Diploma Engineering

Laboratory Manual

Introduction to Web Development (4340704)

[Computer Engineering, Semester IV]

Enrolment No	
Name	
Branch	Computer Engineering
Academic Term	2024-25 Odd (3rd Semester)
Institute	A V Parekh Technical Institute

Directorate of Technical Education

Gandhinagar - Gujarat

DTE's Vision

- To provide globally competitive technical education.
- Remove geographical imbalances and inconsistencies.
- Develop student friendly resources with a special focus on girls' education and support to weaker sections.
- Develop programs relevant to industry and create a vibrant pool of technical professionals.

Institute's Vision

- To cater skilled engineers having potential to convert global challenges into opportunities through embedded values and quality technical education.

Institute's Mission

- Impart quality technical education and prepare diploma engineering professionals to meet the need of industries and society.
- Adopt latest tools and technologies for promoting systematic problem-solving skills to promote innovation and entrepreneurship
- Emphasize individual development of students by inculcating moral, ethical and life skills.

Department's Vision

- Develop globally competent Computer Engineering Professionals to achieve excellence in an environment conducive for technical knowledge, skills, moral values and ethical values with a focus to serve the society.

Department's Mission

- To provide state of the art infrastructure and facilities for imparting quality education and computer engineering skills for societal benefit.
- Adopt industry-oriented curriculum with an exposure to technologies for building systems & application in computer engineering.
- To provide quality technical professional as per the industry and societal needs, encourage entrepreneurship, nurture innovation and life skills in consonance with latest interdisciplinary trends.

A.V. Parekh Technical Institute
(Department of Technical Education, Gujarat State)

Computer Engineering Department

Certificate

This is to certify that Mr./Ms…… Enrollment No. ……of **4th Semester** of **Diploma in Computer Engineering Department of A V Parekh Technical Institute (GTU Code: 602)** has completed the term work satisfactorily in Subject **Introduction to Web Development - 4340704** for the academic year: **2024-2025** Term: **EVEN** as prescribed in the curriculum.

Place: ……

Date: ……

Subject Faculty

Preface

The primary aim of any laboratory/Practical/field work is enhancement of required skills as well as creative ability amongst students to solve real time problems by developing relevant competencies in psychomotor domain. Keeping in view, GTU has designed competency focused outcome-based curriculum - 2021 (COGC-2021) for Diploma engineering programmes. In this more time is allotted to practical work than theory. It shows importance of enhancement of skills amongst students and it pays attention to utilize every second of time allotted for practical amongst Students, Instructors and Lecturers to achieve relevant outcomes by performing rather than writing practice in study type. It is essential for effective implementation of competency focused outcome- based Green curriculum-2021. Every practical has been keenly designed to serve as a tool to develop & enhance relevant industry needed competency in each and every student. These psychomotor skills are very difficult to develop through traditional chalk and board content delivery method in the classroom. Accordingly, this lab manual has been designed to focus on the industry defined relevant outcomes, rather than old practice of conducting practical to prove concept and theory.

By using this lab manual, students can read procedure one day in advance to actual performance day of practical experiment which generates interest and also, they can have idea of judgement of magnitude prior to performance. This in turn enhances predetermined outcomes amongst students. Each and every Experiment /Practical in this manual begins by competency, industry relevant skills, course outcomes as well as practical outcomes which serve as a key role for doing the practical. The students will also have a clear idea of safety and necessary precautions to be taken while performing experiment.

This manual also provides guidelines to lecturers to facilitate student-centred lab activities for each practical/experiment by arranging and managing necessary resources in order that the students follow the procedures with required safety and necessary precautions to achieve outcomes. It also gives an idea that how students will be assessed by providing Rubrics.

In our day-to-day lives, we use a number of web applications, such as online ticket or hotel booking, e-commerce, social networks, email, etc. All of these web applications are stored on a remote server, delivered over the Internet and accessed through a browser interface. PHP is an open-source, server-side scripting language designed specifically for web applications. PHP is one of the most popular choices among developers to develop dynamic, interactive, secure and database-driven web applications. In the growing field of Web technologies, it is essential for diploma-passing students to learn the PHP language to help them build web applications. The goal of this course is to develop web

development skills in students using the server-side scripting language PHP. Students will learn the integration of HTML, PHP and MySQL database to develop web applications.

Although we try our level best to design this lab manual, but always there are chances of improvement. We welcome any suggestions for improvement.

Programme Outcomes (POs):

Following programme outcomes are expected to be achieved through the practical of the course:

1. **Basic and Discipline specific knowledge:** Apply knowledge of basic mathematics, science and engineering fundamentals and engineering specialization to solve the e*ngineering* problems.
2. **Problem analysis**: Identify and analyse well-defined e*ngineering* problems using codified standard methods.
3. **Design/development of solutions:** Design solutions for e*ngineering* well-defined technical problems and assist with the design of systems components or processes to meet specified needs.
4. **Engineering Tools, Experimentation and Testing:** Apply modern en*gineering* tools and appropriate technique to conduct standard tests and measurements.
5. **Engineering practices for society, sustainability and environment:** Apply appropriate technology in context of society, sustainability, environment and ethical practices.
6. **Project Management:** Use engineering management principles individually, as a team member or a leader to manage projects and effectively communicate about well-defined engineering activities.
7. **Life-long learning:** Ability to analyse individual needs and engage in updating in the context of technological changes *in field of engineering.*

Program Specific Outcomes (PSOs)

1. Able to apply the knowledge gained from Mathematics, Basic Sciences in general and all computer science courses in particular to identify, formulate and solve real life complex engineering problems faced in industries and society.

2. The ability to employ modern computer languages, environments and platforms in creating innovative career paths in Hardware, Networking and Software Development technologies.

Practical Outcome - Course Outcome matrix

Course Outcomes (COs):

a. *CO1: Develop PHP scripts using variables, operators and control structures.*

b. *CO2: Develop PHP scripts using arrays and functions.*

c. *CO3: Develop PHP scripts by applying object oriented concepts.*

d. *CO4: Develop web pages using form controls with validation to collect user inputs in PHP.*

e. *CO5: Develop and host interactive websites using PHP and MySQL database.*

<table>
<tr><th>Sr. No.</th><th>Experiment/Practical Outcome</th><th>CO1</th><th>CO2</th><th>CO3</th><th>CO4</th><th>CO5</th></tr>
<tr><td>1</td><td>Environment Setup
i. Install and configure PHP, Web Server and MySQL database using XAMPP/WAMP/LAMP/MAMP.
ii. Create a web page that displays “Hello World.”</td><td>√</td><td>-</td><td>-</td><td>-</td><td>-</td></tr>
<tr><td>2</td><td>Variables, Operators and Expressions
i. Write a script to implement a simple calculator for mathematical operations.
ii. A company has following payment scheme for their staff:
a. Net Salary = Gross Salary – Deduction
b. Gross Salary = Basic pay + DA + HRA + Medical
c. Deduction = Insurance + PF
Where, DA (Dearness Allowance) = 50% of Basic pay
HRA (House Rent Allowance) = 10% of Basic pay
Medical = 4% of Basic pay
Insurance = 7% of Gross salary
PF (Provident Fund) = 5% of Gross salary
Write a script to take the basic salary of an employee as input and calculate the net payment to any employee.</td><td>√</td><td>-</td><td>-</td><td>-</td><td>-</td></tr>
<tr><td>3</td><td>Decision making statements
i. Write a script that reads the name of the car and displays the name of the company the car belongs to as per the below table:
<table><tr><th>Car</th><th>Company</th></tr><tr><td>Safari, Nexon, Tigor, Tiago</td><td>Tata</td></tr><tr><td>XUV700, XUV300, Bolero</td><td>Mahindra</td></tr><tr><td>i20, Verna, Venue, Creta</td><td>Hyundai</td></tr><tr><td>Swift, Alto, Baleno, Brezza</td><td>Suzuki</td></tr></table>ii. Write a script to read the marks of 4 subjects and display the result as per the below instructions:
<table><tr><th>GTU GRADE</th><th>Mark-Range</th></tr></table></td><td>√</td><td>-</td><td>-</td><td>-</td><td>-</td></tr>
</table>

		AA	85 - 100				
		AB	75 - 84				
		BB	65 - 74				
		BC	55 - 64				
		CC	45 - 54				
		CD	40 - 44				
		DD	35 - 39				
		FF	< 35 (FAIL)				
	a. Each of the four subjects is worth 100 marks. b. If a student gets less than 35 marks in any subject, then he/she will be marked as FAIL, otherwise he/she will be marked as PASS. The result contains the grade of each individual subject in tabular format as per the above table. **Loops** iii. Write a script to display Fibonacci numbers up to a given term. iv. Write a script to display a multiplication table for the given number.						
4	**Arrays** i. Write a script to calculate the length of a string and count the number of words in the given string without using string functions. ii. Write a script to sort a given indexed array. iii. Write a script to perform 3 x 3 matrix Multiplication. iv. Write a script to encode a given message into equivalent Morse code.	-	√	-	-	-	
5	**Functions** i. Consider a currency system in which there are notes of 7 denominations, namely Rs. 1, Rs. 2, Rs. 5, Rs. 10, Rs. 20, Rs. 50 and Rs. 100. Write a function that computes the smallest number of notes that will combine for a given amount of money. ii. Write scripts using string functions: a. to check if the given string is lowercase or not. b. to reverse the given string. c. to remove white spaces from the given string. d. to replace the given word from the given string. iii. Write scripts using math functions: a. to generate a random number between the given range. b. to display the binary, octal and hexadecimal of a given decimal number. c. to display the sin, cos and tan of the given angle. iv. Write a script to display the current date and time in different formats.	-	√	-	-	-	

6	**<u>OOP Concepts</u>** i. Write a script to: a. Define a class with constructor and destructor. b. Create an object of a class and access its public properties and methods. ii. Write a script that uses the set attribute and get attribute methods to access a class's private attributes of a class. iii. Write a script to demonstrate single inheritance. iv. Write a script to demonstrate multiple inheritance. v. Write a script to demonstrate multilevel inheritance. vi. Write a script to demonstrate method overriding. vii. Write a script to demonstrate method overloading based on the number of arguments. viii. Write a script to demonstrate a simple interface. ix. Write a script to demonstrate a simple abstract class. x. Write a script to demonstrate cloning of objects.	-	-	**√**	-	-
7	**<u>Forms</u>** i. Create a web page using a form to collect employee information. ii. Extend practical - 7(i) to validate user information using regular expressions. iii. Create two distinct web pages to demonstrate information passing between them using URL - Get method. iv. Create two different web pages to demonstrate information passing between web pages using Hidden variables – Post method.	-	-	-	**√**	-
8	**<u>Session, Cookies</u>** i. Create web pages to demonstrate passing information using Session. ii. Write a script to demonstrate storing and retrieving information from cookies.	-	-	-	**√**	-
9	**<u>Database</u>** i. Create a web page that reads employee information using a form and stores it in the database. ii. Create a web page for employee log-in. iii. Write a script to upload an image to the server. iv. After an employee logs in, create a Home web page that displays basic employee information. v. Create a web page to delete employee profiles from the database. vi. Create a web page that allows employees to change their password.	-	-	-	-	**√**
10	Study of cPanel & Filezilla software	-	-	-	-	**√**

Industry Relevant Skills

The following industry relevant skills of the competency "**Develop Interactive Web application using PHP and MySQL**" are expected to be developed in the student by undertaking the practical of this laboratory manual.

1. Install and configure software as per requirements.
2. Write code for the given problem.
3. Debug program to fix errors.
4. Follow Coding Guidelines.

Guidelines to Teachers

1. Couse faculty should demonstrate experiment with all necessary implementation strategies described in curriculum.
2. Couse faculty should explain industrial relevance before starting of each experiment.
3. Course faculty should involve & give opportunity to all students for hands on experience.
4. Course faculty should ensure mentioned skills are developed in the students by asking.
5. Utilise 2 hrs of lab hours effectively and ensure completion of write up with quiz also.
6. Encourage peer to peer learning by doing same experiment through fast learners.

Instructions for Students

1. Organize the work in the group and make record of all observations.
2. Students shall develop maintenance skill as expected by industries.
3. Student shall attempt to develop related hand-on skills and build confidence.
4. Student shall develop the habits of evolving more ideas, innovations, skills etc.
5. Student shall refer technical magazines and data books.
6. Student should develop habit to submit the practical on date and time.
7. Student should well prepare while submitting write-up of exercise.

