

WADII Lab Test (2 hours)**[50 marks]****General Instructions:**

- You can refer to any offline resources already on your laptop, but you must disable all networking and Bluetooth connections during the test. You must not communicate with anyone via any means during the test.
- Just before the test, you will be given instructions by the invigilator as to how to obtain resource files required for the lab test and how to submit your solutions.
- No questions will be entertained during the test. If necessary, make your own assumptions.
- Use meaningful names for classes, methods, functions and variables, as well as indent your code correctly. Use 4 spaces for indentation. Otherwise, you may attract penalty of up to **20%** of your score for the corresponding question.
- You **MUST** include your name as author in the comments of all your submitted source files. Failure to do so WILL attract a penalty of up to **20%** of your score for the corresponding question.

For example, if your registered name is "TAN So Tong" and email ID is tan.sotong.2017, include the following comment at the beginning of each source file you write.

```
<!--  
    Name:  TAN So Tong  
    Email: tan.sotong.2017  
-->
```

- You may wish to comment out the parts in your code which cause errors. But commented code will not be marked.

DO NOT TURN OVER UNTIL YOU ARE TOLD TO DO SO

Question 1 [*/]]****PHP is out of scope.****(15 marks)****Given:**

- `q1labtest.json` (DO NOT MODIFY THIS FILE)
- `q1_display.php`
- `q1_process.php`

This application reads in a JSON data file `q1labtest.json` which contains the exchange rates between Singapore dollars and foreign currencies. The data is extracted from an API provided by the Monetary Authority of Singapore (MAS). The data extracted are for selected end_of_month records between 2017-03 and 2018-12. The end_of_month value is in the format of yyyy-mm. This application will only be interested in the following currencies: EUR, GBP, CNY 100, and HKD 100.

Task A: Complete `q1_display.php`

1. The web page contains **a form with three input fields** – “Month”, “Year”, and “Currency”. “Month” takes in values from 1 to 12 inclusive. “Year” is a drop-down list showing the values from `$list_of_year` given in `q1_display.php`. Similarly, “Currency” is a drop-down list showing the values from `$list_of_curr` given in `q1_display.php`. That is, the drop-down list for “Currency” should show “EUR”, “GBP”, “CNY 100” and “HKD 100”.
2. Add in the appropriate Cascading Style Sheets (CSS) such that the web page displays as shown in the following (the box has **background-color: lightyellow**, **width: 300px**, and **border: 10px solid brown**):

Find the Past Exchange Rate

This application reads in the exchange rates from an input file and will display relevant data for the user. For currency with **100** means the exchange rate is based on SGD 100. The application will only process the following currencies:

- EUR
- GBP
- CNY 100
- HKD 100

Month:

Year :

Currency :

3. Upon clicking the SUBMIT button, the web page submits to `q1_process.php` via HTTP GET.

(7 marks)

Task B: Complete `q1_process.php`

1. Display the input values from the user in a **lightgreen** box having **width: 300px** and **border-style: solid** (see examples below).
2. Display the exchange rate for each currency listed in `$list_of_curr` given in `q1_process.php` in a table format (see examples below). The exchange rates are to be obtained from `q1labtest.json`, for all available `end_of_month` records.
3. Determine if the JSON file contains the data matching the user's inputs. If yes, the exchange rate for the selected currency will be displayed. For example,

The exchange rate for the selected currency **EUR** is **1.5614**

Otherwise, the exchange rate for the **next available end_of_month** will be displayed. For example,

There is no matching data for your selection.

The next available `end_of_month` record is **2017-09**

The exchange rate for the currency **GBP** is **1.8224**

If done correctly, `q1_process.php` should display the following:

