#### **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.
- You are allowed to use only standard PHP classes and functions in your solutions do not use any third party libraries.
- 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 "Ye Jin SON" and email ID is yejin.son.2020, include the following comment at the beginning of each source file you write.

```
<!--
Name: Ye Jin SON
Email: yejin.son.2020
```

- You may wish to comment out the parts in your code which cause errors. But commented code will not be marked.
- Resources: Click <u>here</u>Solutions: Click <u>here</u>

#### Given:

- q1-A.html
- q1-A.php
- q1-B.php
- q1-B-display.php
- (Image Files) trump.jpg, clinton.jpg, kim.jpg, moon.jpg

#### Part A (4 marks) - Difficulty Level (\*)

- 1. Modify q1-A.html such that if the user clicks on the words ("Trump", "Clinton", "Kim", or "Moon"), the corresponding radio button options will be selected/unselected.
- 2. Once the user selects an option (e.g. a person's name) and click on the SUBMIT button on page q1-A.html, the form submits to q1-A.php.
- 3. Modify q1-A.php such that appropriate message will be displayed at the top of the page using Heading-1.
  - For example, if the user selects "Trump" in q1-A.html, then q1-A.php must display:

# Make America Great Again

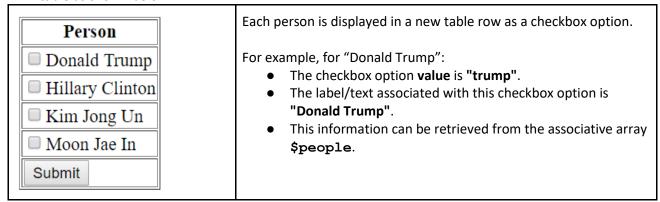
- 4. Modify q1-A.php such that appropriate image will be displayed.
  - O For example, if the user selects "Trump" in q1-A.html, then q1-A.php must display the image file trump.jpg.

#### **Sample Output**

Action Taken (q1-A.html)	Sample Output (q1-A.php)
○ Trump ○ Clinton ○ Kim ○ Moon	You must select a person!
None selected	(Note: Use HTML Heading-1)
● Trump ○ Clinton ○ Kim ○ Moon	Make America Great Again
"Trump" selected	

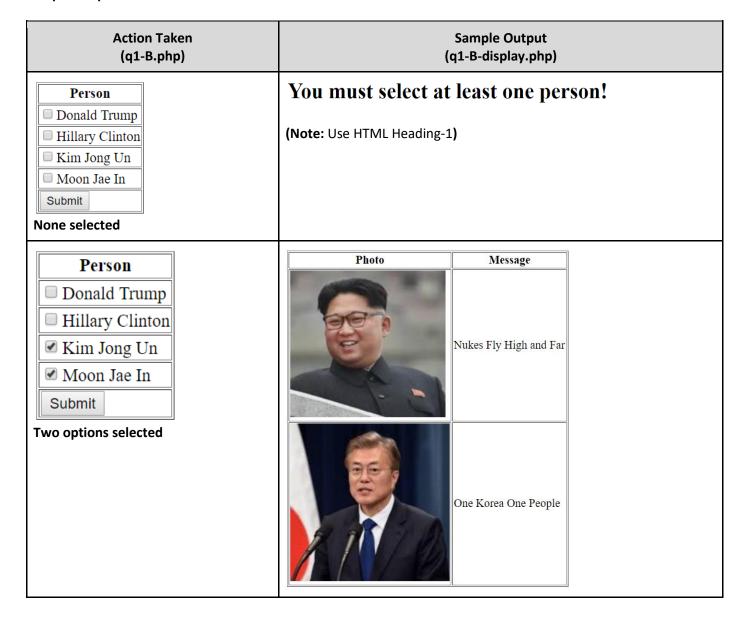
#### Part B (4 marks) - Difficulty Level (\*)

1. Modify **q1-B.php** such that it displays people from the associative array **\$people**. It displays them in an HTML table as shown below.



