Assignments

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Introduction to PHP

Sr. No.

1.   **Zodiac Data Solutions Ltd.** is a popular company based in **Chicago**, **Illinois** providing solutions to its clients. The company is in the process of conducting recruitment interviews in different technical institutes for upcoming projects. The candidates interested in PHP development can attend the campus interviews. Based on their performance, the candidates are provided short-term training in any DBMS of their choice and recruited for database development in the company.
 	
Consider yourself as a student of second year Computer Science who has participated in the campus interview. You have been provided with a set of interview questions as follows:
 	
   1. Explain in brief the installation of PHP.
   2. Which command is used to install PHP?
   3. Write a simple PHP script.
   4. Write a script that shows how to display text using a variable.

Installing and Configuring PHP 7

Sr. No.	Assignment Question

1.	**EarnestSoft** is a Web application development organization located at California. **EarnestSoft** has recently acquired a project to implement an online shopping cart for its client. You have been assigned to the team that will be responsible for developing the application. Based on the specifications, the application will be developed using PHP 7 and will be running on the Apache Web server in Linux environment.
	
	 As the initial installation and configuration step, you have been assigned to perform the following tasks:
	
	 • Download Apache
	 •
	 • Download PHP 7 and extract the downloaded package.
	 • Install the following development packages.
	 • Install the following development packages to be used in the project.
	      `aspell-devel`
	      `bzip2-devel`
	      `freetype-devel`
	      `gmp-devel`
	      `libXpm-devel`
	      `libcurl-devel`
	      `libjpeg-turbo-devel`
	      `libmcrypt-devel`
	      `libpng-devel`
	      `libxml2-devel`
	      `libxslt-devel`
	      `mariadb-devel`
	      `recode-devel`
	      `uw-imap-devel`
	      `gcc`
	      `openssl-devel`

2.	For the application mentioned, you have successfully extracted PHP 7 and also installed the development packages in your Linux development environment. As the next step, perform the following tasks: • Configure PHP 7 for installation. • Install PHP 7 on your Linux environment.
3.	PHP 7 has been successfully installed on your Linux environment and you are almost ready to start developing the SetCart application. However, before doing that, you need to test that PHP 7 is working as expected. In order to test that, perform the following tasks: • Configure Apache Web Server to use PHP 7. • Create and deploy a simple PHP page on Apache. • Access the PHP page from the browser to ensure that PHP is working as expected.
4.	You have received the design of the SetCart application and have been assigned by the Project Manager to start the application development. You have completed the

Sr. No.	Assignment Question
	initial task of creating the home page of the SetCart application and have tested it. The requirement states that if the application is down due to maintenance, technical problems, or other issues, after deployed to production, the home page should redirect any request for the application to a different informational Website that notifies users about the reason for the Website inaccessibility. To implement the requirement, update the home page to: • Return an appropriate HTTP response to imply that the requested home page can be found under a different URL. • Redirect incoming requests to the informational Website.

New Features of PHP 7

Sr. No.	Assignment Question
1.	In the online SetCart application that you are currently working on, you have been assigned to work on a reporting module. A part of the module should display the average number of times that a user purchases from the store after logging in. You have developed the algorithm that divides the number of times a user logs in by the number of times a user makes a purchase. You need to ensure that the result is always an integer. Before implementing the algorithm on the application, create a prototype PHP file and use the new intdiv() function introduced in PHP 7 to test that the algorithm works as expected.
2.	The online shopping store application has an innovative feature that allows users to set a price on an item they wish to buy for a specific period. During that period, if the seller reduces the price and the price becomes equal or lesser then the user specified price, the application sends notification to the user's registered email ID and phone number. The application also sends notification if the seller's price remains more than the user specified once the specific period elapses.
3.	Create a prototype PHP page to use the Spaceship Operator (<=>) to compare prices and check whether the seller price is greater than, less than, or equal to the user specified price.
4.	In the online shopping store application, one application requirement states that as user browses through the product pages, a welcome message should be displayed on the top of the pages. If the user, say John is logged in, the message should be displayed as "Hello John". For users who have not logged in, the message should be "Hello Guest". ❖ Create a PHP script as a prototype. ❖ In the prototype page use the Null Coalescing Operator(??) to test the new requirement.
5.	In the online store application, the design requirement recommends using the new PHP 7 features wherever applicable. Accordingly, you have decided to use alias to refer to externally fully qualified names or importing namespaces. To test the alias feature, create a PHP file and perform the following tasks with the use statement: ❖ Alias a class name ❖ Alias an interface name ❖ Alias a namespace name ❖ Group multiple declarations in one statement

