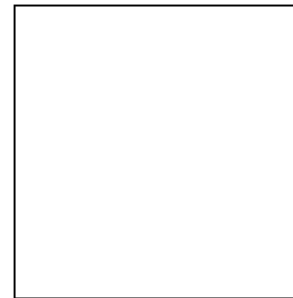
Click and drag the lower right corner of the box until the box is the same size as a credit card held up to the screen.

Continue

Sketchpad,

...

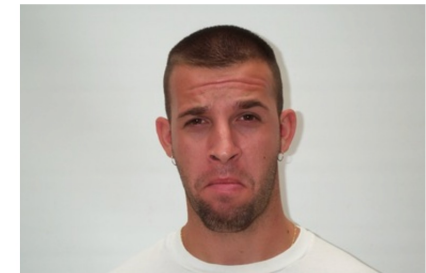
Draw an apple!



Clear Undo Redo

Finished

Circle the mouth using red. Circle the eyes using blue.



Clear Undo Redo

Finished

L'architecture web autour

```
<!DOCTYPE html>

<html>

  <head>

    <title>My experiment</title>

    <script src="https://unpkg.com/jspsych@7.0.0"></script>
    <script src="https://unpkg.com/@jspsych/plugin-html-keyboard-response@1.0.0"></script>
    <script src="https://unpkg.com/@jspsych/plugin-image-keyboard-response@1.0.0"></script>
    <script src="https://unpkg.com/@jspsych/plugin-preload@1.0.0"></script>

    <link href="https://unpkg.com/jspsych@7.0.0/css/jspsych.css" rel="stylesheet" type="text/css" />

  </head>

  <body></body>

  <script>

    |

  </script>
</html>
```

Utiliser cognition.run

- Cognition permet dans son outil de prévisualisation de ne se soucier que de cette partie `<script>`.

```
<script>  
  
</script>
```



Cognition.run

Cognition.

[Features](#)

[FAQ](#)

[Go to Tasks](#)

Run cognitive
experiments **online.**

Focus on science, not on IT.

[Create an account](#)

[Features](#)





Cognition.run

Link

Share this link with your participants.

<https://btbhf5km5s.cognition.run>

Design

Edit your task paradigm, submit your stimuli and define the Informed Consent.

[Configuration](#) [Source code](#) [Informed consent](#) [Collaborators](#)

Data collection

Manage the data generated by runs.

There are no records to display. Once a participant visits the task's link, this is where you'll be able to see and download the data.

Cognition.run

Tasks / RAPPEL_ISE / Edit

Account

jsPsych version ?

jsPsych library version:

7.2.1

External JS/CSS ?

Upload files

Browse

Stimuli

Upload files

Browse

0_ACDC.mp3

1_ACDC.mp3

2_ACDC.mp3

400-hz-test-tone2.mp3

4_ACDC.mp3

5_ACDC.mp3

6_ACDC.mp3

7_ACDC.mp3

8_ACDC.mp3

9_ACDC.mp3

sequence_0.wav

sequence_1.mp3

sequence_1.wav

test_stereo2.mp3

Task Code ?

```

1 //_____
2 //CODE BELOW_____
3
4 /*
5
6 Si jamais quelque chose n'est pas clair, ne pas hésiter à
7 m'appeler ! :-))
8 M.
9
10 */
11
12 /* _____
13 Lancement jsPsych
14
15
16 /* Initialiser jsPsych */
17 var jsPsych = initJsPsych({
18   //show_progress_bar: true,
19   on_finish: function() {
20     // jsPsych.data.displayData();
21   },
22   on_trial_start: function() {
23
24   },
25   on_trial_finish: function(){
26
27   },
28 });
29
30 /* création timeline */
31
32 var timeline = [];
33
34 /* Preload stimuli */
35 var preload = {
36
37   type: jsPsychPreload,
38   audio: sounds

```

Task Preview ?

Bienvenue dans cette expérience

Veuillez cliquer sur *Continuer* pour commencer.

Continuer

Disable preview

Refresh

Add url params

Set condition

Recorded data ?

success	timeout	failed_images	failed_audio	failed_video	trial_type	trial_index	time_elapsed	inter
true	false	[]	[]	[]	"preload"	0	2	"0.0"

Clear

Download

Hide

Report a bug

Coder une expérience

Exemple de création de code

Récupérer ses données

- Deux possibilités :

Récupérer via cognition.run,

Configurer via un serveur.

Récupérer ses données

Data collection

Manage data collected by runs.

[Download data](#)

Run Id	Date	Data	Status ?	Delete
#5	2 days ago	Download data (.csv)	Timeout	Delete this run
#4	2 days ago	Download data (.csv)	Dropped	Delete this run
#3	2 days ago	No data collected	Timeout	Delete this run
#2	2 days ago	Download data (.csv)	Timeout	Delete this run
#1	2 days ago	Download data (.csv)	Timeout	Delete this run