

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 "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


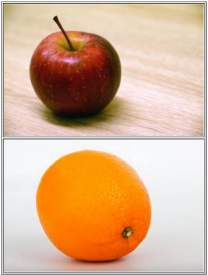
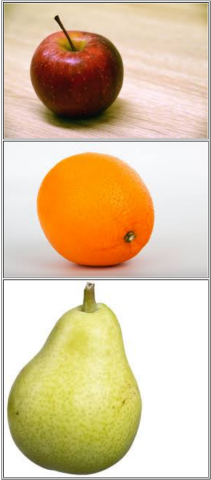
Question 1a (Difficulty Level: *)**[5 marks]****Given:**

- q1a.php
- q1a-display.php

Instructions:

- Modify q1a.php such that if the user clicks on the words ("Apple", "Orange" or "Pear"), the checkbox will be selected/unselected.
1. Once the user selects the fruits and click submit button in page q1a.php, page q1a-display.php will display appropriate images in a tabular format (use border='1' for your table).

Sample Output:

Action Taken	Sample Output
None selected (Note: Use HTML heading 1)	Please select a fruit
"Apple" selected	
"Apple" and "Orange" selected	
"Apple", "Orange" and "Pear" selected	

Question 1b (Difficulty Level: **)

[5 marks]

Given:

- `q1b.php`

Instructions:

1. Implement a function called `sum_of_digits($num)`. The function returns the sum of its constituent digits. For example, if `$num` is 364, then the return value will be $3 + 6 + 4 = 13$. Test your code with `q1b-test.php`.
2. Update `q1b.php` to include a form. A sample output is shown below:

Size:

Note: The dropdown list contains the fixed set of values from 1 to 10 only.

- The user selects a value from the dropdown list and clicks on the button, submits to `q1.php` via HTTP POST and displays the following form:

Note: The number of textboxes generated for numbers depends on the size selected.

Size:

numbers

- Once the user enters the numbers in the textbox and presses submit, the following is displayed:

Note:

- a. The size default value will reset to 1.
- b. The numbers row will disappear.

- Sum of digits for 123 is 6
- Sum of digits for 2203 is 7
- Sum of digits for 328 is 13
- Sum of digits for 8 is 8
- Sum of digits for 90 is 9

Size:

Question 2 (Difficulty Level: **)**[5 marks]****Given:**

- `q2.php`
- `q2-result.php`

A pangram is any phrase that contains at least one of each of the 26 letters in the English alphabet (ignoring case and non-alphabetic characters). For example, "The quick brown fox jumps over a lazy dog." is a pangram because it has all 26 letters of the English alphabet (duplicate letters can be ignored).

Tasks:

1. Update `q2.php` such that it submits to `q2-result.php` via HTTP POST request.
2. Update `q2_result.php` as follows:
 - a. Implement a function called `is_pangram()` that takes in one parameter `$str`. The function returns `True` if `$str` is a pangram. Otherwise, returns `False`.
HINT: The following call to `range('a', 'z')` creates an array of all lowercase alphabets.

```
$alphabets = range( 'a', 'z' );
```
 - b. If the value submitted from `q2.php` is a pangram, displays
`'<value>' is a pangram.`

Otherwise, displays

`'<value>' is NOT a pangram.`

Where `<value>` is to be replaced by the actual value submitted.

Example 1:

`q2.php`: Form value: The quick brown fox jumps over a lazy dog.

`q2_result.php`

`'The quick brown fox jumps over a lazy dog.' is a pangram.`

Example 2:

`q2.php`: Form value: The quick green frog jumps over a lazy pig.

`q2_result.php`

`'The quick green frog jumps over a lazy pig' is NOT a pangram.`

Question 3 (Difficulty Level: ***)

[5 marks]

Given:

1. q3-combined.php
2. Course.php
3. CourseDAO.php

Instructions (Note: You should **only** edit **q3-combined.php**)

1. Complete q3-combined.php such that the name dropdown list will display the distinct names of students whose timetable is found in the timetable table.
2. Your implement should make use of the `retrieveNames` and `retrieveCourses` methods given in the `CourseDAO.php`. For more details, see the comments in the PHP file.
3. For `numUnits` property of a `Course` object, the value 1 refers to 1.5-hour class, and 2 to a 3-hour class.
4. When several names are selected and the "Show Timetable" button is clicked, the page refreshes to show **all the selected student** timetable and the name should be "selected" in the dropdown list.
5. When the page first loads, the timetable displayed will be for **all the students** in the dropdown list.
6. Marks will be deducted for overly repetitive code that could have been simplified, e.g., by using a loop, or by writing a function.
7. You can assume that `retrieveNames` of `CourseDAO.php` always returns at least one name.

Example 1: First time page is loaded

Name:

Apple LEE
 Bruce LOH
 Colin TEO
 Danny WANG

 Show Combined Timetable

	08:30am - 10:00am	10:00am - 11:30am	12:00nn - 1:30pm	1:30pm - 3:00pm	3:30pm - 5:00pm	5:00pm - 6:30pm
MON	Colin TEO (CS113)		Danny WANG (CS888)		Danny WANG (CS888)	
		Apple LEE (WRIT001)				
TUE	Apple LEE (IS112)		Colin TEO (CS111)		Danny WANG (CS888)	
	Bruce LOH (IS112)			Apple LEE (IDIS001)		
	Colin TEO (CS110)					
WED	Danny WANG (CS888)	Apple LEE (WRIT001)	Bruce LOH (OBHR001)		Danny WANG (CS888)	
		Bruce LOH (WRIT001)				
THU	Danny WANG (CS888)		Danny WANG (CS888)		Apple LEE (IS113)	
					Bruce LOH (IS113)	
					Colin TEO (CS112)	
FRI	Danny WANG (CS888)	Bruce LOH (WRIT001)	Danny WANG (CS888)		Danny WANG (CS888)	

Example 2: After 'Apple LEE' and 'Bruce LOH' are selected and 'Show Combined Timetable' is clicked

Apple LEE
 Bruce LOH
 Colin TEO
 Name: Danny WANG

	08:30am - 10:00am	10:00am - 11:30am	12:00nn - 1:30pm	1:30pm - 3:00pm	3:30pm - 5:00pm	5:00pm - 6:30pm
MON		Apple LEE (WRIT001)				
TUE	Apple LEE (IS112)			Apple LEE (IDIS001)		
	Bruce LOH (IS112)					
WED		Apple LEE (WRIT001)	Bruce LOH (OBHR001)			
		Bruce LOH (WRIT001)				
THU					Apple LEE (IS113)	
					Bruce LOH (IS113)	
FRI		Bruce LOH (WRIT001)				

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