Form Handling in PHP

Sr. No.	Assignment Question
1.	**St. Peter Technical Institute** is a famous institute located in **New Jersey**, **USA**. The institute provides training in subjects of Computer Science such as database, programming languages, networking, and so on. The institute also organizes technical competitions to test the aptitude of its students. The winner is provided a certain amount as scholarship to learn additional courses in the institute. You, as a student, have participated in the PHP development competition. You have to perform the following tasks: 1. Create an HTML form to retrieve data using the GET method. 2. Create a PHP script, to retrieve and process the data entered in the HTML form. 3. Retrieve form data in a PHP script using the POST method.

Using Variables and Expressions in PHP

Sr. No.	Assignment Question
1.	Alexia Technologies is an IT-based organization that provides various IT-related services ranging from Web designing to Web application development. Business intelligence services are a requirement that most clients of Alexia Technologies are asking for. Hence, the organization plans to revamp its database to a new model that can support business intelligence services. Also, the company plans to release a Web site that would have client's data. This also needs to be taken into consideration. You, as a PHP developer, have to perform the following tasks: 1. Write a script to display the use of local variables. 2. Write a script to display multiplication of two numbers using global variables. 3. Write a script to view the type of the browser.

Scalar Type Declarations

Sr. No.	Assignment Question
1.	You are working in a company that develops Web applications for various reputed organization. As an employee of the company, you are responsible for developing Web applications using PHP. In one of the applications that you are working on, you need to use PHP weak type checking. For that application, create a PHP page and observe and document the results of the following function calls: ❖ Write a function with a parameter whose data type is integer and then call the function passing a float value. ❖ Write a function with a parameter whose data type is float and then call the function passing a boolean value. ❖ Write a function with a parameter whose data type is bool and then call the function passing a float value. ❖ Write a function with a parameter whose data type is string and then call the function passing a float value.

2.	You are working as a Web application developer for a company. Now, you have been assigned to develop a PHP Web application to implement a question and answer forum. The application design specifies that the code should use strict type checking introduced in PHP 7. To test the new strict type checking feature, create a PHP page as a prototype, perform the following tasks:
	
	❖ Use the `strict_types=1` declaration and observe and document the following function calls:
	  ➤ Write a function with a parameter whose data type is integer and then call the function passing a float value.
	  ➤ Write a function with a parameter whose data type is integer and then call the function passing a boolean value.
	  ➤ Write a function with a parameter whose data type is string and then call the function passing a float value.
	  ➤ Write a function with a parameter whose data type is bool and then call the function passing a float value.
	❖ Change the strict_types declaration to the value 0 and observe and document the function calls again.

3.	As an employee of a Web development company, you have been assigned to develop a PHP blogging application. In the application, you need to create anonymous classes in scenarios when a class need not be documented and when a class is used only once during execution. Before using anonymous classes in the application, create and test a PHP page that uses an anonymous class containing variables.
4.	As an employee of a Web development company, you have been assigned to develop a PHP blogging application. In the application, you need to create anonymous classes in scenarios when a class need not be documented and when a class is used only once during execution. Before using anonymous classes in the application, create and test a PHP page that uses an anonymous class containing variables.
5.	Continuing with the previous PHP blogging application, create an anonymous class in a PHP page. In the anonymous class, declare a method, and then invoke the method on the object of the anonymous class.

PHP Operators

Sr. No.	Assignment Question
1.	**Hereto Systems** is a technology-based organization that creates computer applications. The organization plans to develop Web applications using PHP. These applications would be used in different locations across the globe. As a PHP developer, you need to perform the following tasks: 1. Write a script to display the use of arithmetic operators. 2. Write a script to check whether the given year is a leap year or not, using relational operators. 3. Write a script to display the use of increment operator on a character variable.

