

Web Engineering

Spring Term 2015

Exercise 4

Your website had a great success, but now you want to improve your skills in design better and more creative user interaction techniques. Browsing the internet you find out an interesting jQuery plugin that allows user to interact the web page by simple moving the device, called *tilt-and-tap*¹. In order to learn how this plugin works you decide to create a simple gallery web page that can be browsed thanks to motion based interactions.

This is the description of the first, and only part of Exercise 4.

Exercise 4.1

Exercise 4 comprises the following steps:

Use the plugin

As a first step you want to simply use some functionality offered by the plugin; therefore, you decide to browse the gallery by using tilting interactions. More in detail, the gallery has a cursor that highlights the picture currently selected. Everytime a user tilts the device to the right, the cursor moves to the right (it will change the border style of the image tag) while if the user tilts the device to the left, the cursor moves to the left. Moreover, by holding tap a specific area in the page and tilting up, the selected picture will be shown in different view, showing the current picture in a bigger size and in the middle of the page. While in this state, if the user tilts the device left or right (they decide to move to the next or to the previous picture in the gallery) also the bigger picture will change according to the image currently selected. By holding tap on this specific area and tilting down, this view will be closed.

Extend the plugin

Now that you understood how tilt-and-tap works you also want to *extend* it by "creating" a new gesture: *onTiltUp-Down*. You want that when the user tilts the device up and down in less than an arbitrary number of milliseconds (meaning you can decide the value of this variable) additional information about the selected picture will be shown in the page. While in this state, if the user tilts the device left or right (they decide to move to the next or to the previous picture in the gallery) also this additional information will change according to the image currently selected. To hide this information the user has to tilt up and then down the device again. Note that this should work also when the view (picture currently selected in the middle of the page) is open.

We have provided a video to give an example of a solution that respects these requirements. You can find this video on the web page of the course².

Note: As a starting point, you will get the HTML and the CSS of the gallery web site. The first picture selected is the first picture of the list (starting from the left) and we define it selected because its border is bigger and red (it has the class *"selected"*). The div *"touch"* is the div where the bigger image should be placed with class. The image inserted should have the class *".centering"*. The paragraph *"info"* is the tag where the information of the picture should be placed.

Moreover, the div *"touch"* is where the touch event previously mentioned **has** to be performed³ to avoid potential conflicts with default browser behavior. In addition to these resources, you will get also a starting JavaScript code with a map that associates each picture to the additional information to show to the user when the interaction is complete.

¹<https://eday.inf.ethz.ch/lindad/tiltandtap>

²<https://globis.ethz.ch/#!/course/web-engineering/>

³ interaction : {type:"press", element:"touch"}

For this exercise, we refer to the *tilt-and-tap* web site ⁴ and the second part of the lecture, '*Beyond Mouse & Keyboard*', where you can find additional information on tilt-and-tap. You can download the plugin here ⁵, please note that Tilt-and-Tap works with jQuery 2.1.1 that you can find here ⁶.

To test your implementation you will need a device which supports the device orientation. Often these devices are mobile smartphones or tablets; however, some laptops also support this. You are allowed to use any device you want. You are also allowed to (and you should) fine-tune the sensitivity of the interactions depending on your specific device⁷. Please note that we assume that each group has at least one device to show your solution.

As we could not test every possible combination of devices and browsers, we advise you to follow the following steps to start with the development:

1. Try the demos of the plugin here⁸ (with any browsers)
 - a. If it works, you can use the plugin for the exercise without changing anything
2. If the demo did not work properly:
 - a. Go to this⁹ page with your device
 - b. If the interval is equal to 0, your browser/device does not support motion events. Otherwise, in the same page you can see a chart. Try some tilting gestures and use the peak values you see as thresholds.

This is the first and only part of Exercise 4. **The final team solution for Exercise 4 will need to be presented during the exercise session on 23.04.2015 from 12:15 to 14:00. If you have any (real) problem to show your solution on the 23rd, please send me an email before the 19th. From all the teams that have requested to be assessed on Friday we will randomly pick 5 groups. These teams will show their solution in our lab (CNB E 108.2) from 15:15pm.** You are pleased to hand in the source code, assistant *will* ask you ask questions about how you implemented some of the features when you demo it in the exercise session. **We will use the following grading scheme.**

Grading Scheme For each part of the graded exercises, we specify the amount of points your team can achieve and a set of requirements. These requirements represent the minimal set of goals you need to accomplish to get full points. If you fulfill the requirements only partially or fail to answer corresponding questions during the presentation, points will be deducted. No or wrong solutions get zero points.

The maximum number of points may differ between parts and thus reflect their respective weights. For Exercises 4, the set of requirements are specified as follows:

Set of Requirements - (Max. points: 3)

- By tilting left or right the previous or the next picture of the gallery will be selected (changes the border property of the images).
- By hold tap and tilt up / down the device the user will open / close a new gallery mode that will show the selected picture in a bigger format in the middle of the screen. Once this mode is active, if the user tilts left or right the selected picture will change as well as the image in the middle of the screen.
- If the user tilts up and then down in less than an arbitrary threshold, additional information about the current selected picture will be showed in the page. The threshold can be arbitrary, with the only requirement that the interaction can be triggered without effort and, generally, not inadvertently. To hide this additional text the user has to tilt up and down again. Similar to the second task of this exercise, the text should change according to the current selected picture.

Please note that you are allowed to use only JavaScript/jQuery and the *tilt-and-tap* plugin for this exercise.

⁴<https://eday.inf.ethz.ch/lindad/tiltandtap/wikis/home>

⁵https://eday.inf.ethz.ch/lindad/tiltandtap/blob/master/framework/demos/js/jquery_tiltandtap.js

⁶<http://code.jquery.com/jquery-2.1.1.js>

⁷<https://eday.inf.ethz.ch/lindad/tiltandtap/wikis/thresholds>

⁸<https://eday.inf.ethz.ch/lindad/tiltandtap/wikis/home>

⁹http://tiltandtap.globis.ethz.ch/web-gravity_chart/