User Input	Result																																																		
Month = 5 Year = 2018 Currency = EUR	<p>Results :</p> <div><p>User Input values :</p><p>Month : 5 Year : 2018 For the Currency : EUR</p></div> <p>The data from the data file is as follows:</p> <table><tr><th>Year-Month</th><th>2017-03</th><th>2017-06</th><th>2017-09</th><th>2017-11</th><th>2018-02</th><th>2018-05</th><th>2018-08</th><th>2018-10</th><th>2018-12</th></tr><tr><td>EUR</td><td>1.4923</td><td>1.5758</td><td>1.6007</td><td>1.5991</td><td>1.6206</td><td>1.5614</td><td>1.5960</td><td>1.5724</td><td>1.5618</td></tr><tr><td>GBP</td><td>1.7452</td><td>1.7930</td><td>1.8224</td><td>1.8157</td><td>1.8430</td><td>1.7807</td><td>1.7799</td><td>1.7616</td><td>1.7318</td></tr><tr><td>CNY 100</td><td>20.27</td><td>20.35</td><td>20.34</td><td>20.40</td><td>20.95</td><td>20.89</td><td>20.02</td><td>19.90</td><td>19.84</td></tr><tr><td>HKD 100</td><td>17.99</td><td>17.64</td><td>17.39</td><td>17.26</td><td>16.93</td><td>17.06</td><td>17.44</td><td>17.67</td><td>17.43</td></tr></table> <p>The exchange rate for the selected currency EUR is 1.5614</p>	Year-Month	2017-03	2017-06	2017-09	2017-11	2018-02	2018-05	2018-08	2018-10	2018-12	EUR	1.4923	1.5758	1.6007	1.5991	1.6206	1.5614	1.5960	1.5724	1.5618	GBP	1.7452	1.7930	1.8224	1.8157	1.8430	1.7807	1.7799	1.7616	1.7318	CNY 100	20.27	20.35	20.34	20.40	20.95	20.89	20.02	19.90	19.84	HKD 100	17.99	17.64	17.39	17.26	16.93	17.06	17.44	17.67	17.43
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Month = 7
Year = 2017
Currency = GBP

Results :

User Input values :

Month : 7
Year : 2017
For the Currency : GBP

The data from the data file is as follows:

Year-Month	2017-03	2017-06	2017-09	2017-11	2018-02	2018-05	2018-08	2018-10	2018-12
EUR	1.4923	1.5758	1.6007	1.5991	1.6206	1.5614	1.5960	1.5724	1.5618
GBP	1.7452	1.7930	1.8224	1.8157	1.8430	1.7807	1.7799	1.7616	1.7318
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HKD 100	17.99	17.64	17.39	17.26	16.93	17.06	17.44	17.67	17.43

There is no matching data for your selection.

The next available end_of_month record is **2017-09**
The exchange rate for the currency **GBP** is **1.8224**

Month = 12
Year = 2017
Currency = HKD 100

Results :

User Input values :

Month : 12
Year : 2017
For the Currency : HKD 100

The data from the data file is as follows:

Year-Month	2017-03	2017-06	2017-09	2017-11	2018-02	2018-05	2018-08	2018-10	2018-12
EUR	1.4923	1.5758	1.6007	1.5991	1.6206	1.5614	1.5960	1.5724	1.5618
GBP	1.7452	1.7930	1.8224	1.8157	1.8430	1.7807	1.7799	1.7616	1.7318
CNY 100	20.27	20.35	20.34	20.40	20.95	20.89	20.02	19.90	19.84
HKD 100	17.99	17.64	17.39	17.26	16.93	17.06	17.44	17.67	17.43

There is no matching data for your selection.

The next available end_of_month record is **2018-02**
The exchange rate for the currency **HKD 100** is **16.93**

(8 marks)

Question 2 [*/]****(15 marks)****Part A****Given:**

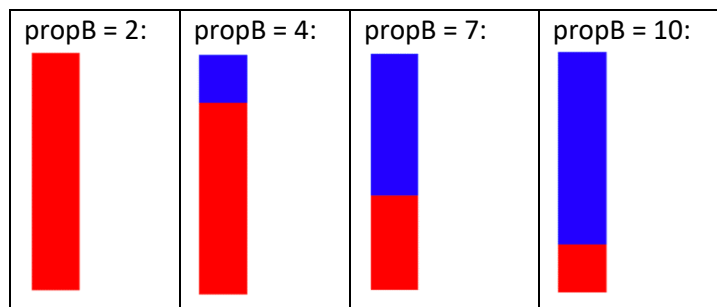
- q2a.html

In q2a.html, you are given an array called `arr` which contains two elements in this format:

```
arr = [{propA: 1}, {propB: random_value}]
```

Write a function called **compare(x)** which compares the variable **x** with the property **propB** of **arr**. If $x > \text{propB}$, the function generates a **red-colored box**; otherwise, the function generates a **blue-colored box**. The box has **width: 50px** and **height: 50px**.