Conditional Statements in PHP

Sr. No.	Assignment Question
1.	**Kings Travel and Tours** operator wants to display information of all the important flights in the world. The operator wants to provide flight information at the earliest to the customers. They want to check the availability of the flights for different routes by using some conditions. Use the appropriate command to perform the following tasks: 1. Write a script to check whether the flight is available using if statement. 2. Write a script that accepts the user inputs in a file named flights.html and calculates the fare and total fares in a file named salBonus. 3. Write a script to calculate the commission at the rate of 10% when the fare is greater than $2000 and 5% when the sale is less than $2000.

Flow Control in PHP

Sr. No.	Assignment Question
1.	**Stallone Training Institute** is a training institute located in **Los Angeles**, **USA**. The institute provides training in various courses in different fields such as science, mathematics, and so on. Recently, the institute started using a Web site in which it displays the student and staff details. You as a PHP developer have to accomplish the following tasks: 1. Write a script to create and display the odd numbers for students between 1 and 10. 2. Write a script to create and display the even numbers for students between 1 and 10. 3. Write a script to calculate the HRA of the staff.

Functions in PHP

Sr. No.	Assignment Question
1.	**Zoksimos Electronics Ltd.** employs more than 1,000 workers in its units. Some of these are at junior level while some are at senior level depending upon their expertise and years of experience. Each employee is given annual leave based on the designation. The management at **Zoksimos Electronics Ltd.** is planning to computerize their human resources department and all the data pertaining to employees will now be displayed using PHP. 1. Using PHP calculate the employee monthly salary based on their grades. 2. Calculate the salary of the new employees from the joining date for the current month using date functions. 3. Calculate the total salary paid to employees.

Working with Arrays

Sr. No.	Assignment Question
1.	**Idaho Avalanche Information Centre** in US decides to conduct an awareness program on avalanches for all the local civilians. Their aim is to provide all the necessary information on weather so that the loss to economic and human mankind can be avoided due to avalanches. **Idaho Avalanche Information Centre** especially feels that every skier should be aware of the local weather conditions. Though the weather related information is available in many Web sites, it becomes difficult for the common man to read the data present in different formats and files. This problem becomes even worse, if the person is staying in bad weather conditions. Therefore, the Technology group of **Idaho Avalanche Information Centre** decides to collect the data at one place and present it to the people. Their goal of providing public education starts from the collection of information about all the available centers in Idaho. 1. Using the concept of multi-dimensional arrays, create three arrays named **Sun Valley**, **Panhandle**, and **McCall**. These three arrays store the climatic conditions of the corresponding places. Add minimum of five instances in each array, which stores information on the **Date**, **Time**, **Temperatures in $_0$F**, **Humidity %**, **Average Speed of Wind** and the **Direction of the Wind in Degrees**. 2. Using the methods and properties of Array class, make a comparative study on the various recordings. Depending on the observations made, display which places are safe for skiing. 3. Finally, assuming that examples are more effective, create an indexed array **Accidents** that lists all the accidents that have taken place during the past 10 yrs. This array should also consist of the rescue methods and survivals that are present, if any.

Handling Databases with PHP

Sr. No.
1.	**Gallore Air Pvt. Ltd.** is an airline ticket-booking firm in **Chicago**, **Illinois**. The company books tickets for its customers for various airlines. However, to maintain the records of the number of tickets booked, customer details, flight details, payment details, and so on, the company uses the traditional file system. With growing business needs, it has become difficult to maintain such huge data.

Therefore, the management has decided to develop a database to store the company transactions related data. You as a PHP developer have been assigned the task to provide a solution.