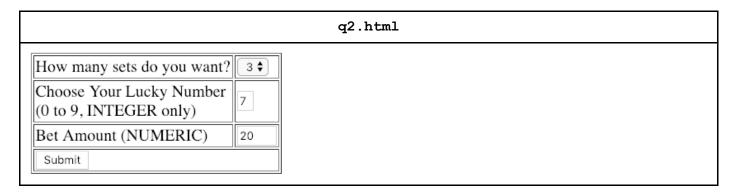
- Once the user selects people and clicks on the SUBMIT button on page q1-B.php, the form submits to q1-B-display.php.
- 3. Modify q1-B-display.php such that appropriate messages AND images will be displayed in an HTML table.

## **Sample Output**



#### Given:

- q2.html
- q2-calculate.php



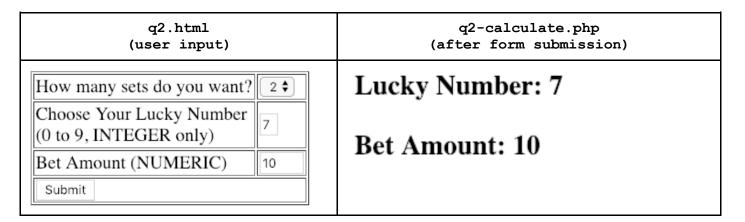
Page q2.html allows the user to specify:

- 1. **quantity:** Number of <u>number sets</u> where each <u>number set</u> consists of THREE (3) integers ranging between ZERO (0) and NINE(9), both numbers inclusive.
  - E.g. 2, 7, 9  $\rightarrow$  this is an example of a number set, and the THREE (3) integers are randomly generated in page q2-calculate.php.
- 2. lucky number: Integer ranging between ZERO (0) and NINE(9), both numbers inclusive)
- 3. bet amount: Numeric

Upon clicking the SUBMIT button, the form submits to q2-calculate.php.

## Part A (1 mark) - Difficulty Level (\*)

- 1. Complete page q2-calculate.php such that it retrieves the following user input from the form.
  - o quantity
  - lucky number
  - o bet amount
- 2. The page then must display the information at the top of the page using HTML Heading-3.



## Part B (2 marks) - Difficulty Level (\*\*)

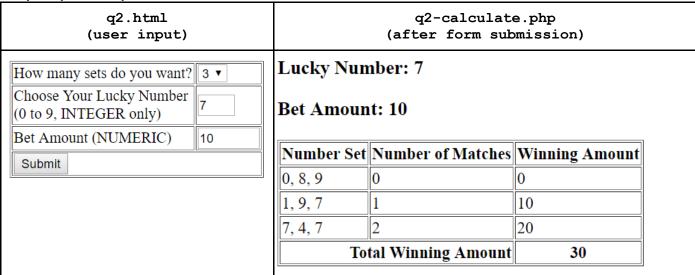
- Inside q2-calculate.php, complete the function generateRandomSets (\$quantity).
- 2. The function takes ONE (1) parameter \$quantity, which is a user-defined value (from Part A).
- 3. The function generates **\$quantity** number of **number sets**, where:
  - o **Each number set** consists of THREE (3) **integers** and;
  - o Each integer ranges between ZERO (0) and NINE (9), both numbers inclusive.
- 4. Please see the partial implementation of the function inside the file for details of what the return value looks like.

**HINT**: Explore the use of PHP rand function

#### Part C (3 marks) - Difficulty Level (\*\*)

- 1. Complete q2-calculate.php. Inside q2-calculate.php, complete the function calculate(\$random\_sets, \$lucky\_number).
- 2. The function takes TWO (2) parameters:
  - \$random sets is the value returned by the function generateRandomSets() (from Part B).
    - It is an (indexed) array of (indexed) arrays.
  - \$lucky number is the user-defined form input (from Part A).
- 3. The function checks each number set and calculates number of matches for that number set.
- 4. Please see the partial implementation of the function inside the file for details of what the return value looks like.