A. V. PAREKH TECHNICAL INSTITUTE, RAJKOT
COMPUTER ENGINEERING DEPARTMENT
ASSESSMENT RUBRICS FOR PRACTICAL COMPONENTS

SUBJECT & CODE: Introduction to Web Development - 4340704

- **CONTINUOUS ASSESSMENT (25 Marks):**
- **Laboratory Work and Questionnaire Component (_____ Marks)**

Component	Criteria	Percentage	Assessment
Laboratory Work and Questionnaire	**Excellent**	**91%-100%**	Demonstrates exceptional proficiency in both laboratory work and questionnaire assessments, consistently applying skills and understanding effectively.
	Proficient	**71%-90%**	Shows a strong command of both laboratory work and questionnaire assessments, with minor areas for improvement.
	Satisfactory	**51%-70%**	Achieves a satisfactory level of performance in laboratory work and questionnaire assessments, with room for improvement in some areas.
	Needs Improvement	**31%-50%**	Demonstrates limited proficiency in both laboratory work and questionnaire assessments, with significant areas for improvement.
	Inadequate	**0%-30%**	Fails to meet acceptable standards in both laboratory work and questionnaire assessments; significant improvement is required.

A. V. PAREKH TECHNICAL INSTITUTE, RAJ KOT

COMPUTER ENGINEERING DEPARTMENT

ASSESSMENT RUBRICS FOR PRACTICAL COMPONENTS

SUBJECT & CODE: Introduction to Web Development - 4340704

- **END SEMESTER EXAMINATION (25 Marks):**
- **Viva Examination (_____ Marks):**

Component	Criteria	Percentage	Assessment
Viva Examination	**Excellent**	**91%-100%**	Demonstrates exceptional proficiency in the viva exam, displaying an in-depth understanding and providing comprehensive and insightful answers.
	Proficient	**71%-90%**	Displays a strong grasp of the viva exam topics, providing clear and well-reasoned answers, with minor areas for improvement.
	Satisfactory	**51%-70%**	Provides satisfactory responses during the viva exam, covering the essential topics, with room for improvement in some areas.
	Needs Improvement	**31%-50%**	Demonstrates limited understanding of the viva exam topics, providing answers that may lack clarity or depth, with significant areas for improvement.
	Inadequate	**0%-30%**	Fails to meet acceptable standards in the viva exam, providing answers that are unclear, incorrect, or lacking substance; significant improvement is required.

A. V. PAREKH TECHNICAL INSTITUTE, RAJKOT
COMPUTER ENGINEERING DEPARTMENT
ASSESSMENT RUBRICS FOR MICRO-PROJECT COMPONENT

SUBJECT & CODE: Introduction to Web Development - 4340704

- **MICRO-PROJECT (10 Marks):**

Component	Criteria	Marks	Assessment
Micro-Project Work	**Excellent**	**9 - 10**	Demonstrates exceptional proficiency in the micro project, delivering an innovative, well-executed, and thoroughly documented project with outstanding results.
	Proficient	**7 - 8**	Displays a strong competence in the micro project, delivering a well-executed and documented project with good results, with minor areas for improvement.
	Satisfactory	**5 - 6**	Successfully completes the micro project, meeting the basic requirements and delivering a project that meets expectations but may lack innovation, with room for improvement in some aspects.
	Needs Improvement	**3 - 4**	Demonstrates limited proficiency in the micro project, with a project that may have significant issues, incomplete components, or lacks adherence to guidelines; significant areas for improvement.
	Inadequate	**0 - 2**	Fails to meet acceptable standards in the micro project, delivering a project that is significantly flawed or incomplete; significant improvement is required.

Continuous Assessment Sheet

Enrolment No: _____ Name:_____

Term: 2024-2025 Even

<table>
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10	Study of cPanel and Filezilla software				

Practical No. 1: Environment Setup.

1. Install and configure PHP, Web Server and MySQL database using XAMPP/WAMP/LAMP/MAMP.
2. Create a web page that displays "Hello World."

A. Objectives:

A development environment is required to write, compile, run, and debug any application. This practical will help student to set up PHP environment for executing PHP program using different server like XAMPP or WAMP server.

B. Relevant Program Outcomes (POs):

1. **Basic and Discipline specific knowledge (PO1):** Apply knowledge of basic mathematics, science and engineering fundamentals and engineering specialization to solve the Computer Engineering problems.
2. **Engineering Tools, Experimentation and Testing (PO4):** Apply modern Computer Engineering tools and appropriate technique to conduct standard tests and measurements.
3. **Engineering practices for society, sustainability and environment (PO5):** Apply appropriate technology in context of society, sustainability, environment and ethical practices.

C. Competency and Practical Skills:

This practical is expected to develop the following skills for the industry-identified competency '**Develop Interactive Web application using PHP and MySQL**':

1. Installing and configuring softwares as per the requirements.
2. Programming skills.
3. Debugging skills.

D. Relevant Course Outcomes (COs):

1. Develop PHP scripts using variables, operators and control structures.

E. Practical Outcomes:

1. Install and configure web application development environment for PHP and MySQL.

F. Relevant Affective domain Outcomes (ADOs):

1. Maintain tools and equipments.
2. Follow Coding standards and practices.
3. Follow ethical practices

G. Prerequisite Theory:

XAMPP is one of the most popular software pack to set up web application development environment for PHP with all required software components. XAMPP is an Open Source AMP stack which stands for ***Cross platform, Apache, MariaDB, PHP*** and ***Perl***. ***Apache*** is cross platform web server, ***MariaDB*** is the most widely used database developed by MySQL, ***PHP*** is a backend scripting language and ***Perl*** is a programming used for web development. ***X*** denotes Cross-platform, which means that it can work on different platforms such as Windows, Linux, and macOS.

XAMPP allows a local host or server to test its website and clients on computers and laptops before releasing them to the main server. It provides a suitable environment for testing and verifying the functioning working of projects based on Apache, Perl, MySQL database, and PHP on the host's system. It also includes administrative tools such as phpMyAdmin, Filezilla FTP Server, Mercury mail server and JSP Tomcat server.

H. Resources Required:

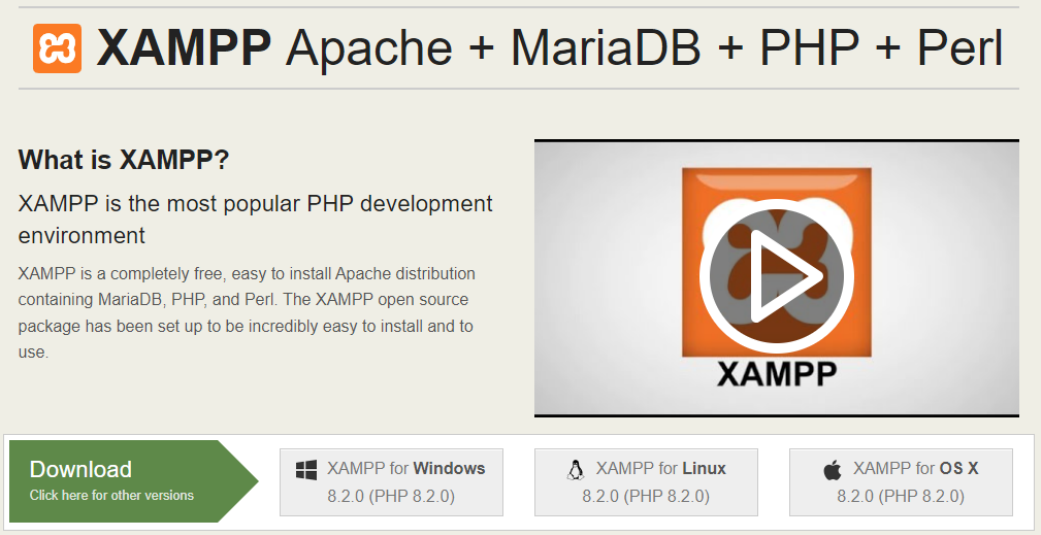
Sr. No	Instrument /Components	Configuration/Specification
1.	Computer System	Processor: RAM: Operating System:
2.	XAMPP server	XAMPP Version:
3.	Text Editor	Editor:
4.	Web Browser	Browser:
5.	Internet Connection	-

I. Procedure:

Below steps describes installation of XAMPP on Windows operating system. Steps are similar for Linux and Mac operating systems.

i. Install XAMPP

1. Open the XAMPP website. Go to https://www.apachefriends.org/index.html in your computer's web browser.

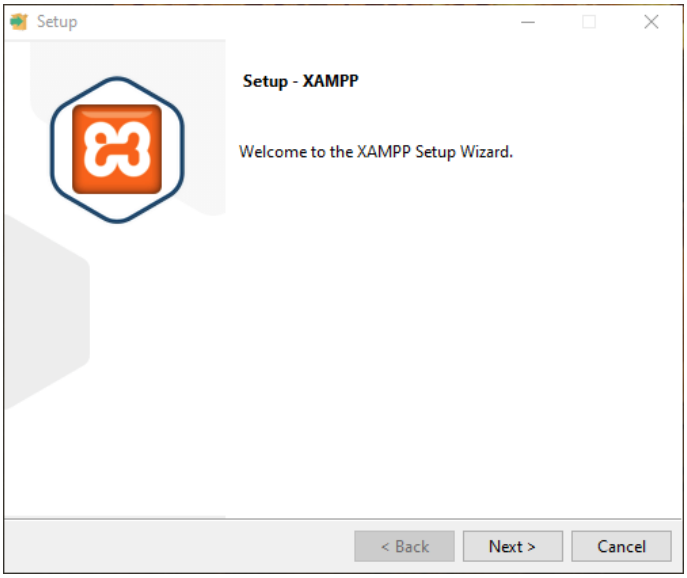


Download latest XAMPP for Windows operating system.

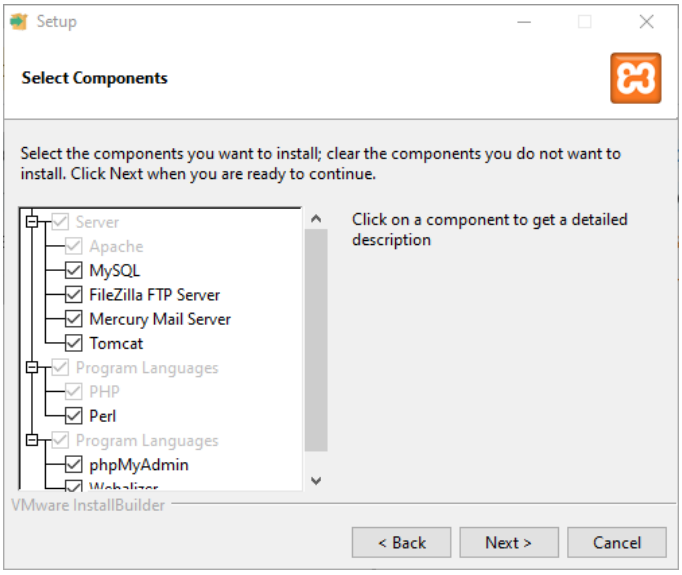
2. Once the XAMPP setup has been downloaded, you can start the installation by double clicking on the .exe file.
3. An active antivirus program can interfere with the installation process, so it is best to temporarily disable any antivirus software until all XAMPP components have been successfully installed.

4. Because User Account Control (UAC) restricts writing access to the C: drive and can interfere with the XAMPP installation, it is recommended that this be disabled for the duration of the installation.