Use the test cases provided in q2a.html to test your function. The number of the test cases will determine the height of the bar. Each test case will determine if red-colored or blue-colored box will be generated, appended at the end of the previous one. The following shows a few sample runs of q2a.html by using these test cases:



Note: You can use either internal or inline CSS style to generate the boxes.

***** compare(x) function will be marked by running a set of test cases automatically. The test cases are similar to the ones provided in q2a.html.**

(6 marks)**Part B****Given:**

- q2b.html

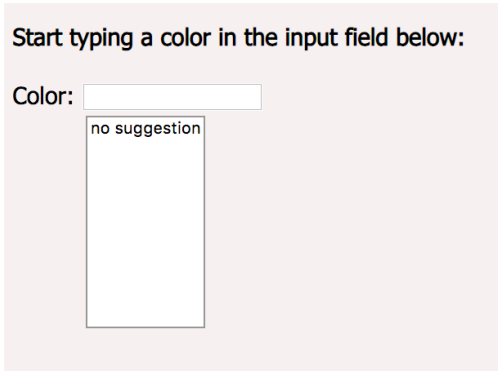
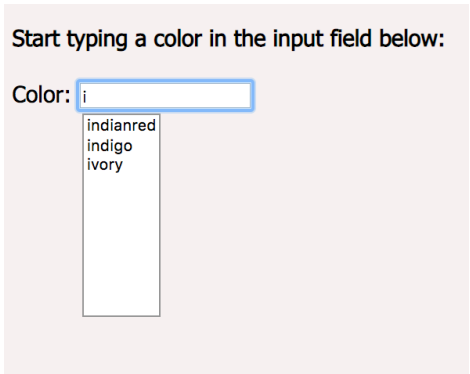
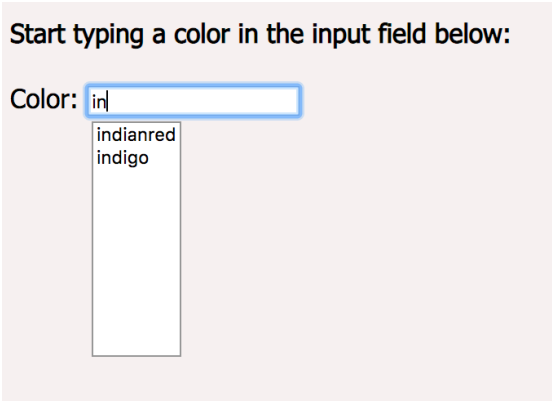
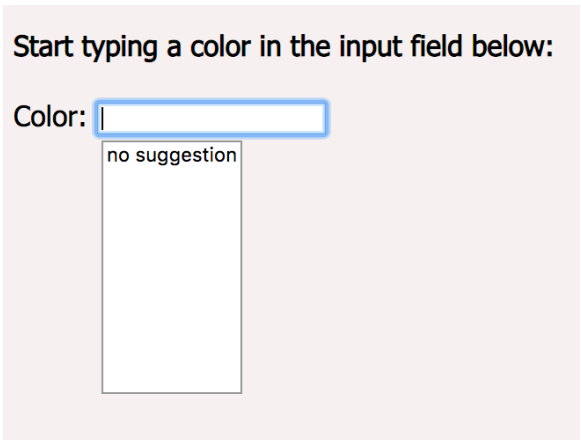
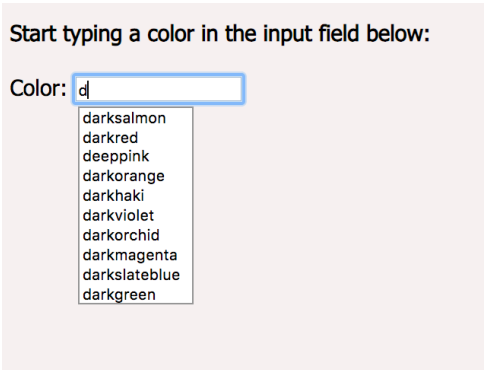
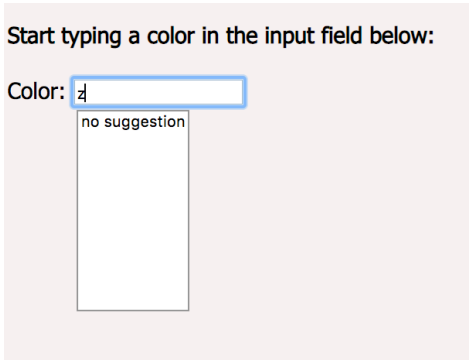
Task A:

Write a function called `showHint()` in q2b.html, which displays the possible colors that the user is searching for in a drop-down box. The function is triggered by the **onkeyup** event, which occurs when a user enters a character in the input field.

Note: to identify the possible list of colors that the user is searching for, use the **colors** array provided in q2b.html. Use Javascript built-in function `string.startsWith(searchValue)`, which

returns Boolean value `true` if the string starts with the `searchValue`, otherwise returns Boolean value `false`.

An example use case scenario is given below:

<p>When the user has not entered any input:</p>  <p>Start typing a color in the input field below:</p> <p>Color: <input type="text"/></p> <p>no suggestion</p>	<p>When the user enters the character 'i', a list of possible colors, starting with character 'i', appears in the drop-down box below:</p>  <p>Start typing a color in the input field below:</p> <p>Color: <input type="text" value="i"/></p> <p>indianred indigo ivory</p>
<p>When the user enters the character 'in', a list of possible colors, starting with characters 'in', appears in the drop-down box:</p>  <p>Start typing a color in the input field below:</p> <p>Color: <input type="text" value="in"/></p> <p>indianred indigo</p>	<p>Then, when the user deletes all the characters, "no suggestion" appears in the drop-down box:</p>  <p>Start typing a color in the input field below:</p> <p>Color: <input type="text"/></p> <p>no suggestion</p>
<p>When the user enters the character 'd', a list of possible colors, starting with character 'd', appears in the drop-down box below:</p>  <p>Start typing a color in the input field below:</p> <p>Color: <input type="text" value="d"/></p> <p>darksalmon darkred deeppink darkorange darkhaki darkviolet darkorchid darkmagenta darkslateblue darkgreen</p>	<p>When the user enters the character 'z', the drop-down box shows no suggestion:</p>  <p>Start typing a color in the input field below:</p> <p>Color: <input type="text" value="z"/></p> <p>no suggestion</p>

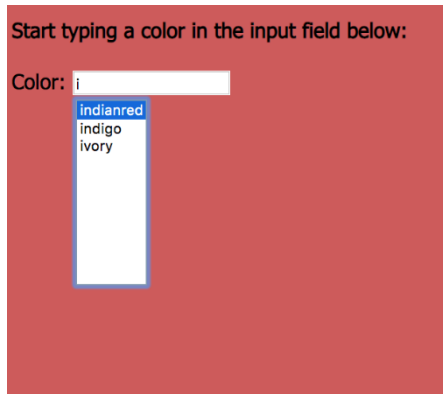
(5 marks)

Task B:

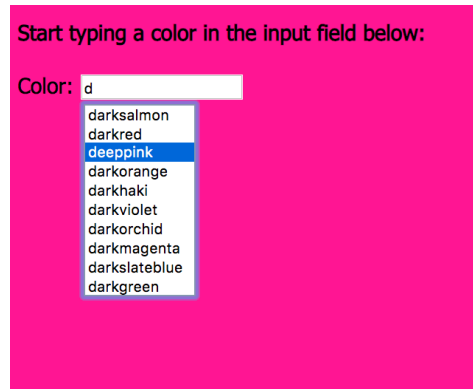
Write a function called `changeColor()` in `q2b.html`, which will change the **background color** of the web page according to the color selected by the user. The function is triggered by the **onchange** event, which occurs when the user selects a color in the drop-down box.