Sample Input & Output



- The user also chose THREE (3) sets of numbers in q2.html.
- The user chose number 7 as the lucky\_number in q2.html with the bet\_amount of 10 in q2.html.
- The user clicks on the SUBMIT button.
- Page q2-calculate.php generated THREE (3) sets of numbers, where each set consists of THREE (3) randomly selected integers.
- q2-calculate.php displays the user input lucky\_number and bet\_amount at the top of the page.
- For <u>each</u> **number set**, the page calculates **winning amount** and displays it in an HTML table.
  - Above, the user's second number set (1, 9, 7) contains lucky\_number (7) ONCE. Hence, the winning amount for this set is 10 (bet\_amount of 10 times 1, which is the number of occurrences of the lucky\_number).
  - The third number set (7, 4, 7) contains **lucky\_number** (7) TWICE. Hence, the winning amount for **this** set is **20** (bet\_amount of 10 *times* 2).
  - Finally, the Total Winning Amount is calculated to be 30 as it is the sum of all winning amounts.

**HINT**: Explore the use of PHP **implode** function for displaying numbers in "Number Set" column in the above table **Question 3 (Difficulty Level:** \*/\*\*/\*\*\*) [6 marks]

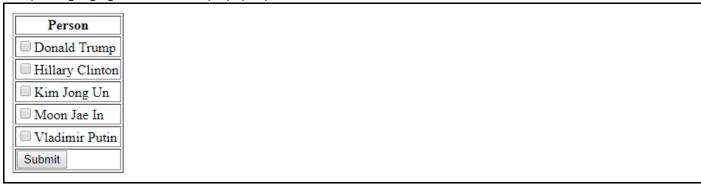
#### Given:

• q3.php

**NOTE:** Marks will be deducted for overly repetitive code that could have been simplified, e.g., by using a loop, or by writing a function.

#### Part A (0.5 mark) - Difficulty (\*)

Complete q3.php such that it displays people's names in an HTML table format as shown below:



- Do NOT HARD-CODE the names.
- Make use of **\$people** associative array provided in the resource file.

#### Part B (1.5 mark) - Difficulty (\*\*)

After the user makes selections and clicks the SUBMIT button in q3.php, the form submits back to q3.php. Complete q3.php such that it displays appropriate messages at the top of the page using Heading-1.

- If no one is selected, display "You didn't select anyone! Select at least THREE (3) people!"
- If one or two people are selected, display "Select at least THREE (3) people!"
- Page q3.php must remember the user's original selections (if any) and display it correctly.

q3.php (user input)	q3.php (after form submission)
Person  Donald Trump  Hillary Clinton  Kim Jong Un  Moon Jae In  Vladimir Putin  Submit  None selected	You didn't select anyone! Select at least THREE (3) people!    Person
Person  Donald Trump Hillary Clinton Kim Jong Un Moon Jae In Vladimir Putin Submit  Less than 3 people selected	Select at least THREE (3) people!  Person Donald Trump Hillary Clinton Kim Jong Un Moon Jae In Vladimir Putin Submit

Part C (2 marks) - Difficulty (\*\*)

Modify **q3.php** as per the below requirements.

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If the user selects THREE (3) or more people in q3.php as shown below:



and clicks on the SUBMIT button, q3.php must display:

- An HTML table listing all people where the user's selections are **checked**.
- An HTML table showing the selected people's images.
  - O It is an N by N matrix.
  - The displayed images are selected **randomly** with an equal probability of each person being selected.

**HINT**: Explore the use of PHP rand function

## **Sample Output**

Person



Part D (2 marks) - Difficulty (\*\*\*)

Continuing from **Part C**, modify **q3.php** to check if all of the displayed images on the **diagonal** are the **same**. Specifically,

- 1) All images on the **diagonal** from the **Top Left Corner** to the **Bottom Right Corner** are the same (showing the same person), **OR**
- 2) All images on the **diagonal** from the **Top Right Corner** to the **Bottom Left Corner** are the same (showing the same person)

Display the following messages if 1) or 2) are satisfied, using HTML Heading-1.

- If 1) is satisfied, display "Top Left to Bottom Right Diagonal FOUND".
- If 2) is satisfied, display "Top Right to Bottom Left Diagonal FOUND".