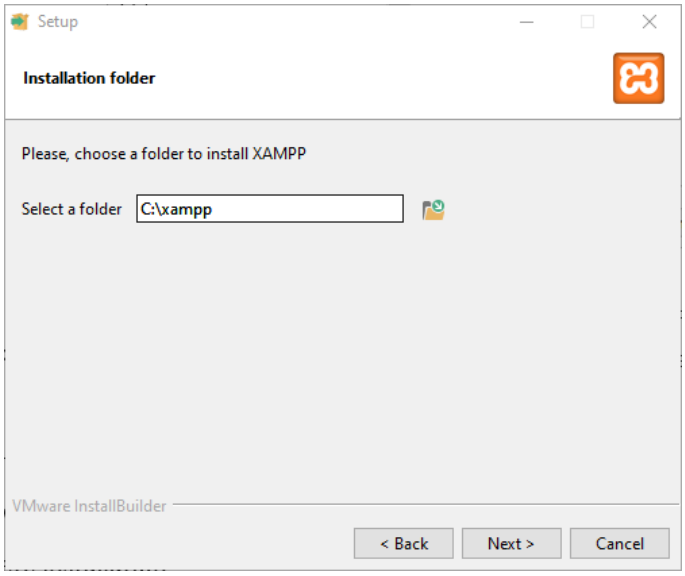
5. After that the start screen of the XAMPP setup wizard should appear automatically. Click on 'Next' to configure the installation settings.



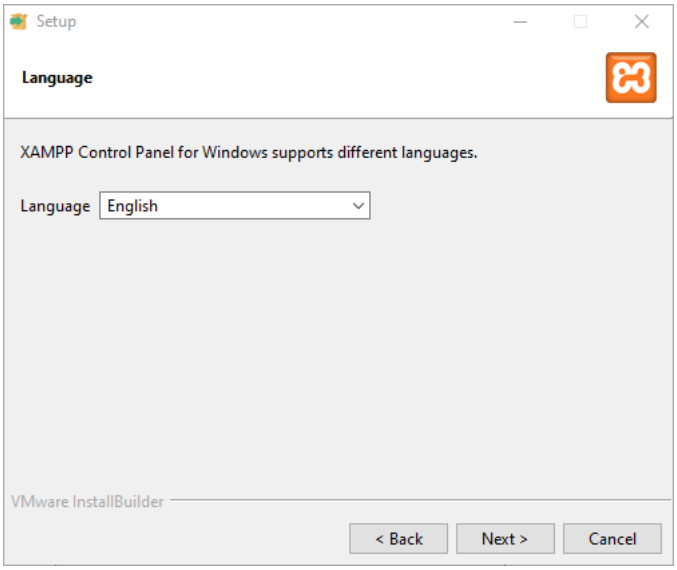
6. Under 'Select Components', you have the option to exclude individual components of the XAMPP software bundle from the installation. But for a full local test server, we recommend you install using the standard setup and all available components. After making your choice, click 'Next'.



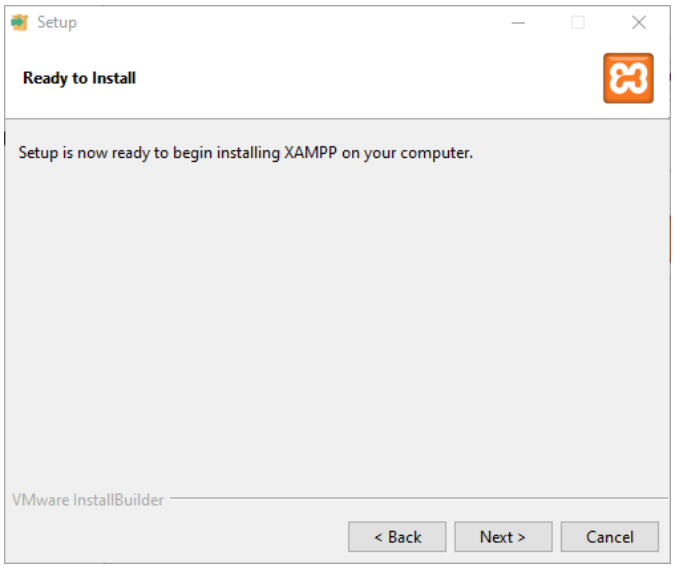
7. In this next step, you have the chance to choose where you'd like the XAMPP software packet to be installed. If you opt for the standard setup, then a folder with the name *xampp* will be created under *C:* for you. After you've chosen a location, click 'Next'.



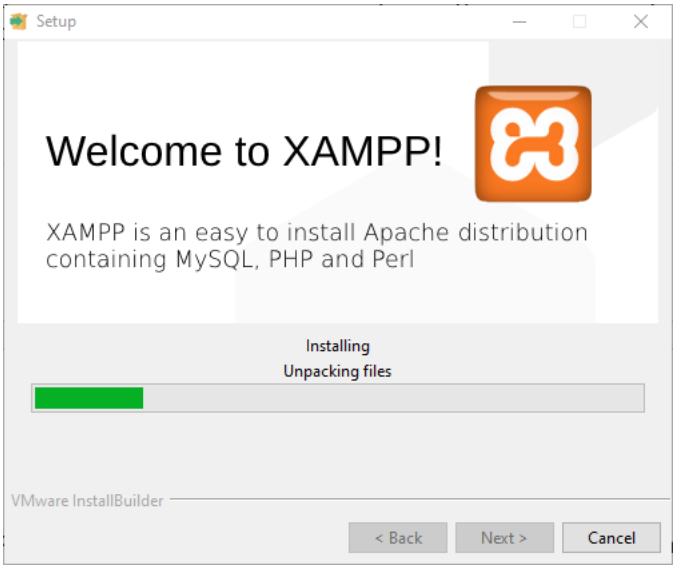
8. Select the language in the next dialog box.



9. On *Ready to Install* screen click on “Next”.

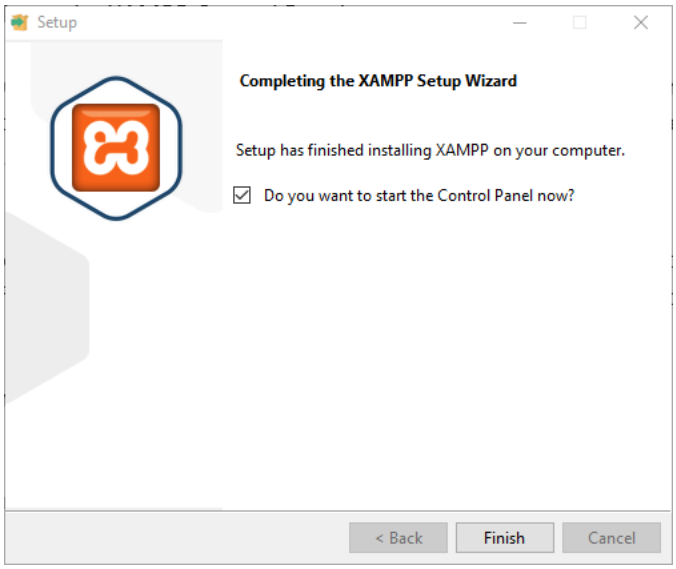


10. Once all the preferences have been decided, click to start the installation. The setup wizard will unpack and install the selected components and save them to the designated directory. This process may take few minutes.



11. Your Firewall may interrupt the installation process to block the some components of the XAMPP. Use the corresponding check box to enable communication between the Apache server and your private network or work network. Remember that making your XAMPP server available for public networks isn't recommended.

12. Once all the components are unpacked and installed, you can close the setup wizard by clicking on 'Finish'. Click to tick the corresponding check box and open the XAMPP Control Panel once the installation process is finished.



13. XAMPP Control Panel provides controls for the individual components of your xampp test server. The control panel user interface allows you to start or stop individual modules: Apache, MySQL, FileZilla, Mercury and Tomcat. The XAMPP Control Panel also offers you various other buttons, including:

Config: allows you to configure the XAMPP as well as the individual components

Netstat: shows all running processes on the local computer

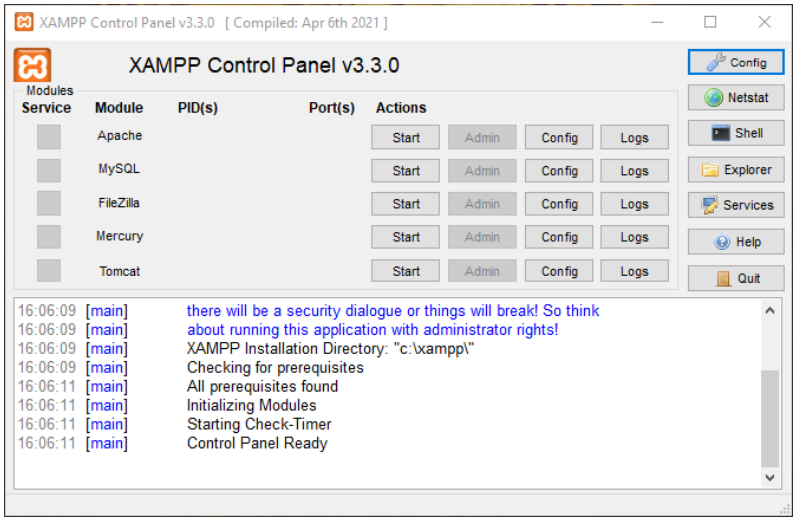
Shell: opens a UNIX shell

Explorer: opens the XAMPP folder in Windows Explorer

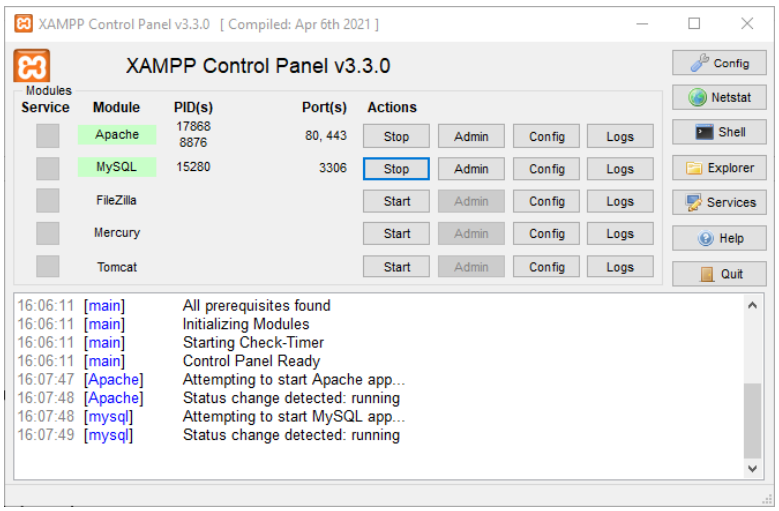
Services: shows all services currently running in the background

Help: offers links to user forums

Quit: closes the XAMPP Control Panel



14. Individual modules can be started or stopped on the XAMPP Control Panel through the corresponding buttons under 'Actions'. You can see which modules have been started because their names are highlighted green under the 'Module' title.



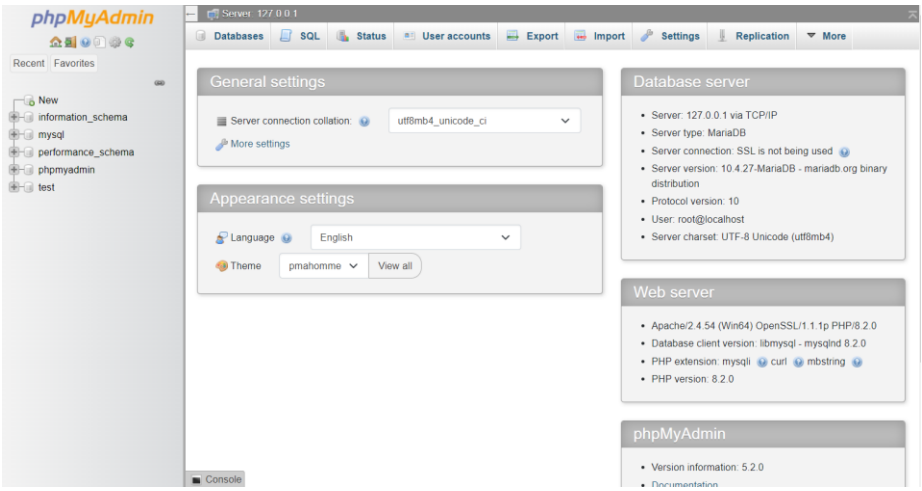
If a module can't be started as a result of an error, you'll be informed of this straight away in red font. A detailed error report can help you identify the cause of the issue.

15. You have an 'Admin' option located on the Control Panel for every module in your XAMPP.

16. Click on the Admin button of your Apache server to go to the web address of your web server. The Control Panel will now start in your standard browser, and you'll be led to the dashboard of your XAMPP's local host. The dashboard features

numerous links to websites for useful information as well as the open source project BitNami, which offers you many different applications for your XAMPP, like WordPress or other content management systems. Alternatively, you can reach the dashboard through localhost/dashboard/.