An example use case scenario is given below:

When the user selects the color “indianred” in the drop-down box:



When the user selects the color “deeppink” in the drop-down box:

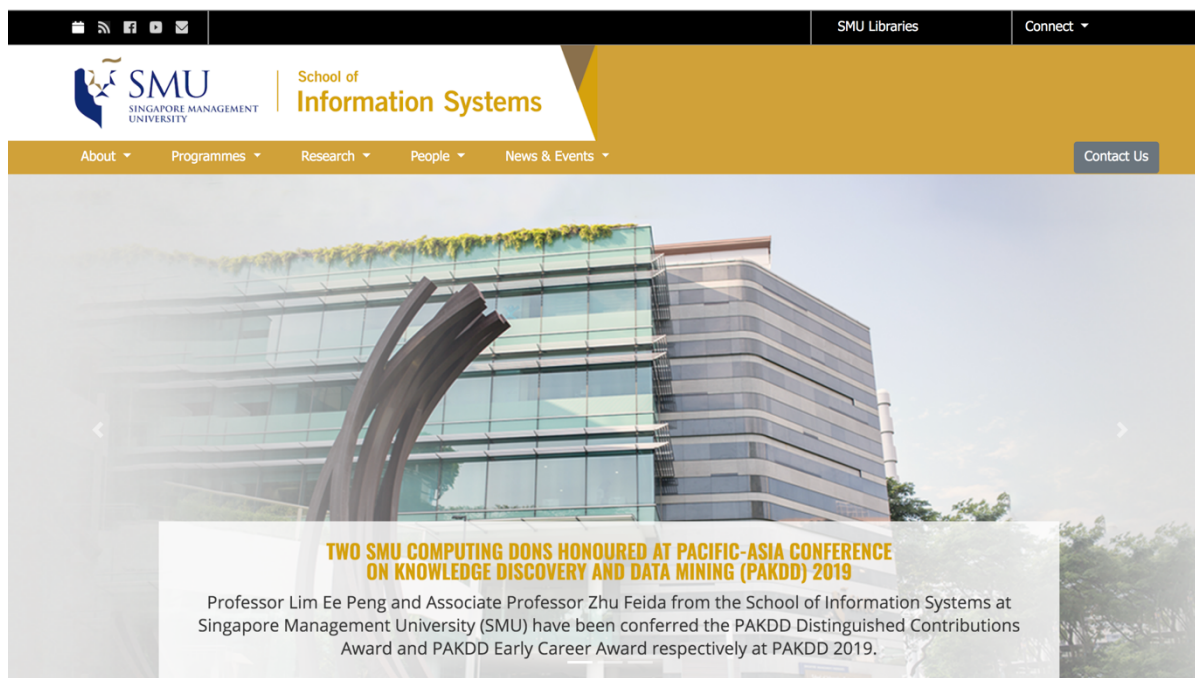


(4 marks)

Question 3 [*]****(20 marks)****Given:**

- q3.html
- bootstrap/bootstrap.min.css (DO NOT MODIFY THIS FILE)
- bootstrap/jquery-3.4.1.min.js (DO NOT MODIFY THIS FILE)
- bootstrap/popper.min.js (DO NOT MODIFY THIS FILE)
- bootstrap/bootstrap.min.js (DO NOT MODIFY THIS FILE)
- img/<various image files> (DO NOT MODIFY THE CONTENTS)

Using the given resources, modify **q3.html** to create a web page that looks like following:



**** Marks will be given based on how close your page looks and feels to the figure given above, visually. Marks will be distributed across the contents of the web page.**

Note:

- Image files for the icons (event, wifi, facebook youtube, mail) used in the top navigation bar and the slides for the carousel are provided in your resource folder `img/`.
- For the font-family and background color, use the ones that are already provided in the internal styling section of `q3.html`.
- “Connect”, “About”, “Programmes”, “Research”, “People”, “News & Events” are drop-down menus. Each of the drop-down menu consists of “Action”, “Another action” and “Something else here”. An example of the drop-down menu is shown below:

Action

Another action

Something else here

- Your web page should span across the whole browser window.
- Use appropriate grids and margins to place the contents, as similar as possible to the figure given above.
- You are allowed to use any appropriate CSS and Bootstrap styling.