1. Write a script to display all the databases present on the server.
2. Create a table CUSTOMER_CONTACT using the SQL commands in PHP.
3. Write a script to insert records in the CUSTOMER_CONTACT table.
4. Write a script to delete additional records in the CUSTOMER_CONTACT table.
5. Write a script to update the records in the CUSTOMER_CONTACT table. |

Working with Cookies

Sr. No.
1. **Zinga Airways Pvt. Ltd.** is an airline ticket-booking firm in **South Africa**. The company wants to create a Web site where the customer has to enter login name and password before they can book online. The Web site saves the customer information in a cookie. The subsequent Web pages retrieve the customer details from the cookie.   You as a PHP developer have been assigned the task to provide a solution.   1. Create a home page for the **Zinga Airways Pvt. Ltd.** Web site.   2. Create a script to validate the login name and password that the customer enters in the form.   3. Write a script to create Web pages to display the details of the customers and their routes.   4. Store the booking details of the customer in the database.

Session Management in PHP

Sr. No.

1.   **Alexia Technologies** is an IT-based organization that provides various IT-related services ranging from Web designing to Web application development. Business intelligence services are a requirement that most clients of **Alexia Technologies** are asking for. Hence, the organization has planned to train their employees with PHP and support business intelligence services. They are already been trained on the basic concepts of PHP and now, they should have the knowledge about the session management.
 	
 You, as the head of IT department, have to suggest and examine the topics that will be taught in their training. The following topics need to be covered:
       1. Start the session in PHP.
       2. Register the session variables.
       3. End the session.
       4. Remove the session variables.

Handling E-mail with PHP

Sr. No.

1.
Metalane Consulting is a financial analysis and audit firm located in **Fairbanks**, **USA**. The organization provides various services such as tax services, advisory services, auditing, and consulting. The company has a worldwide Web site which is accessed by all the stakeholders of Metalane Consulting. The Web site was built based on the PHP standards.

The management of Metalane Consulting plans to create a new Web site using PHP. PHP provides the facility to send an e-mail. As the Head of the Design Team at Metalane Consulting, you have to perform the following tasks:

1. Write a program to send an e-mail to multiple recipients.

2. Write a program to send an attachment a file using e-mail.

3. Write a program for Mark to send a picture file as an attachment to the following addresses:

   - sammy@mymail.com

   - monica@yourmail.com

   - antony@yourmail.com

OOP Concepts

Sr. No.

1. **Matador Inc.** is a world renowned e-learning company in **Texas, USA.** The company offers online courses for all subjects for students from junior to high school level. Recently, the company started an online course for graduates pursuing different stream. The management of the company has decided to upload the class notes to the Web site for easy reference by the students. Assume that you are one of the PHP developers and have been assigned to perform the following tasks:

    1. Create a class named Student with properties such as name, age, and nationality.

    2. Create functions named getDetails and displayDetails to accept and display the details of the person in the Student class.

-   End of Assignments -

Generator Delegation and Throwable Interface

Sr. No.	Assignment Question
1.	You are working as a PHP developer in PrimerSoft, a Web development company that develops Web applications for various reputed organizations. Currently, you are working on an online forum. The application requirement states to use generator functions for iterators wherever applicable. Before you start using generators in the real application write a generator in a PHP page that accepts two integer variables. In the generator, use a `for` loop to loop from the first integer parameter value to the second parameter value. In the loop, yield the current value. Then, use a `foreach` statement to iterate and print the results that the generator yields.
2.	Continuing with the previous online forum application that you are developing for PrimerSoft, create and test a prototype generator in a PHP page that: ❖ Uses the new `return` expressions introduced in PHP 7 ❖ Use the new `Generator::getReturn()` function ❖ Use generator delegation that yields from a second generator
3.	You are working as a developer at PrimeSoft, a Web application development organization. Currently you are assigned to a team that is developing an online technical forum application being developed in PHP 7. The application requirements instruct to use the new exception and error handling features of PHP 7. You have been assigned to test out the features before applying to the application. As a part of the assignment perform the following tasks: ❖ Create a PHP file to demonstrate the use of `E_ERROR` ❖ Create a PHP file to demonstrate the use of `E_RECOVERABLE_ERROR` ❖ Observe and document the difference between `E_ERROR` and `E_RECOVERABLE_ERROR` ❖ Create a PHP file with code to handle both `Exception` and `Error` that implements the new `Throwable` interface. In the code, simulate an error condition to throw a `TypeError`, and then handle the thrown `Error`

~~ End of Assignments~~