17. You can use the Admin button of your database module to open phpMyAdmin. Here, you can manage the databases of your web projects that you're testing on your XAMPP. Alternatively, you can reach the administration section of your MySQL database via localhost/phpmyadmin/



ii. Testing XAMPP installation

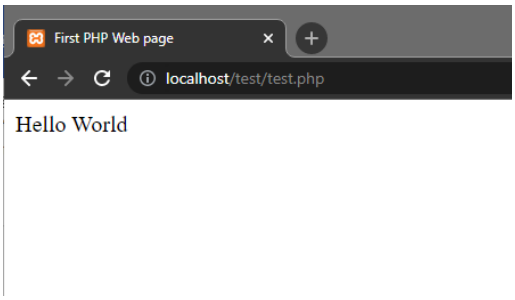
To check whether your test server is installed and configured correctly, you have the option to create a PHP test page, store them on your XAMPP's local host, and retrieve them via the web browser.

18. Open the XAMPP directory through the 'Explorer' button in the Control Panel and choose the folder *htdocs* (*C:\xampp\htdocs* for standard installations). This directory should store all the web pages that you want to test on your XAMPP server. The *htdocs* folder should already contain data to help configuration of the web server. But you should store your own projects in a new folder (for example '*test*' folder).

19. You can create a new PHP file with below code in your editor and storing it as *test.php* in your '*test*' folder (*C:\xampp\htdocs\test*):

```
test.php
1  <html>
2      <head>
3          <title>First PHP Web page</title>
4      </head>
5      <body>
6          <?php
7              echo '<p>Hello World</p>';
8          ?>
9      </body>
10 </html>
11
```

20. Now open a web browser and load your PHP page via localhost/test/test.php. If your browser window displays the words 'Hello World', then you've successfully installed and configured your XAMPP.



Output:

Snapshot of XAMPP Control Panel after installation.

Output:

Snapshot of “Hello World” script code.

Output:

Snapshot of output of “Hello World” script in web browser.

Output:

J. References:

- https://www.apachefriends.org
- https://phpandmysql.com/extras/installing-xampp
- https://www.youtube.com/watch?v=at19OmH2Bg4
- https://www.youtube.com/watch?v=PaDgry5QAt4
- https://www.w3schools.com/php

Practical No. 2: Variables, Operators and Expression

1. Write a script to implement a simple calculator for mathematical operations.
2. A company has following payment scheme for their staff:
   - Net Salary = Gross Salary – Deduction
   - Gross Salary = Basic pay + DA + HRA + Medical
   - Deduction = Insurance + PF

   where, DA (Dearness Allowance) = 50% of Basic pay

   HRA (House Rent Allowance) = 10% of Basic pay

   Medical = 4% of Basic pay

   Insurance = 7% of Gross salary

   PF (Provident Fund) = 5% of Gross salary

   Write a script to take the basic salary of an employee as input and calculate the net payment to any employee.

A. Objectives:

Variables, Operators and Expressions are core part of any programming language.

- Variables are used to store data.
- Operators are used to perform various types of operations on data.
- Anything that you write in PHP script is an expression.

This practical will allow students to practise writing PHP scripts that use variables, operators, and expressions to solve simple problems.

B. Relevant Program Outcomes (POs):

1. **Basic and Discipline specific knowledge (PO1):** Apply knowledge of basic mathematics, science and engineering fundamentals and engineering specialization to solve the Computer Engineering problems.
2. **Problem analysis (PO2):** Identify and analyse well-defined Computer Engineering problems using codified standard methods.
3. **Design/development of solutions (PO3):** Design solutions for Computer Engineering well-defined technical problems and assist with the design of systems components or processes to meet specified needs.
4. **Engineering Tools, Experimentation and Testing (PO4):** Apply modern Computer Engineering tools and appropriate technique to conduct standard tests and measurements.

C. Competency and Practical Skills:

This practical is expected to develop the following skills for the industry-identified competency '**Develop Interactive Web application using PHP and MySQL**':

1. Programming skills.
2. Debugging skills.

D. Relevant Course Outcomes (COs):

1. Develop PHP scripts using variables, operators and control structures.

E. Practical Outcomes:

1. Use PHP variables to store data in PHP scripts.
2. Perform operation on data using operator in PHP scripts.

F. Relevant Affective domain Outcomes (ADOs):

1. Maintain tools and equipments.
2. Follow Coding standards and practices.
3. Follow ethical practices.

G. Prerequisite Theory:

Variables:

A variable is a named area of storage, where you can store a value.

- In PHP, variables are represented by a dollar sign (*$*) followed by the name of the variable.
- Variable names are case-sensitive. For example, *$var* and *$Var* are two different variables.
- A valid variable name starts with a letter or underscore, followed by any number of letters, numbers, or underscores.
- A PHP variable name cannot contain spaces.
- For example, *$enrollmentno, $subject_name, $_itemid* are valid variable names and *$12var, $student name, part_id* are invalid variable names.
- PHP is loosely-typed language, so it doesn't need to specify data type of variables. It automatically analyse assigned value and defined data type of variable.
- Assignment Operator (=) is used to assign the value to a variable. For example,

```
$subject_name = "Introduction to Web Development";
```

PHP has total eight different data types which can be used to define variables:

- Integers − whole numbers, without a decimal point. E.g. – 415, 8341.
- Doubles − floating-point numbers. E.g. – 12.5, 3.14.
- Booleans − two possible values either TRUE or FALSE.
- NULL − special type that only has one value: NULL.

- Strings − sequences of characters. E.g. - 'Introduction to Web Development'.
- Arrays − named and indexed collections of other values.
- Objects − instances of programmer-defined classes
- Resources − special variables that hold references to resources external to PHP. (such as database connections).

Operators:

Operator is a symbol used to perform operations on operands (variables or values). For example:

```
$a = $b + 10;
```

Above code uses arithmetic operator (+) to add 10 to variable *$b* and assign it to variable *$a*.

PHP operators can be categorized into following types:

Arithmetic Operators:

Operator	Name	Example	Description
+	Addition	$a + $b	Sum of two operands
-	Subtraction	$a - $b	Difference of two operands
*	Multiplication	$a * $b	Multiply tow operands
/	Division	$a / $b	Quotient of operands
%	Modulo	$a % $b	Reminder of operands
++	Increment	$a++	Same as $a = $a + 1
--	Decrement	$a--	Same as $a = $a - 1

Assignment Operators:

Operator	Name	Example	Description
=	Assign	$a = $b	Value of right operand is assigned to left operand
+=	Add then assign	$a += $b	Same as $a = $a + $b
-=	Subtract then assign	$a -= $b	Same as $a = $a - $b
*=	Multiply then assign	$a *= $b	Same as $a = $a * $b
/=	Divide then assign (Quotient)	$a /= $b	Same as $a = $a / $b
%=	Divide then assign (Reminder)	$a %= $b	Same as $a = $a % $b

Bitwise Operators:

Operator	Name	Example	Description
&	Bitwise AND	$a & $b	Bitwise AND operation between $a and $b
|	Bitwise OR	$a | $b	Bitwise OR operation between $a and $b
^	Bitwise XOR	$a ^ $b	Bitwise XOR operation between $a and $b
~	Bitwise NOT	~ $a	Bitwise NOT operation on $a
<<	Left shift	$a << $b	Left shift bits of $a by $b steps
>>	Right shift	$a >> $b	Right shift bits of $a by $b steps

Comparison Operators:

Operator	Name	Example	Description
==	Equal	$a == $b	Returns TRUE if $a is equal to $b
!=	Not equal	$a != $b	Returns TRUE if $a is not equal to $b
<>	Not equal	$a <> $b	Returns TRUE if $a is not equal to $b
===	Identical	$a === $b	Returns TRUE if $a and $b are equal and of same data type
!==	Not identical	$a !== $b	Returns TRUE if $a and $b are not equal or of different data type
<	Less than	$a < $b	Returns TRUE if $a is less than $b
>	Greater than	$a > $b	Returns TRUE if $a is greater than $b
<=	Less than or equal to	$a <= $b	Returns TRUE if $a is less than or equal to $b
>=	Greater than or equal to	$a >= $b	Returns TRUE if $a is greater than or equal to $b
<=>	Spaceship	$a <=> $b	Return -1 if $a is less than $b Return 0 if $a is equal $b Return 1 if $a is greater than $b

Logical Operators:

Operator	Name	Example	Description
and	Logical AND	`$a and $b`	Returns TRUE if both $a and $b are true
or	Logical OR	`$a or $b`	Returns TRUE if either $a or $b is true
xor	Logical XOR	`$a xor $b`	Returns TRUE if either $a or $b is true, but not both are TRUE
!	Logical NOT	`! $a`	Returns TRUE if $a is FALSE
&&	Logical AND	`$a && $b`	Returns TRUE if both $a and $b are true
||	Logical OR	`$a || $b`	Returns TRUE if either $a or $b is true

String Operators:

Operator	Name	Example	Description
.	Concatenation	`$a . $b`	Concatenate both $a and $b
.=	Concatenation and assign	`$a .= $b`	Same as `$a = $a . $b`

Expressions

In PHP, anything that has a value is an expression, so most of the statements you write in PHP scrips are expression. For Example:

```
$a = $b;              // $b is an expression
$a = $b * $c;         // $b * $c is an expression
$a = sum($b, $c);     // sum($b, $c) is an expression
$b++;                 // $b++ is an expression
```

H. Resources Required:

Sr. No	Instrument /Components	Configuration/Specification
1.	Computer System	Processor: RAM: Operating System:
2.	XAMPP server	XAMPP Version:
3.	Text Editor	Editor:
4.	Web Browser	Browser:

I. Source code and Output:

1. Write a script to implement a simple calculator for mathematical operations.

Source Code:

Output:

2. A company has following payment scheme for their staff:
   - Net Salary = Gross Salary – Deduction
   - Gross Salary = Basic pay + DA + HRA + Medical
   - Deduction = Insurance + PF

   where, DA (Dearness Allowance) = 50% of Basic pay

   HRA (House Rent Allowance) = 10% of Basic pay

   Medical = 4% of Basic pay

   Insurance = 7% of Gross salary

   PF (Provident Fund) = 5% of Gross salary

   Write a script to take the basic salary of an employee as input and calculate the net payment to any employee.

Source Code:

Output:

J. References:

- https://www.php.net/manual/en/language.variables.php
- https://www.php.net/manual/en/language.expressions.php
- https://www.w3schools.com/php/php_variables.asp
- https://www.w3schools.com/php/php_operators.asp
- https://www.geeksforgeeks.org/php-variables

Practical No. 3: Decision making statements and Loops

1. Write a script that reads the name of the car and displays the name of the company the car belongs to as per the below table:

Car	Company
Safari, Nexon, Tigor, Tiago	Tata
XUV700, XUV300, Bolero	Mahindra
i20, Verna, Venue, Creta	Hyundai
Swift, Alto, Baleno, Brezza	Suzuki

2. Write a script to read the marks of 4 subjects and display the result as per the below instructions:

GTU GRADE	Mark-Range
AA	85 - 100
AB	75 - 84
BB	65 - 74
BC	55 - 64
CC	45 - 54
CD	40 - 44
DD	35 - 39
FF	< 35 (FAIL)

- Each of the four subjects is worth 100 marks.
- If a student gets less than 35 marks in any subject, then he/she will be marked as FAIL, otherwise he/she will be marked as PASS.

The result contains the grade of each individual subject in tabular format as per the above table.

3. Write a script to display Fibonacci numbers up to a given term.
4. Write a script to display a multiplication table for the given number.

A. Objectives:

This practical will help student to practice writing PHP scripts using Decision making structure and Loops.

- Conditional statements are used to perform different actions based on different conditions.
- Loops are used to run same block of code again and again certain number of times.

B. Relevant Program Outcomes (POs):

1. **Basic and Discipline specific knowledge (PO1):** Apply knowledge of basic mathematics, science and engineering fundamentals and engineering specialization to solve the Computer Engineering problems.

