Easing Simulator

ESC2018\_TP17\_A\_MO\_EN

Submitted by:

Name: Mak Seng Hin (Thomas)

Member country or region: MO

Competition time:

6.5 hours

## Contents

This Test Project proposal consists of the following documentation/files:

1. WSC2019\_TP17\_A\_MO\_EN.doc

## Introduction

In this project, we create a single-page to present an easing function simulator.

## Description of project and tasks

The page presents the following easing functions:

* Linear
* Ease-out
* Ease-in
* Ease-in-out
* Ease-out-bounce
* Ease-in-bounce

Note, the actual easing functions to be implemented depends on the availability in JSON.

There is header, main area and footer in this page.

### 3 Main Parts

There are 3 parts in main area of the web page.

1. Options for easing functions
2. Simulation Chart
3. Slider

### Layout

The page should be responsive to both small and desktop screen.

Both layouts has a full-width header.

#### Header

The header is available in both wide and small screen.

There is an about button on the top-right. In desktop layout, the about button is labelled with "About". In mobile layout, the about button is an "i" round button.

In desktop layout, when clicking on the about button, the about panel shows in one of the following motion, which will be decided on the competition day.

* Pop up
* Slide-in from right

In mobile layout, when tapping on the about button ("i" indicator), an about pane shows in one of the following motion, which will be decided on the competition day.

* Slide up as full overlay
* Pop up from middle into full overlay
* Side up into half overlay
* Card flip into back face of the app

#### Desktop / Wide screen

There are 2 columns in desktop / wide screen. Both of them are 50% width.

On the left there are options to select different easing functions. On the right side, there is chart area and slider.

#### Mobile / Small screen

In mobile / small screen, we have 1 column for top to bottom. The easing options, however, is still 2 columns in a row.

The order of elements in small screen should be in following order: Header, chart, slider, options and back-to-bop button.

The back-to-top button is only visible in small screen and hidden in wide screen.

#### Easing options

The ease options has layout of 2 columns, in both mobile and desktop.

The easing equations, text and calculations are fetched through the provided JSON file.

The whole label of ease options should be clickable, including the radio button and corresponding text.

It seems too boring to use the original radio / checkbox button outlook. In order to match the theme to the target audience, we want to have a customized radio button and text label outlook. When the radio button is selected, we want some kind of animation / transition when toggling the selected state of the checkbox.

In terms of accessibility concern, we require the radio / checkbox to be still usable even when CSS is disabled.

The JSON comes with an equation of each easing function. This equation text is displayed when use mouse overs on the easing function option. The equation should be styled to be readable. The appearance of equation should also be animated/transitioned.

#### Chart

The chart has time on x-axis and transition percentage on y-axis. The time on x-axis has 3 seconds max. The transition percentage on y-axis has 0%-100% scale. Please note that some functions, e.g. bounce, may exceed 100% during the transition.

When easing function options are selected, the corresponding curve is shown on the chart. The easing function options are de-selected, the corresponding curve disappears from the chart.

Each curve comes with a round indicator with numeric value inside it. The position of the indicator should be on the path of curve, according to the current x-value. The numeric value is the current transition percentage, which is exactly the same as its current y-position in the chart.

The initial timing value for x-axis is 0. This value is bound to the value of the slider. When user slides the slider, the timing value of the chart changes to corresponding value. The timing value affects the round indicator on the curve.

The chart should have responsive width so that the chart scales to fit screen size. The round indicators on the chart should also be responsive so they won't be too large when the screen is small.

The chart should also be styled to fit our target audience group.

When CSS is disabled, the slider should still work, and numeric value of each indicator should still change.

#### Slider

There is a slider to control the timing value on x-axis of the chart. The slider has 0 to 100 value, which represents the 0% to 100% of the 3 seconds timing interval on x-axis of the chart.

The slider should be implemented by standard input tag. In order to match the style of target audience and be mobile friendly, we should add customized style to the slider.

There is a "Play" button that automatically increases the slider value until it reaches 100% of the slider. During the playback, the round indicators in the chart should move accordingly.

If the slider is already at the end, nothing happens when tapping on the "Play" button.

#### Random parts

In this test project, some configurations are designed to be randomized during the competition day.

##### 1. randomized Target audience and Theme

One of the following target audience should be chosen:

1. This simulator is designed for secondary students who are learning functions.
2. This simulator is designed for web professionals as a reference. They mainly use this tool in mobile alongside their working computer. It is designed to be their reference in pocket.
3. This simulator is designed for CSS learner to learn how easing function works.

The design, typography, decoration and color choice should show personality to fit the target audience type, age group and their usage environment.

##### 2. Randomized JSON data

It would be too much to show all easing functions available in Mathematics. We choose only some functions to show in this simulator.

The JSON data contains what we need to show. This JSON is randomly generated on the day of competition.

##### 3. Randomized About panel appearing in Desktop / wide screen

One of the following should be chosen:

1. Pop up
2. Slide-in from right

##### 4. Randomized About panel appearing in Mobile / small screen

One of the following should be chosen:

1. Slide up as full overlay
2. Pop up from middle into full overlay
3. Side up into half overlay
4. Card flip into back face of the app

## Instructions to the Competitor

* HTML of checkout page is validated to HTML5 standard.
* No error occurs in CSS.
* CSS and JavaScript code is easy to maintain.
* Save the files of your work in directory on the server called “XX\_TP\_A”, where XX is your country code.

## Marking Scheme summary

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| SECTION | CRITERION | Judgement marks | | measurement marks | Total |
| A1 | Layout — Team 1 | 1 | 9 | | 10 |
| A2 | Easing Options — Team 2 | 2 | 8 | | 10 |
| A3 | Chart — Team 3 | 3 | 8 | | 11 |
| A4 | Easing Functions — Team 4 | 1 | 9 | | 10 |