Software developer fitness test

Instructions

The objective of this exercise is to see how you approach a programming problem. It also helps us to see how you solve it as well as how you communicate your solution effectively.

You must try a minimum, **ONE** question and let me know the question number and how long you'll need to complete it. For each question, there is a "**deliverables**" section, please read and act accordingly.

Send your answers to: **azmeer.sc@gmail.com** **AND** **ops.ebase@gmail.com**

Question 1

Scenario:

"Martha Restaurant" is a famous restaurant offering a variety of food. The following is their menu. A customer first orders a main dish. Then he must order one or more side dishes. He may or may not order desserts.

Main dishes

ID	Main dish	Price
1	Rice	100
2	Rotty	20
3	Noodles	150

Side dishes

ID	Side dish	Price
1	Wadai	45
2	Dhal curry	75
3	FIsh curry	120

Desserts

ID	Dessert	Price
1	Watalappam	40
2	Jelly	20
3	Pudding	25

Deliverables:

- You are to develop a web based ordering application using PHP/Python, MySQL/MariaDB, Javascript, CSS3 & Html5.
- Code should be available via GitHub with deploy instructions.
- There is only ONE user, the waiter. He will use the application to take orders from customers.
- Reports needed,
  - Daily sales revenue
  - Most famous main dish
  - Most famous side dish
  - Which side dish is consumed most with which main dish

- MS-Word (or compatible) document with screenshots and captions

Marking guide:

1. Requirement document with <u>flow chart</u> & <u>database relationship diagrams</u>. It should also contain the final <u>project UI screenshots</u> (MS-Word, Google Doc, PDF or compatible)
2. Use of validated HTML5
3. Seperate CSS & JS files
4. Responsive UI
5. Clean code (indentation, spacing, naming convention, comments)
6. Use of frameworks (CSS, JS, PHP Laravel, Python Django)
7. OOP principles

Question 2

Dr. John is a doctor. He has a private clinic center. Every evening he is treating the patients. He plans to use a system to manage his patients' information. His decided on a system that needs to achieve the following requirements:

- Maintain the personal details of the patients (name, birthday, contact no, photo, nic, notes)
- Need to record the all the prescriptions that relevant to each patient with particular date
- Tracking the bill payments
- Before treat the patient, needs to observe the previous records of the patient (use the personal details of the patient to filter the patient's record)
- Revenue report for given time period

Develop an appropriate system to fulfill the Dr. John's requirements

Deliverables:

- You are to develop a web based application using PHP/Python, MySQL/MariaDB, Javascript, CSS3 & Html5.
- Code should be available via GitHub with deploy instructions.
- There is only ONE user, the doctor.
- Reports needed,
    - Revenue for a given period
- MS-Word (or compatible) document with screenshots and captions

Marking guide:

1. Requirement document with <u>flow chart</u> & <u>database relationship diagrams</u>. It should also contain the final <u>project UI screenshots</u> (MS-Word, Google Doc, PDF or compatible)
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6. Use of frameworks (CSS, JS, PHP Laravel, Python Django)
7. OOP principles

Question 3

Develop a simplified algorithm to solve the following problem

```
$noOfPeriods; //possible values: 1, 2, 4, 12
$currentMonth; //possible values: 1 to 12
$window = -1; //possible values: 0 to 11, default = -1
```

$noOfPeriods	$window											
1	0											
2	0						1					
4	0			1			2			3		
12	0	1	2	3	4	5	6	7	8	9	10	11
$currentMonth	1	2	3	4	5	6	7	8	9	10	11	12

Sample input outputs

noOfPeriods	currentMonth	window
1	1 to 12	0
2	1, 2, 3, 4, 5, 6	0
2	7, 8, 9, 10, 11, 12	1
4	1, 2, 3	0
4	6, 7, 8	2
12	1 to 12	Same as currentMonth-1

Deliverables:

- Flowchart
- Pseudo code with test data for all 4 scenarios
- MS-Word (or compatible) document with screenshots and captions
- PHP function → eg:

```php
function getWindowIdx($noOfPeriods, $currentMonth)
{
    //your code here

    return $window;
}
```

- Test your algorithm with following loop:

```php
for ($m = -5; $m <= 15; $m++) {
    $noOfPeriods = 4; //possible values -> 1,2,4,12
    $currentMonth = $m;
    echo "<p>currentMonth=$currentMonth  : noOfPeriods=$noOfPeriods :
window=".getWindowIdx($noOfPeriods, $currentMonth)."</p>";
}
```

Question 4

A food ordering system allows customers to order food items from multiple restaurants at the sametime. At the end of the order process:

a.   Customer receives only one invoice showing the complete order
b.   Each restaurant receives a separate order, showing the items from that restaurant

Database table structure

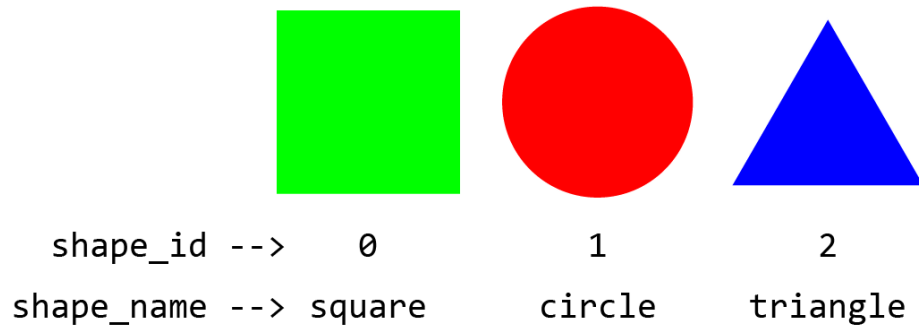This is only a proposal, you have the freedom to change any of this.

- Items [**id**, title, price, restauranat_id]
- Restaurants [**id**, title]
- Orders [**id**, item_id]
- Invoices [**id**, order_ids]

Requirement

- Generate algorithm for a & b above. Develop relationship diagrams for tables.
- MS-Word (or compatible) document with screenshots and captions

Question 5

A html page has the following SVG image. When a user clicks on a shape, update the input field with the shape id and shape name. Make sure the html is validated and has NO errors and compliant with HTML5. You may use any JavaScript framework (eg: plain vanilla, jQuery, React, Angular etc…)

```
shape_id -->      0              1              2
shape_name --> square         circle        triangle
```

```
Selected shape_name: [            ]
Selected shape_id:   [            ]
```

Deliverables:

- HTML page with Javascript code
- MS-Word (or compatible) document with screenshots and captions

Question 6

1. Install WordPress
2. Install plugin from → https://wordpress.org/plugins/jwt-auth/
3. Write a program to connect WordPress via JWT API and display content from Wordpress on a third party app (accepted technologies: Laravel, LiveWire, or Flutter)
4. Push some content from your app to appear on WordPress (eg: Post or Page)

Deliverables:

MS-Word (or compatible) document with notes, screenshots and captions