2. **Problem analysis (PO2):** Identify and analyse well-defined Computer Engineering problems using codified standard methods.
3. **Design/development of solutions (PO3):** Design solutions for Computer Engineering well-defined technical problems and assist with the design of systems components or processes to meet specified needs.
4. **Engineering Tools, Experimentation and Testing (PO4):** Apply modern Computer Engineering tools and appropriate technique to conduct standard tests and measurements.

C. Competency and Practical Skills:

This practical is expected to develop the following skills for the industry-identified competency '**Develop Interactive Web application using PHP and MySQL**':

1. Programming skills.
2. Debugging skills.

D. Relevant Course Outcomes (COs):

1. Develop PHP scripts using variables, operators and control structures.

E. Practical Outcomes:

1. Use decision making statements in PHP scripts.
2. Use loops in PHP scripts.

F. Relevant Affective domain Outcomes (ADOs):

1. Maintain tools and equipments.
2. Follow Coding standards and practices.
3. Follow ethical practices.

G. Prerequisite Theory:

Decision Making Statements:

Controls statements are used to control are used to control the flow of execution of program based on certain conditions. In PHP, there are following decision making statements:

- `if` statement
- `if...else` statement
- `if...elseif...else` statement
- `switch` statement

`if` statement:

`if` statement allow us to run a block of code if certain condition is true. If condition is false it will not execute block of code.

```
if(condition) {
      Block of code    // statements to execute if condition is
                       // true
}
```

`if...else` statement:

`if...else` executes a block of code if certain condition is true and another block of code if condition is false.

```
if(condition) {
      Block of code    // statements to execute if
                       // condition is true
}
else {
      Block of code    // statements to execute if
                       // condition is false
}
```

`if...elseif...else` statement:

It is similar to multiple `if...else` statements. It executes different blocks of code based on different conditions.

```
if(condition) {
      Block of code    // statements to execute if this
                       // condition is true
}
elseif(condition) {
      Block of code    // statements to execute if this
                       // condition is true
} elseif(condition) {
      Block of code    // statements to execute if this
                       // condition is true
} else {
      Block of code    // statements to execute if all
                       // conditions are false
}
```

`switch` statement:

The switch statement is used to perform different actions based on different conditions. Use the switch statement to select one of many blocks of code to be executed.

```
switch(n) {
    case value1:
        code to be executed if n== value1;
        break;
    case value2:
        code to be executed if n== value2;
        break;
    case value3:
        code to be executed if n== value3;
        break;
    case value4:
        code to be executed if n== value4;
        break;
    ......
    default:
        code to be executed if n != any case;
}
```

Loops:

Loops in PHP are used to execute the same block of code a specified number of times. PHP supports below loop statements:

- `while` loop
- `do...while` loop
- `for` loop
- `foreach` loop

`while` loop:

`while` loop executes a block of code as long as the specified condition is true.

```
while(condition) {
      Block of code          // statements to execute
                             // till condition is true
}
```

do...while loop:

do...while loop executes a block of code once, and then repeats the loop as long as the specified condition is true

```
do {
      Block of code          // statements to execute till
                             // condition is true. Executed once
                             // before checking condition.
} while(condition);
```

for loop:

for loop executes a block of code a specified number of times.

```
for(init counter; condition; increment/decrement counter)   {
      Block of code           // statements to execute
                              // till condition is true
}
```

foreach loop:

foreach loop executes a block of code for each element in an array.

```
foreach ($array as $val)  {
      Block of code           // statements to execute
                              // for each element in an array
}
```

break statement:

break statement is used to terminate the execution of a loop prematurely.

```
while(condition1) {
      Block of code           // statements to execute
                              // till condition1 is true
      if(condition2) {
            break;            // exit while loop is condition2
                              // is true
      }
}
```

continue statement:

continue statement is used to halt the current iteration of a loop and start next iteration of loop. It does not terminate the loop.

```
while(condition1) {

      if(condition2) {
            continue;         // if condition2 is true then
                              // remaining part of the loop will
                              //  not be executed in this
                              // iteration
      }
      Block of code           // statements to execute
                              // till condition1 is true
}
```

H. Resources Required:

Sr. No	Instrument /Components	Configuration/Specification
1.	Computer System	Processor: RAM: Operating System:
2.	XAMPP server	XAMPP Version:
3.	Text Editor	Editor:
4.	Web Browser	Browser:

I. Source code and Output:

1. Write a script that reads the name of the car and displays the name of the company the car belongs to as per the below table:

Car	Company
Safari, Nexon, Tigor, Tiago	Tata
XUV700, XUV300, Bolero	Mahindra
i20, Verna, Venue, Creta	Hyundai
Swift, Alto, Baleno, Brezza	Suzuki

Source Code:

Output:

2. Write a script to read the marks of 4 subjects and display the result as per the below instructions:

GTU GRADE	Mark-Range
AA	85 - 100
AB	75 - 84
BB	65 - 74
BC	55 - 64
CC	45 - 54
CD	40 - 44
DD	35 - 39
FF	< 35 (FAIL)

- Each of the four subjects is worth 100 marks.
- If a student gets less than 35 marks in any subject, then he/she will be marked as FAIL, otherwise he/she will be marked as PASS.

The result contains the grade of each individual subject in tabular format as per the above table.

Source Code:

Output:

3. Write a script to display Fibonacci numbers up to a given term.

Source Code:

Output:

4. Write a script to display a multiplication table for the given number.

Source Code:

Output:

J. References:

- https://www.w3schools.com/php/php_if_else.asp
- https://www.w3schools.com/php/php_looping.asp
- https://www.geeksforgeeks.org/php-decision-making
- https://www.geeksforgeeks.org/php-loops
- https://www.tutorialspoint.com/php/php_decision_making.htm
- https://www.tutorialspoint.com/php/php_loop_types.htm

Practical No. 4: Arrays

1. Write a script to calculate the length of a string and count the number of words in the given string without using string functions.
2. Write a script to sort a given indexed array.
3. Write a script to perform 3 x 3 matrix Multiplication.
4. Write a script to encode a given message into equivalent Morse code.

A. Objectives:

In PHP, array data structure allows user to store multiple elements of similar data type under a single variable. Array provide below advantages:

- No need to use multiple variables to store different data.
- Easy to traverse data in array using loops.
- Easy to sort data stored in array.

This practical will help student to practice writing PHP scripts using arrays.

B. Relevant Program Outcomes (POs):

1. **Basic and Discipline specific knowledge (PO1):** Apply knowledge of basic mathematics, science and engineering fundamentals and engineering specialization to solve the Computer Engineering problems.
2. **Problem analysis (PO2):** Identify and analyse well-defined Computer Engineering problems using codified standard methods.
3. **Design/development of solutions (PO3):** Design solutions for Computer Engineering well-defined technical problems and assist with the design of systems components or processes to meet specified needs.
4. **Engineering Tools, Experimentation and Testing (PO4):** Apply modern Computer Engineering tools and appropriate technique to conduct standard tests and measurements.

C. Competency and Practical Skills:

This practical is expected to develop the following skills for the industry-identified competency '**Develop Interactive Web application using PHP and MySQL**':

1. Programming skills.
2. Debugging skills.

D. Relevant Course Outcomes (COs):

1. Develop PHP scripts using arrays and functions.

E. Practical Outcomes:

1. Develop PHP scripts using one-dimensional, multi-dimensional and associative arrays.

F. Relevant Affective domain Outcomes (ADOs):

1. Maintain tools and equipments.
2. Follow Coding standards and practices.
3. Follow ethical practices.

G. Prerequisite Theory:

PHP array is a collection of similar data times stored in a single variable. It is basically an ordered map, which contains values on the basis of keys/indexes. PHP arrays allows traversing and processing of data items using a single loop. There are three types of arrays in PHP.

1. Indexed arrays
2. Associative arrays
3. Multi-dimensional arrays

Indexed/Numeric arrays

These type of arrays can store data of any type. They have integer indexes that start at zero by default. The Indexed array can be created as follow:

```
$subject_codes = array(4330701,4330702, 4330703, 4330704);
```

Or it can be assigned manually as below:

```
$subject_codes[0] = 4330701;
$subject_codes[1] = 4330702;
$subject_codes[2] = 4330703;
$subject_codes[3] = 4330704;
```

Below example shows accessing data stored in the array:

```
$subject_codes = array(4330701, 4330702, 4330703, 4330704);
echo "Subject codes: <br>";
echo $subject_codes[0] . "<br>";
echo $subject_codes[1] . "<br>";
echo $subject_codes[2] . "<br>";
echo $subject_codes[3] . "<br>";
```

Another way to access all elements in the array using *for* loops is as below:

```
$subject_codes = array(4330701, 4330702, 4330703, 4330704);
echo "Subject codes: <br>";
for($i = 0; $i < count($subject_codes); $i++) {
      echo $subject_codes[$i] . "<br>";
}
```

We can access array data using *foreach* loop as below:

```
$subject_codes = array(4330701, 4330702, 4330703, 4330704);
echo "Subject codes: <br>";
foreach ($subject_codes as $code) {
      echo $code . "<br>";
}
```

Associative arrays

Associative arrays are similar to indexed arrays but instead of integer indexes values are assigned to user-defined keys of string type. Below example shows how to assign associative array:

```
$subjects = array("4330701" => "SLP",
                  "4330702" => "RDBMS",
                  "4330703" => "BOS",
                  "4330704" => "DSA");
```

Or it can be assigned manually as below:

```
$subjects["4330701"] = "SLP";
$subjects["4330702"] = "RDBMS";
$subjects["4330703"] = "BOS";
$subjects["4330704"] = "DSA";
```

Below example shows accessing data stored in the associative array:

```
$subjects = array("4330701" => "SLP",
                  "4330702" => "RDBMS",
                  "4330703" => "BOS",
                  "4330704" => "DSA");
echo "Subjects: <br>";
echo $subjects["4330701"] . "<br>";
echo $subjects["4330702"] . "<br>";
echo $subjects["4330703"] . "<br>";
echo $subjects["4330704"] . "<br>";
```

We can access associative array data using *foreach* loop as below:

```
$subjects = array("4330701" => "SLP",
                  "4330702" => "RDBMS",
                  "4330703" => "BOS",
                  "4330704" => "DSA");
echo "Subjects: <br>";
foreach ($subjects as $code => $sub) {
      echo $code . ": " . $sub . "<br>";
}
```

Multidimensional arrays

A multidimensional array is an array containing one or more arrays. PHP supports multidimensional array that are two or more levels deep. However, arrays more than three levels are hard to manage. Below is example of two dimensional array:

```
$subjects = array (
  array("4330701","SLP",150),
  array("4330702","RDBMS",150),
  array("4330703","BOS",150),
  array("4330704","DSA",150)
);
```

Below example shows a way to access all elements in the multidimensional array using *for* loops is as below:

```
$subjects = array (
  array("4330701","SLP",150),
  array("4330702","RDBMS",150),
  array("4330703","BOS",150),
  array("4330704","DSA",150)
);

for ($row = 0; $row < count($subjects); $row++) {
  echo "Subject " . $row . ": <br>";
  for ($col = 0; $col < count($subjects[0]); $col++) {
    echo $subjects[$row][$col] . "<br>";
  }
}
```

H. Resources Required:

Sr. No	Instrument /Components	Configuration/Specification
1.	Computer System	Processor: RAM: Operating System:
2.	XAMPP server	XAMPP Version:
3.	Text Editor	Editor:
4.	Web Browser	Browser:

I. Source code and Output:

1. Write a script to calculate the length of a string and count the number of words in the given string without using string functions.

Source Code:

Output:

2. Write a script to sort a given indexed array.

Source Code:

Output:

3. Write a script to perform 3 x 3 matrix Multiplication.

Source Code:

Output:

4. Write a script to encode a given message into equivalent Morse code.

Source Code:

Output:

J. References:

- https://www.php.net/manual/en/language.types.array.php
- https://www.w3schools.com/php/php_arrays.asp
- https://www.geeksforgeeks.org/php-arrays
- https://www.tutorialspoint.com/php/php_arrays.htm
- https://www.freecodecamp.org/news/how-to-use-arrays-in-php/

Practical No. 5: Functions

1. Consider a currency system in which there are notes of 7 denominations, namely Rs. 1, Rs. 2, Rs. 5, Rs. 10, Rs. 20, Rs. 50 and Rs. 100. Write a function that computes the smallest number of notes that will combine for a given amount of money.

2. Write scripts using string functions:

- to check if the given string is lowercase or not.
- to reverse the given string.
- to remove white spaces from the given string.
- to replace the given word from the given string.

3. Write scripts using math functions:

- to generate a random number between the given range.
- to display the binary, octal and hexadecimal of a given decimal number.
- to display the sin, cos and tan of the given angle.

4. Write a script to display the current date and time in different formats.

A. Objectives:

A function is a block of reusable code that is used to perform a specific action. Functions provide below advantages:

- Reduce duplication of the code.
- Modularisation of the code.
- Improve clarity of the code.
- Information hiding.

This practical will help student to practice writing PHP scripts using user defined functions and in-built functions.

B. Relevant Program Outcomes (POs):

1. **Basic and Discipline specific knowledge (PO1):** Apply knowledge of basic mathematics, science and engineering fundamentals and engineering specialization to solve the Computer Engineering problems.
2. **Problem analysis (PO2):** Identify and analyse well-defined Computer Engineering problems using codified standard methods.
3. **Design/development of solutions (PO3):** Design solutions for Computer Engineering well-defined technical problems and assist with the design of systems components or processes to meet specified needs.
4. **Engineering Tools, Experimentation and Testing (PO4):** Apply modern Computer Engineering tools and appropriate technique to conduct standard tests and measurements.

C. Competency and Practical Skills:

This practical is expected to develop the following skills for the industry-identified competency '**Develop Interactive Web application using PHP and MySQL**':

1. Programming skills.
2. Debugging skills.

D. Relevant Course Outcomes (COs):

1. Develop PHP scripts using arrays and functions.

E. Practical Outcomes:

1. Develop PHP scripts using in-built and user defined functions.

F. Relevant Affective domain Outcomes (ADOs):

1. Maintain tools and equipments.
2. Follow Coding standards and practices.
3. Follow ethical practices.

G. Prerequisite Theory:

A function is a block of code written in a program to perform some specific task. Functions take inputs as parameters, executes a block of statements or perform operations on these parameters and returns the result. There are two types of functions in PHP:

- **Built-in functions:** PHP provides large collection of built-in library functions (more than 1000 functions). Whenever we need, we can just call these built-in functions as per our requirements.
- **User defined functions:** PHP allows us to create our own customised functions called user defined functions. We can create our own packages of code and use them whenever required.

User defined functions:

User defined functions are defined as below:

```
function functionname() {
      Block of code;
}
```

Note: A function name must start with a letter or an underscore. Function names are NOT case-sensitive.

Below code is example of PHP function which prints a message on the browser.

```
<?php
function writeMessage() {
  echo "Welcome to the PHP course..!!";
}

writeMessage (); // function call
?>
```

Function with arguments:

Data can be passed to functions through arguments. Arguments are specified inside the parentheses after the function name. There can be any number of arguments separated by comma.

```
<?php
function printSubjects($code, $subject) {
  echo "Subject name for code $code is $subject <br>";
}

printSubjects("4330701","Scripting Language -Python");
printSubjects("4330702","Relational Database Management
System");
printSubjects("4330703","Basics of Operating System");
printSubjects("4330704","Data Structures and Algorithms");
?>
```

Arguments are by default passed by value, which means that a copy of the value is passed to the function, so the original variable that was passed into the function is not changed when we modify argument in the function. We can pass argument by reference, where changes made to the argument also change the original variable that was passed in. The & operator is used to pass variable by reference in argument. Below example show how to pass argument by reference:

```
<?php
function incrementVar(&$var) {
  $var += 1;
  return $var;
}
$a = 5;
$res = incrementVar($a);
echo "Value after increment is $res <br>";
?>
```

Below example shows how to use default argument:

```
<?php
function areaofCircle($radius = 10) {
  $area = 2 * 3.14 * $radius;
  echo "Area of Circle is : $area <br>";
}

areaofCircle();
areaofCircle(20);
?>
```

Function with returning value:

Function can return a value using *return* statements:

```
<?php
function sumArray($arr) {
  $sum = 0;
  for ($i = 0; $i < count($arr); $i++) {
    $sum += $arr[$i];
  }
  return $sum;
}
$a = array(4, 9, 11, 25, 17);
$s = sumArray($a);

echo "Sum of array is: $s <br>";
?>
```

H. Resources Required:

Sr. No	Instrument /Components	Configuration/Specification
1.	Computer System	Processor: RAM: Operating System:
2.	XAMPP server	XAMPP Version:
3.	Text Editor	Editor:
4.	Web Browser	Browser:

I. Source code and Output:

1. Consider a currency system in which there are notes of 7 denominations, namely Rs. 1, Rs. 2, Rs. 5, Rs. 10, Rs. 20, Rs. 50 and Rs. 100. Write a function that computes the smallest number of notes that will combine for a given amount of money.

Source Code:

Output:

2. Write scripts using string functions:
   - to check if the given string is lowercase or not.
   - to reverse the given string.
   - to remove white spaces from the given string.
   - to replace the given word from the given string.

Source Code:

Output:

3. Write scripts using math functions:
   - to generate a random number between the given range.
   - to display the binary, octal and hexadecimal of a given decimal number.
   - to display the sin, cos and tan of the given angle.

Source Code:

Output:

4. Write a script to display the current date and time in different formats.

Source Code:

Output:

J. References:

- https://www.php.net/manual/en/language.functions.php
- https://www.w3schools.com/php/php_functions.asp
- https://www.geeksforgeeks.org/php-functions
- https://www.tutorialspoint.com/php/php_functions.htm
- https://zetcode.com/php/function

Practical No. 6: OOP Concepts

1. Write a script to define a class with constructor and destructor.
2. Create an object of a class and access its public properties and methods.
3. Write a script that uses the set attribute and get attribute methods to access a class's private attributes of a class.
4. Write a script to demonstrate single inheritance.
5. Write a script to demonstrate multiple inheritance.
6. Write a script to demonstrate multilevel inheritance.
7. Write a script to demonstrate method overriding.
8. Write a script to demonstrate method overloading based on the number of arguments.
9. Write a script to demonstrate a simple interface.
10. Write a script to demonstrate a simple abstract class.
11. Write a script to demonstrate cloning of objects.

A. Objectives:

From PHP5, you can also write PHP code in an object-oriented style. Object-Oriented Programming (OOP) is a programming paradigm that emphasizes the use of objects and classes to structure code and data in a way that promotes code reuse, modularity, and maintainability. In PHP, OOP has several practical significances, including:

- Code organization
- Encapsulation
- Inheritance
- Polymorphism
- Modularity

Overall, OOP in PHP can make it easier to write more maintainable, extensible, and reliable code, which can ultimately lead to faster development times and fewer bugs.

B. Relevant Program Outcomes (POs):

1. **Basic and Discipline specific knowledge (PO1):** Apply knowledge of basic mathematics, science and engineering fundamentals and engineering specialization to solve the Computer Engineering problems.
2. **Problem analysis (PO2):** Identify and analyse well-defined Computer Engineering problems using codified standard methods.
3. **Design/development of solutions (PO3):** Design solutions for Computer Engineering well-defined technical problems and assist with the design of systems components or processes to meet specified needs.

4. **Engineering Tools, Experimentation and Testing (PO4):** Apply modern Computer Engineering tools and appropriate technique to conduct standard tests and measurements.
5. **Project Management (PO6):** Use engineering management principles individually, as a team member or a leader to manage projects and effectively communicate about well-defined engineering activities.
6. **Life-long learning (PO7):** Ability to analyse individual needs and engage in updating in the context of technological changes in field of engineering.

C. Competency and Practical Skills:

This practical is expected to develop the following skills for the industry-identified competency '**Develop Interactive Web application using PHP and MySQL**':

1. Programming skills.
2. Debugging skills.

D. Relevant Course Outcomes (COs):

1. Develop PHP scripts by applying object-oriented concepts.

E. Practical Outcomes:

1. Develop PHP scripts with the help of various object-oriented concepts like class, object, constructor, inheritance, interface, overloading and overriding.

F. Relevant Affective domain Outcomes (ADOs):

1. Maintain tools and equipments.
2. Follow Coding standards and practices.
3. Follow ethical practices.

G. Prerequisite Theory:

Before diving into implementing OOP concepts in PHP, it's important to have a solid understanding of the following concepts:

- **Classes and Objects:** A class is a blueprint for creating objects, while an object is an instance of a class. Classes define the properties and methods that objects will have.
- **Inheritance:** Inheritance is a mechanism that allows a new class to be based on an existing class, inheriting its properties and methods. This allows for code reuse and can make it easier to organize your code.
- **Encapsulation:** Encapsulation is the practice of hiding the implementation details of a class from the outside world, so that the class can only be accessed through its public interface. This helps to prevent unintended changes to the state of an object.

- **Polymorphism:** Polymorphism is the ability for objects of different classes to be used interchangeably. This is often achieved through the use of interfaces or abstract classes.
- **Abstraction:** Abstraction is the process of identifying the essential features of a concept, and ignoring the details that are not relevant. This is often achieved through the use of abstract classes or interfaces.
- **Access Modifiers:** Access modifiers are keywords that determine the visibility of properties and methods in a class. The three access modifiers in PHP are public, protected, and private.
- **Static Methods and Properties:** Static methods and properties belong to the class itself, rather than to a specific instance of the class. They can be accessed without creating an object.

By understanding these concepts, you'll have a solid foundation for implementing OOP in PHP. You can start by defining classes and creating objects, and then work your way up to using inheritance, encapsulation, polymorphism, and other advanced OOP concepts.

H. Resources Required:

Sr. No	Instrument /Components	Configuration/Specification
1.	Computer System	Processor: RAM: Operating System:
2.	XAMPP server	XAMPP Version:
3.	Text Editor	Editor:
4.	Web Browser	Browser:

I. Source code:

1. Write a script to define a class with constructor and destructor.

Source Code:

Output:

2. Create an object of a class and access its public properties and methods.

Source Code:

Output:

3. Write a script that uses the set attribute and get attribute methods to access a class's private attributes of a class.

Source Code:

Output:

4. Write a script to demonstrate single inheritance.

Source Code:

Output:

5. Write a script to demonstrate multiple inheritance.

Source Code:

Output:

6. Write a script to demonstrate multilevel inheritance.

Source Code:

Output:

7. Write a script to demonstrate method overriding.

Source Code:

Output:

8. Write a script to demonstrate method overloading based on the number of arguments.

Source Code:

Output:

9. Write a script to demonstrate a simple interface.

Source Code:

Output:

10. Write a script to demonstrate a simple abstract class.

Source Code:

Output:

11. Write a script to demonstrate cloning of objects.

Source Code:

Output:

J. References:

- https://www.w3schools.com/php/php_oop_intro.asp
- https://code.tutsplus.com/tutorials/object-oriented-php-for-beginners--net-12762
- https://www.sitepoint.com/object-oriented-php-basics/
- https://www.geeksforgeeks.org/object-oriented-programming-concepts-in-php/
- https://www.php.net/manual/en/language.oop5.php
- https://www.tutorialspoint.com/php/php_object_oriented.htm

Practical No. 7: Forms

1. Create a web page using a form to collect employee information.
2. Extend practical - 8(i) to validate user information using regular expressions.
3. Create two distinct web pages to demonstrate information passing between them using URL - Get method.
4. Create two different web pages to demonstrate information passing between web pages using Hidden variables - Post method.

A. Objectives:

In PHP, forms are a powerful tool for collecting data from users and processing that data on the server side. Here are some practical significances of using forms in PHP:

1. **User Input:** Forms allow users to enter information or data that can be processed by PHP scripts on the server. This can include simple text input, file uploads, or even complex data such as dates or email addresses.
2. **Data Validation:** Forms can be used to ensure that the data entered by users is valid and meets certain criteria. For example, a form can check that an email address is formatted correctly or that a password meets certain complexity requirements.
3. **Security:** Forms can be used to improve the security of PHP applications. For example, forms can be used to implement measures such as CAPTCHA to prevent automated attacks or CSRF tokens to prevent cross-site request forgery attacks.
4. **User Experience:** Forms can help to improve the user experience of PHP applications by allowing users to interact with the application in a more intuitive way. For example, forms can be used to allow users to search for specific content or to create new accounts.
5. **Data Processing:** Forms allow PHP scripts to process user data on the server side. This can include saving data to a database, sending email notifications, or performing complex calculations.

Overall, forms are a fundamental part of PHP development and are an essential tool for building interactive, user-friendly, and secure web applications.

B. Relevant Program Outcomes (POs):

1. **Basic and Discipline specific knowledge (PO1):** Apply knowledge of basic mathematics, science and engineering fundamentals and engineering specialization to solve the Computer Engineering problems.
2. **Problem analysis (PO2):** Identify and analyse well-defined Computer Engineering problems using codified standard methods.
3. **Design/development of solutions (PO3):** Design solutions for Computer Engineering well-defined technical problems and assist with the design of systems components or processes to meet specified needs.

4. **Engineering Tools, Experimentation and Testing (PO4):** Apply modern Computer Engineering tools and appropriate technique to conduct standard tests and measurements.
5. **Project Management (PO6):** Use engineering management principles individually, as a team member or a leader to manage projects and effectively communicate about well-defined engineering activities.
6. **Life-long learning (PO7):** Ability to analyse individual needs and engage in updating in the context of technological changes in field of engineering.

C. Competency and Practical Skills:

This practical is expected to develop the following skills for the industry-identified competency '**Develop Interactive Web application using PHP and MySQL**':

1. Programming skills.
2. Debugging skills.

D. Relevant Course Outcomes (COs):

1. Develop web pages using form controls with validation to collect user inputs in PHP.

E. Practical Outcomes:

1. Create PHP scripts with the use of various form elements, perform validation and implement form processing.

F. Relevant Affective domain Outcomes (ADOs):

1. Maintain tools and equipments.
2. Follow Coding standards and practices.
3. Follow ethical practices.

G. Prerequisite Theory:

Forms handling in PHP involves collecting data submitted by users through HTML forms, processing that data using PHP scripts, and then taking actions based on that data. Here are the steps involved in forms handling in PHP:

1. **Creating an HTML form:** First, create an HTML form that users can fill out. This form should include input fields like text boxes, radio buttons, and checkboxes, and it should have a "submit" button that sends the data to a PHP script.
2. **Setting the "action" attribute:** In the form tag, you should set the "action" attribute to the filename of the PHP script that will process the data. When the user submits the form, the data will be sent to this script for processing.
3. **Retrieving form data:** In the PHP script that will process the form data, you should use the $_POST superglobal to retrieve the data submitted by the user. The $_POST array contains key-value pairs, where the key is the name of the form field and the value is the data entered by the user.

4. **Validating form data:** Before processing the form data, you should validate it to ensure that it is in the correct format and that it contains the required data. You can use PHP's built-in functions for data validation, or you can create custom validation functions.
5. **Sanitizing form data:** After validating the form data, you should sanitize it to prevent malicious input, such as SQL injection attacks. You can use PHP's built-in functions for data sanitization, such as htmlspecialchars() or filter_var().
6. **Processing form data:** Once the form data has been validated and sanitized, you can process it according to your application's requirements. For example, you might insert the data into a database, send an email, or redirect the user to a different page.
7. **Displaying feedback:** After the form data has been processed, you should provide feedback to the user. This might include a message confirming that their data was successfully submitted or an error message if the data could not be processed.

In summary, forms handling in PHP involves creating an HTML form, processing the data submitted through the form using a PHP script, validating and sanitizing the data, and then taking actions based on that data. By following these steps, you can create robust and secure web applications that can handle a wide range of user inputs.

Example HTML Form:

```
<!DOCTYPE html>
<html>
<head>
	<title>Registration Form</title>
	</head>
<body>
<h2>Registration Form</h2>
<form action="register.php" method="post">
	<label for="username">Username:</label>
	<input type="text" name="username" id="username"><br>

	<label for="email">Email:</label>
	<input type="email" name="email" id="email"><br>

	<label for="password">Password: </label>
	<input type="password" name="password" id="password"><br>

	<input type="submit" value="Submit">
</form>
</body>
</html>
```

The form has three input fields for the user to enter their desired username, email, and password. The form's action attribute is set to register.php, which is the PHP script that will handle the form data. The method attribute is set to post, indicating that the form data will be sent as a POST request.

PHP Script (register.php):

```
<?php
	// Retrieve form data
	$username = $_POST['username'];
	$email = $_POST['email'];
	$password = $_POST['password'];

	// Validate form data
	if (empty($username) || empty($email) || empty($password))
	{
		echo "Please fill in all fields.";
		exit;
	}

	// Sanitize form data
	$username = htmlspecialchars($username);
	$email = filter_var($email, FILTER_SANITIZE_EMAIL);
	$password = htmlspecialchars($password);

	// Process form data (in this example, just display it)
	echo "Thank you for registering!<br>";
	echo "Your username is: $username<br>";
	echo "Your email is: $email<br>";
	echo "Your password is: $password<br>";
?>
```

The PHP script retrieves the form data using the $_POST superglobal and then validates and sanitizes the data to prevent malicious input. In this example, the script checks that all fields are filled in and uses the htmlspecialchars() and filter_var() functions to sanitize the data.

Finally, the script processes the form data by displaying it back to the user. In a real-world scenario, you might store the form data in a database or send it in an email.

That's it! This is a simple example of a registration page in PHP.

H. Resources Required:

Sr. No	Instrument /Components	Configuration/Specification
1.	Computer System	Processor: RAM: Operating System:
2.	XAMPP server	XAMPP Version:
3.	Text Editor	Editor:
4.	Web Browser	Browser:

I. Source code and Output:

1. Create a web page using a form to collect employee information.
2. Extend practical - 8(i) to validate user information using regular expressions.

Source Code:

Output:

3. Create two distinct web pages to demonstrate information passing between them using URL - Get method.

Source Code:

Output:

4. Create two different web pages to demonstrate information passing between web pages using Hidden variables - Post method.

Source Code:

Output:

J. References:

- https://www.w3schools.com/php/php_forms.asp
- https://www.geeksforgeeks.org/php-form-handling/
- https://www.tutorialspoint.com/php/php_forms.htm
- https://www.php.net/manual/en/tutorial.forms.php
- https://www.tutorialrepublic.com/php-tutorial/php-form-validation.php

Practical No. 8: Session, Cookies

1. Create web pages to demonstrate passing information using Session.
2. Write a script to demonstrate storing and retrieving information from cookies.

A. Objectives:

Sessions and cookies are important concepts in web development, and they have practical significance in PHP in several ways:

1. **User authentication:** Sessions and cookies can be used to authenticate users on a website. When a user logs in, their session ID can be stored in a cookie, and the server can verify the ID to ensure that the user is authorized to access certain pages or features.
2. **Personalization:** Sessions and cookies can be used to personalize the user experience on a website. For example, a session can be used to store the user's preferred language or theme, and a cookie can be used to remember the user's login credentials for future visits.
3. **Shopping carts:** Sessions and cookies can be used to create and manage shopping carts on an e-commerce website. The contents of the user's cart can be stored in a session, and a cookie can be used to remember the user's cart across multiple visits.
4. **Tracking user behaviour:** Cookies can be used to track user behaviour on a website, such as which pages they visit and which links they click. This information can be used to improve the website's usability and performance.
5. **Security:** Sessions and cookies can be used to enhance the security of a website. For example, a session can be used to prevent CSRF (cross-site request forgery) attacks, while cookies can be used to prevent XSS (cross-site scripting) attacks.

B. Relevant Program Outcomes (POs):

1. **Basic and Discipline specific knowledge (PO1):** Apply knowledge of basic mathematics, science and engineering fundamentals and engineering specialization to solve the Computer Engineering problems.
2. **Problem analysis (PO2):** Identify and analyse well-defined Computer Engineering problems using codified standard methods.
3. **Design/development of solutions (PO3):** Design solutions for Computer Engineering well-defined technical problems and assist with the design of systems components or processes to meet specified needs.
4. **Engineering Tools, Experimentation and Testing (PO4):** Apply modern Computer Engineering tools and appropriate technique to conduct standard tests and measurements.
5. **Project Management (PO6):** Use engineering management principles individually, as a team member or a leader to manage projects and effectively communicate about well-defined engineering activities.

6. **Life-long learning (PO7):** Ability to analyse individual needs and engage in updating in the context of technological changes in field of engineering.

C. Competency and Practical Skills:

This practical is expected to develop the following skills for the industry-identified competency '**Develop Interactive Web application using PHP and MySQL**':

1. Programming skills.
2. Debugging skills.

D. Relevant Course Outcomes (COs):

1. Develop web pages using form controls with validation to collect user inputs in PHP.

E. Practical Outcomes:

1. Implement session and cookie to store and manage user data.

F. Relevant Affective domain Outcomes (ADOs):

1. Maintain tools and equipments.
2. Follow Coding standards and practices.
3. Follow ethical practices.

G. Prerequisite Theory:

In PHP, sessions and cookies are two mechanisms used to store and manage data related to a user's interaction with a website or web application.

SESSION

Sessions are a way of storing information on the server about a user's activity on a website. When a user visits a website, the server assigns them a unique session ID, which is stored in a cookie on the user's computer. The server then uses this session ID to keep track of the user's activity as they move around the website. The session data can include things like user preferences, shopping cart items, or authentication status. Sessions can be started using the session_start() function and the session data can be accessed through the $_SESSION superglobal array.

COOKIE

Cookies are small text files that are stored on a user's computer by their web browser. Cookies are often used to remember user preferences or login information, or to track user behavior across different pages or sessions. In PHP, cookies can be set using the setcookie() function. Cookies can have an expiration time, after which they are automatically deleted, or they can be set to expire when the user closes their browser. Cookie data can be accessed using the $_COOKIE superglobal array.

COMPARISION

Both sessions and cookies have their advantages and disadvantages. Sessions are generally more secure because the data is stored on the server, but they can be slower and less flexible. Cookies are faster and more flexible, but they can be less secure because the data is stored on the user's computer. When using cookies, it's important to make sure that sensitive information, such as passwords or credit card numbers, is not stored in the cookie.

In summary, sessions and cookies are two important mechanisms used to store and manage user-related data in PHP. By understanding how to use these mechanisms correctly, developers can create more secure and user-friendly web applications.

Examples

Using Session

1. Start the session using the session_start() function.

```
<?php
session_start();
>
```

2. Set a session variable.

```
<?php
$_SESSION[‘username’] = ‘Ashish’;
>
```

3. Access the session variable on another page.

```
<?php
session_start();
echo "Welcome " .$_SESSION[‘username’];
>
```

Using Cookie

1. Set a cookie using the setcookie() function.

```
<?php
$cookie_name "username";
$cookie_value = "Ashish";
setcookie($cookie_name, $cookie_value, time() + (86400 * 30), "/");
?>
```

2. Access the cookie value.

```
<?php
if(isset($_COOKIE [$cookie_name])) {
      echo "Welcome". $_COOKIE [$cookie_name];
}
?>
```

Note that when using sessions and cookies, it's important to be careful about what data is stored and how it's accessed, to prevent security issues. For example, sensitive information like passwords or credit card numbers should never be stored in a cookie or session.

H. Resources Required:

Sr. No	Instrument /Components	Configuration/Specification
1.	Computer System	Processor: RAM: Operating System:
2.	XAMPP server	XAMPP Version:
3.	Text Editor	Editor:
4.	Web Browser	Browser:

I. Source code and Output:

1. Create web pages to demonstrate passing information using Session.

Source Code:

Output:

2. Write a script to demonstrate storing and retrieving information from cookies.

Source Code:

Output:

J. References:

- https://www.php.net/manual/en/features.sessions.php
- https://www.php.net/manual/en/function.setcookie.php
- https://www.tutorialspoint.com/php/php_sessions.htm
- https://www.tutorialspoint.com/php/php_cookies.htm
- https://www.w3schools.com/php/php_sessions.asp
- https://www.w3schools.com/php/php_cookies.asp
- https://www.geeksforgeeks.org/php-sessions/
- https://www.geeksforgeeks.org/php-cookies/

Practical No. 9: Database

1. Create a web page that reads employee information using a form and stores it in the database.
2. Create a web page for employee log-in.
3. Write a script to upload an image to the server.
4. After an employee log in, create a home web page that displays basic employee information.
5. Create a web page to delete employee profiles from the database.
6. Create a web page that allows employees to change their password.

A. Objectives:

Databases are an essential part of many web applications developed with PHP. Here are some practical reasons why databases are important in PHP development:

1. **Data storage:** Databases provide a structured way to store and organize data for PHP applications. This makes it easy to manage and retrieve data using SQL queries.
2. **Scalability:** Databases can handle large amounts of data and high traffic volumes, making it a great choice for PHP applications that need to grow and scale over time.
3. **Security:** Databases provide strong security features to protect data and prevent unauthorized access. This includes user authentication, data encryption, and role-based access control.
4. **Data analysis:** Databases can be used to perform complex data analysis and generate reports. This is useful for PHP applications that need to process large amounts of data and extract meaningful insights.
5. **Data synchronization:** Databases can be used to synchronize data between different systems and applications. This is useful for PHP applications that need to integrate with other systems and exchange data in real-time.

Overall, databases are an essential tool for PHP developers, providing reliable data storage, scalability, security, data analysis, and data synchronization. They play a crucial role in many web applications, and their importance cannot be overstated.

B. Relevant Program Outcomes (POs):

1. **Basic and Discipline specific knowledge (PO1):** Apply knowledge of basic mathematics, science and engineering fundamentals and engineering specialization to solve the Computer Engineering problems.
2. **Problem analysis (PO2):** Identify and analyse well-defined Computer Engineering problems using codified standard methods.

3. **Design/development of solutions (PO3):** Design solutions for Computer Engineering well-defined technical problems and assist with the design of systems components or processes to meet specified needs.
4. **Engineering Tools, Experimentation and Testing (PO4):** Apply modern Computer Engineering tools and appropriate technique to conduct standard tests and measurements.
5. **Project Management (PO6):** Use engineering management principles individually, as a team member or a leader to manage projects and effectively communicate about well-defined engineering activities.
6. **Life-long learning (PO7):** Ability to analyse individual needs and engage in updating in the context of technological changes in field of engineering.

C. Competency and Practical Skills:

This practical is expected to develop the following skills for the industry-identified competency '**Develop Interactive Web application using PHP and MySQL**':

1. Programming skills.
2. Debugging skills.

D. Relevant Course Outcomes (COs):

1. Develop and host interactive websites using PHP and MySQL database.

E. Practical Outcomes:

1. Implement various database operations using PHP script.

F. Relevant Affective domain Outcomes (ADOs):

1. Maintain tools and equipments.
2. Follow Coding standards and practices.
3. Follow ethical practices.

G. Prerequisite Theory:

MySQL is a popular relational database management system that is commonly used in web development with PHP. Here are some MySQL functions that can be used in PHP to interact with MySQL databases:

1. **mysqli_connect()** - This function is used to establish a connection to a MySQL database server.
2. **mysqli_query()** - This function is used to execute a MySQL query on a connected database.
3. **mysqli_fetch_array()** - This function is used to fetch the result of a MySQL query as an array.
4. **mysqli_insert_id()** - This function is used to get the auto-generated ID of the last inserted record in a table.

5. **mysqli_real_escape_string()** - This function is used to escape special characters in a string to prevent SQL injection attacks.
6. **mysqli_num_rows()** - This function is used to get the number of rows returned by a MySQL query.
7. **mysqli_error()** - This function is used to get the error message associated with the last MySQL operation.
8. **mysqli_close()** - This function is used to close the connection to a MySQL database server.

These are just a few examples of the MySQL functions that can be used in PHP. There are many other functions available for working with MySQL databases in PHP, and their usage depends on the specific needs of your application.

Example

Assuming we have a MySQL database with a table named "users" that has columns "id", "username", and "password", we can use PHP to perform various operations on this table.

1. Connect to the MySQL database:

```
<?php
$host = "localhost"; $username = "db_user";
$password = "db_password";
$dbname = "my_database";

// Create connection
$conn = mysqli_connect($host, $username, $password, $dbname);

// Check connection
if (!$conn) {
      die("Connection failed: mysqli_connect_error());
}
echo "Connected successfully";
?>
```

2. Insert a new user into the "users" table:

```
<?php
$username = "john_doe";
$password = "my_password";

// Escape special characters in the username and password to
// prevent SQL injection
$username = mysqli_real_escape_string($conn, $username);
$password mysqli_real_escape_string($conn, $password); =

// Create and execute the SQL query to insert a new user
$sql = "INSERT INTO users (username, password) VALUES
('$username', '$password')";
if (mysqli_query($conn, $sql)) {
      echo "New record created successfully";
}
else {
      echo "Error: " . $sql . "<br>" . mysqli_error($conn);
}
?>
```

3. Retrieve all users from the "users" table:

```
<?php
// Create and execute the SQL query to retrieve all users
$sql = "SELECT * FROM users";
$result = mysqli_query($conn, $sql);

// Check if any rows were returned
if (mysqli_num_rows($result) > 0) {
      // Output data of each row
      while($row = mysqli_fetch_assoc($result)) {
            echo "id: ". $row["id"] . " - Username: " .
                              $row["username"] . "<br>";
      }
}
else {
      echo "0 results";
}
?>
```

4. Update the password for a specific user in the "users" table:

```
<?php
$username "ashish";
$new_password = "new_password";

// Escape special characters in the username and new password to
// prevent SQL injec
$username = mysqli_real_escape_string($conn, $username);
$new_password = mysqli_real_escape_string($conn, $new_password);

// Create and execute the SQL query to update the password for a
// specific user
$sql = "UPDATE users SET password='$new_password' WHERE
username='$username'
if (mysqli_query($conn, $sql)) {
      echo "Record updated successfully";
}
else {
      echo "Error updating record: mysqli_error($conn);
}
?>
```

5. Delete a specific user from the "users" table:

```
<?php
$username "ashish";

// Escape special characters in the username to prevent SQL
// injection
$username = mysqli_real_escape_string($conn, $username);

// Create and execute the SQL query to delete a specific user
$sql = "DELETE FROM users WHERE username='$username'
if (mysqli_query($conn, $sql)) {
      echo "Record deleted successfully";
}
else {
      echo "Error deleting record: mysqli_error($conn);
}
?>
```

H. Resources Required:

Sr. No	Instrument /Components	Configuration/Specification
1.	Computer System	Processor: RAM: Operating System:
2.	XAMPP server	XAMPP Version:
3.	Text Editor	Editor:
4.	Web Browser	Browser:

I. Source code and Output:

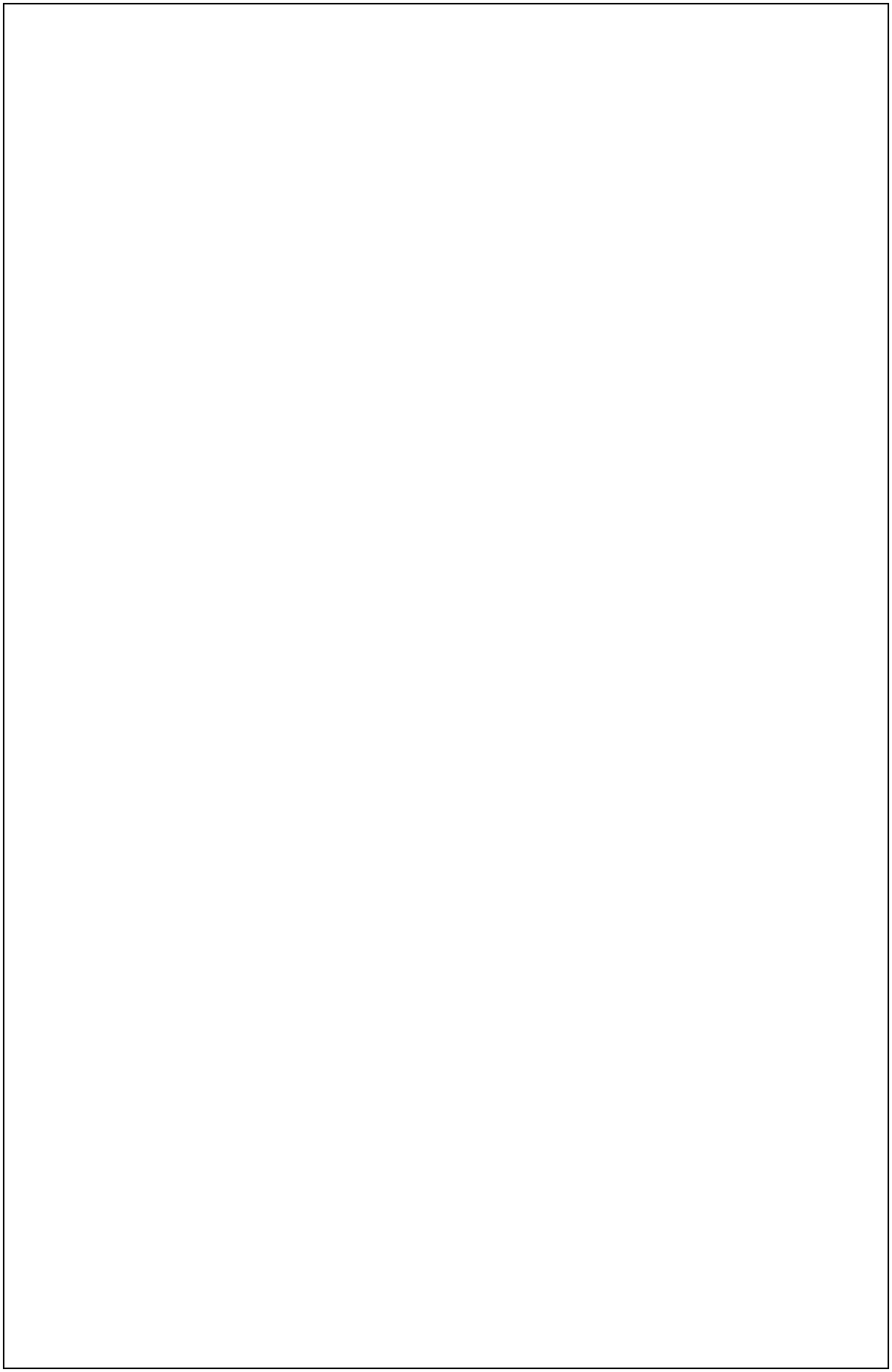
1. Create a web page that reads employee information using a form and stores it in the database.

Source Code:

Output:

2. Create a web page for employee log-in.

Source Code:



Output:

3. Write a script to upload an image to the server.

Source Code:

Output:

4. After an employee log in, create a home web page that displays basic employee information.

Source Code:

Output:

5. Create a web page to delete employee profiles from the database.

Source Code:

Output:

6. Create a web page that allows employees to change their password.

Source Code:

Output:

J. References:

- https://www.php.net/manual/en/book.mysql.php
- https://www.w3schools.com/php/php_mysql_intro.asp
- https://www.tutorialspoint.com/php/php_mysql.htm
- https://phpdelusions.net/mysqli
- https://www.geeksforgeeks.org/mysqli-procedural-functions
- https://www.guru99.com/mysql-php-and-other-database-access-methods.html

Practical No. 10: Study of cPanel and Filezilla

A. Objectives:

1. To learn Web hosting service that allows users to publish websites or web applications on the internet. When a user signs up for a web hosting service, they rent space on a physical server to store the files and data needed for their website to function.

B. Relevant Program Outcomes (POs):

1. **Engineering Tools, Experimentation and Testing (PO4):** Apply modern Computer Engineering tools and appropriate technique to conduct standard tests and measurements.
2. **Project Management (PO6):** Use engineering management principles individually, as a team member or a leader to manage projects and effectively communicate about well-defined engineering activities.
3. **Life-long learning (PO7):** Ability to analyse individual needs and engage in updating in the context of technological changes in field of engineering.

C. Competency and Practical Skills:

This practical is expected to develop the following skills for the industry-identified competency '**To learn how to Host Web application using PHP and MySQL**':

1. Project management skills.

D. Relevant Course Outcomes (COs):

CO-5: Develop and host interactive websites using PHP and MySQL database.

E. Relevant Affective domain Outcomes (ADOs):

1. Maintain tools and equipments.

F. Resources Required:

Sr. No	Instrument /Components	Configuration/Specification
1.	Computer System	Processor: RAM: Operating System:
2.	XAMPP server	XAMPP Version:
3.	Web Browser	Browser: