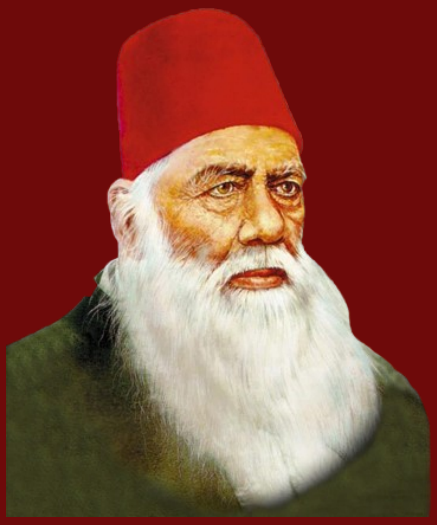

Look forward, learn modern knowledge, and do not waste time in studies of old subjects of no values.

2020-21

Computer Lab Manual

M.C.A. Semester-III

CSM-3371: LABORATORY COURSE – III

DEPARTMENT OF COMPUTER SCIENCE

ALIGARH MUSLIM UNIVERSITY ALIGARH

Important Instructions to the students in the ongoing Covid-19 Scenario

- **In the present Covid-19 scenario, all the labs will be conducted ONLINE till the further instructions issued by the University.**
- **Students are instructed to perform their lab exercises/assignments at their own system from their respective residences.**
- **During this prevailing situation (COVID-19 crises), the mode (policies/rules) of conducting Lecture/Lab classes will be as per the time to time instructions issued by University.**
- **The students are advised to complete the weekly activities/assignments well in time (i.e., within the same week).**
- **The students are also advised to maintain the soft copy of the Lab File of their completed activities/assignments in the prescribed format.**

!! Stay Home, Stay Safe !!

CREDITS

The following Lab Manuals Up-gradation Committee members updated the Lab Manuals during lockdown and finally approved in the meeting of Lab Manuals Up-gradation Committee held on 07.07.2020 at 11:30 AM through ONLINE mode using Google Meet:

- ⇨ **Prof. Rafiqul Zaman Khan (Chairperson)**
- ⇨ Mr. Suhel Mustajab
- ⇨ Dr. Aasim Zafar
- ⇨ Dr. Arman Rasool Faridi
- ⇨ Dr. Faisal Anwer
- ⇨ Dr. Mohammad Nadeem

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- ⇨Mr. S. K. Sharma

Revised Edition: **July 2020**

Approved by BoS: **14.07.2020**

Department of Computer Science
A.M.U., Aligarh, (U.P.), India

Lab Manual: LABORATORY COURSE–III (CSM-3371)

CONTENTS **PAGE NO.**

WEEK-WISE CONTENTS

COURSE TITLE: LABORATORY COURSE-III **COURSE CODE:** CSM – 3371

CREDIT: 4 **PERIODS PER WEEK:** 6

CONTINUOUS ASSESSMENT: 40 Marks **EXAMS:** 60 Marks

COURSE DESCRIPTION

This course is designed to help students in learning web based technologies. Approach in this course is to train students for web based languages so that they will be able to develop a complete web based application.

CONTENT

This course is designed to provide the students the opportunity of learning HTML, CSS, JavaScript, php and .NET to develop, debug, and execute web based programs.

OBJECTIVES

- ❒ To understand the concept of Web Application Development and its Architecture.
- ❒ To understand the Essentials of Web Application Development.
- ❒ To understand and practice web page designing techniques.
- ❒ To understand the differences between client side & server side technologies to develop Web Application.
- ❒ To develop web based applications.

OUTCOMES

Upon successful completion of this course students will be able to:

- ❒ Learn the basic concepts of Web Application Development and its Architecture.
- ❒ Gain knowledge about emerging Web Application Development techniques, ideas and best practices.

- ❒ Identify tools and technologies for developing web applications.
- ❒ Develop web based applications using PHP/.NET, JavaScript, CSS and other tools.

HOW TO DO WELL IN THIS COURSE

- ❒ The students are advised to attend all their theory classes and respective labs regularly as both are integrated to each other. If any student will miss the theory lecture, he/she may not able to do well in lab related to that topic.
- ❒ The students are advised to submit the assignments given in theory and lab classes timely to their respective Teachers/Instructors online.
- ❒ The students should demonstrate disciplined and well behaved demeanor in the Department.
- ❒ Each student shall be assigned a system in their introductory lab. They are advised to do their work on that system only for the whole semester. Students should store all their lab activities regularly.
- ❒ All students are advised to understand course objectives and outcomes and achieve both during their lab work.
- ❒ The students are advised to follow books/eBooks/online tutorial/other online study material links given in lecture/lab manual/ syllabus references. These study materials are very helpful in terms of skills, knowledge and placement.
- ❒ This Lab course is very important in terms of placement. Therefore, students are advised to implement all the problems by her /him given in the individual week.
- ❒ All students are advised to solve old placement papers for campus selection. Following links may be useful for the preparation of your campus placements.
  - ➢ https://www.indiabix.com/placement-papers/companies/

- https://www.offcampusjobs4u.com/download-tcs-placement-test-question-papers-with-solutions/
- https://www.indiabix.com/placement-papers/tcs/
- https://www.firstnaukri.com/career-guidance/infosys-placement-papers-with-solutions-2019-firstnaukri-prep
- https://prepinsta.com/ibm/
- https://www.faceprep.in/infosys/infosys-aptitude-questions/
- https://alpingi.com/infosys-placement-papers-solution-pdf-download/
- http://placement.freshersworld.com/

❒ The Students are advised to follow below tutorials' links:

- https://www.w3schools.com/php/php_intro.asp
- https://www.w3schools.com/js/default.asp
- https://www.w3schools.com/sql/default.asp
- https://www.tutorialspoint.com/php/index.htm
- https://www.geeksforgeeks.org/php/
- https://www.geeksforgeeks.org/sql-tutorial/
- https://www.geeksforgeeks.org/javascript-tutorial/

❒ The Students are advised to follow below Links for installing application software:

- https://www.eclipse.org/pdt/
- http://php.net/manual/en/install.php
- https://docs.microsoft.com/en-us/dotnet/framework/install/guide-for-developers
- https://httpd.apache.org/download.cgi
- https://docs.microsoft.com/en-us/sql/database-engine/install-windows/install-sql-server?view=sql-server-ver15
- https://www.sqlservertutorial.net/install-sql-server/

❒ The Students are advised to follow below Links for online compilers :

- https://www.onlinegdb.com/online_php_interpreter

- http://phpfiddle.org/
- https://www.tutorialspoint.com/execute_sql_online.php
- https://www.onlinegdb.com/online_sqlite_editor
- https://www.onlinegdb.com/online_csharp_compiler

❒ Skill Set that are required to develop by the students of MCA:

- Good communication and behavioral skills
- A positive attitude
- Confidence
- Strong technical skills
- Good command over programming languages like C, C++, Java, .Net, etc.
- Good programming skills and hands on experience
- Knowledge of data structure and database
- Awareness of latest technology trends

RULES AND REGULATIONS

Students are required to strictly adhere to the following rules.

❒ The students must complete the weekly activities/assignments well in time (i.e., within the same week).

❒ The students must maintain the Lab File of their completed activities/assignments in the prescribed format (Appendix-1).

❒ The students must get the completed weekly activities/assignments checked and signed by the concerned teachers in the Lab in the immediate succeeding week. Failing which the activities/assignments for that week will be treated as incomplete.

❒ At least TEN (10) such timely completed and duly signed weekly activities/assignments are compulsory, failing which students will not be allowed to appear in the final Lab Examination.

- ❒ The students need to submit the following three deliverables for each exercise duly signed by the Teacher:
    - ❖ Coding
    - ❖ Input
    - ❖ Output
- ❒ The students need to ensure that each question is assessed and signed by the Teacher in the week/time.
- ❒ Cooperate, collaborate and explore for the best individual learning outcomes but copying is strictly prohibited.

APPENDIX–I

Template for the Index of Lab File

WEEK NO.		PROBLEMS WITH DESCRIPTION	PAGE NO.	SIGNATURE OF THE TEACHER WITH DATE
1	1			
	2			
	3			
2	1			
	2			
	3			
3	1			
	2			
	3			

Note: The students should use Header and Footer mentioning their roll no. & name in footer and page no in header.

WEEK #1

To know how to setup PHP

Why PHP?

PHP remains the most widespread and popular server-side programming language on the web. It is installed by most web hosts, has a simple learning curve, close ties with the MySQL database, and an excellent collection of libraries to cut your development time. PHP may not be perfect, but it should certainly be considered for your next web application. Both Yahoo and Facebook use it with great success.

Why Install PHP Locally?

Installing PHP on your development PC allows you to safely create and test a web application without affecting the data or systems on your live website. This article describes PHP installation as a module within the Windows version of Apache 2.2.

All-in-One packages

There are some excellent all-in-one Windows distributions that contain Apache, PHP, MySQL and other applications in a single installation file, e.g. XAMPP (including a Mac version), WampServer and Web.Developer. There is nothing wrong with using these packages, although manually installing Apache and PHP will help you learn more about the system and its configuration options.

The PHP Installer

Although an installer is available from php.net, I would recommend the manual installation if you already have a web server configured and running.

Manual Installation

Manual installation offers several benefits:

- backing up, reinstalling, or moving the web server can be achieved in seconds (see 8 Tips for Surviving PC Failure) and
- you have more control over PHP and Apache configuration.

Step 1: Download the files

Download the latest PHP 5 ZIP package from www.php.net/downloads.php

As always, virus scans the file and checks its MD5 checksum using a tool such as fsum.

Step 2: Extract the files

Install the PHP files to C:\php, so create that folder and extract the contents of the ZIP file into it.

PHP can be installed anywhere on your system, but you will need to change the paths referenced in the following steps.

Step 3: Configure php.ini

Copy C:\php\php.ini-development to C:\php\php.ini. There are several lines you will need to change in a text editor (use search to find the current setting). Where applicable, you will need to remove the leading semicolon to uncomment these setting.

Define the extension directory:

```
extension_dir = "C:/php/ext"
```

Enable extensions. This will depend on the libraries you want to use, but the following extensions should be suitable for the majority of applications:

```
extension=curl
extension=gd2
extension=mbstring
extension=mysql
```

```
extension=pdo_mysql
extension=xmlrpc
```

If you want to send emails using the PHP mail() function, enter the details of an SMTP server (your ISP's server should be suitable):

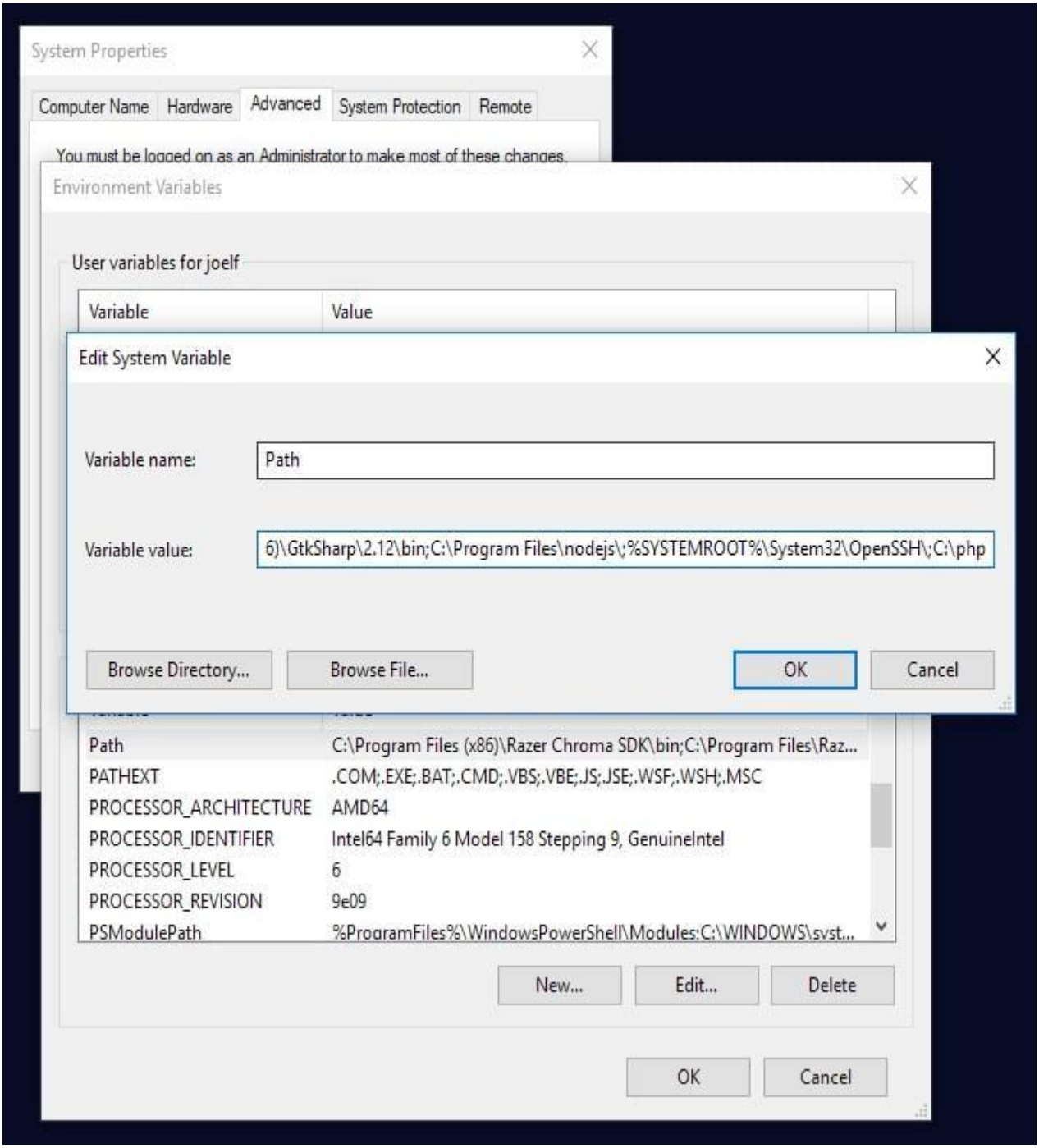
```
[mail function]
; For Win32 only.
SMTP = mail.myisp.com
smtp_port = 25

; For Win32 only.
sendmail_from = my@emailaddress.com
```

Step 4: Add C:\php to the path environment variable

To ensure Windows can find PHP, you need to change the path environment variable. Open Settings, type 'environment variables' into the search field and open the result. Select the "Advanced" tab, and click the "Environment Variables" button.

Scroll down the System variables list and click on "Path" followed by the "Edit" button. Click "Edit text" and add ;C:\php to the end of the Variable value line (remember the semicolon).



Now click OK until you're out. You might need to reboot at this stage.

Step 5: Configure PHP as an Apache module

Ensure Apache is not running (use net stop Apache2.2 from the command line) and open its confhttpd.conf configuration file in an editor. The following lines should be changed:

On line 239, add index.php as a default file name:

```
DirectoryIndex index.php index.html
```

At the bottom of the file, add the following lines (change the PHP file locations if necessary):

```
# PHP5 module
LoadModule php5_module "c:/php/php5apache2_2.dll"
AddType application/x-httpd-php .php
PHPIniDir "C:/php"
```

Save the configuration file and test it from the command line (Start > Run > cmd):

```
cd Apache2bin
httpd -t
```

Step 6: Test a PHP file

Create a file named index.php in Apache's web page root (either htdocs or D:WebPages) and add this code:

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

Ensure Apache has started successfully, open a web browser and enter the address **http://localhost/**. If all goes well, a "PHP version" page should appear showing all the configuration settings.

WEEK #2

To know how to setup Web Server (Apache)

What is a Web Server?

A web server is software that listens for requests and returns data (usually a file). When you type "www.mysite.com", the request is forwarded to a machine running web server software which returns a file back to your browser, e.g. the contents of index.html. The browser might then make further requests based on the HTML content, e.g. CSS, JavaScript, and graphic files.

Since the web server sits between your browser and the requested file, it can perform processing that is not possible by opening an HTML file directly. For example, it can parse PHP code which connects to a database and returns data.

You can use your host's web server for testing, but uploading will become tiresome and changes could go live before they had been fully tested. What you need is a local web server installation.

Why Apache?

In general, I would recommend using the web server software that your web host uses. Unless you are creating ASP.NET applications on Microsoft IIS, your host is likely to use Apache: the most widespread and fully-featured web server available. It is open-source project so it does not cost anything to download or install.

The following instructions describe how to install Apache on Windows. Mac OSX comes with Apache and PHP, although you might need to enable them. Most Linux users will have Apache pre-installed or available in the base repositories.

All-in-One packages

There are some excellent all-in-one Windows distributions that contain Apache, PHP, MySQL and other applications in a single installation file, e.g. XAMPP (including a Mac version), WampServer and WebDeveloper. There is nothing wrong with using these packages, although manually installing Apache will help you learn more about the system and its configuration options.

The Apache Installation Wizard

An excellent official .msi installation wizard is available from the Apache download page. This option is certainly recommended for novice users or perhaps those installing Apache for the first time.

Manual Installation

Manual installation offers several benefits:

- backing up, reinstalling, or moving the web server can be achieved in seconds (see 8 Tips for Surviving PC Failure)
- you have more control over how and when Apache starts
- you can install Apache anywhere, such as a portable USB drive (useful for client demonstrations).

Step 1: configure IIS, Skype and other software (optional)

If you have a Professional or Server version of Windows, you may already have IIS installed. If you would prefer Apache, either remove IIS as a Windows component or disable its services.

Apache listens for requests on TCP/IP port 80. The default installation of Skype also listens on this port and will cause conflicts. To switch it off, start Skype and choose Tools → Options → Advanced → Connection. Ensure you untick "Use port 80 and 443 as alternatives for incoming connections".

Step 2: download the files

If one is using the unofficial Windows binary from Apache Lounge. This version has performance and stability improvements over the official Apache distribution, although I am yet to notice a significant difference. However, it is provided as a manually installable ZIP file from www.apachelounge.com/download/

You should also download and install the Windows C++ runtime from Microsoft.com. You may have this installed already, but there is no harm installing it again.

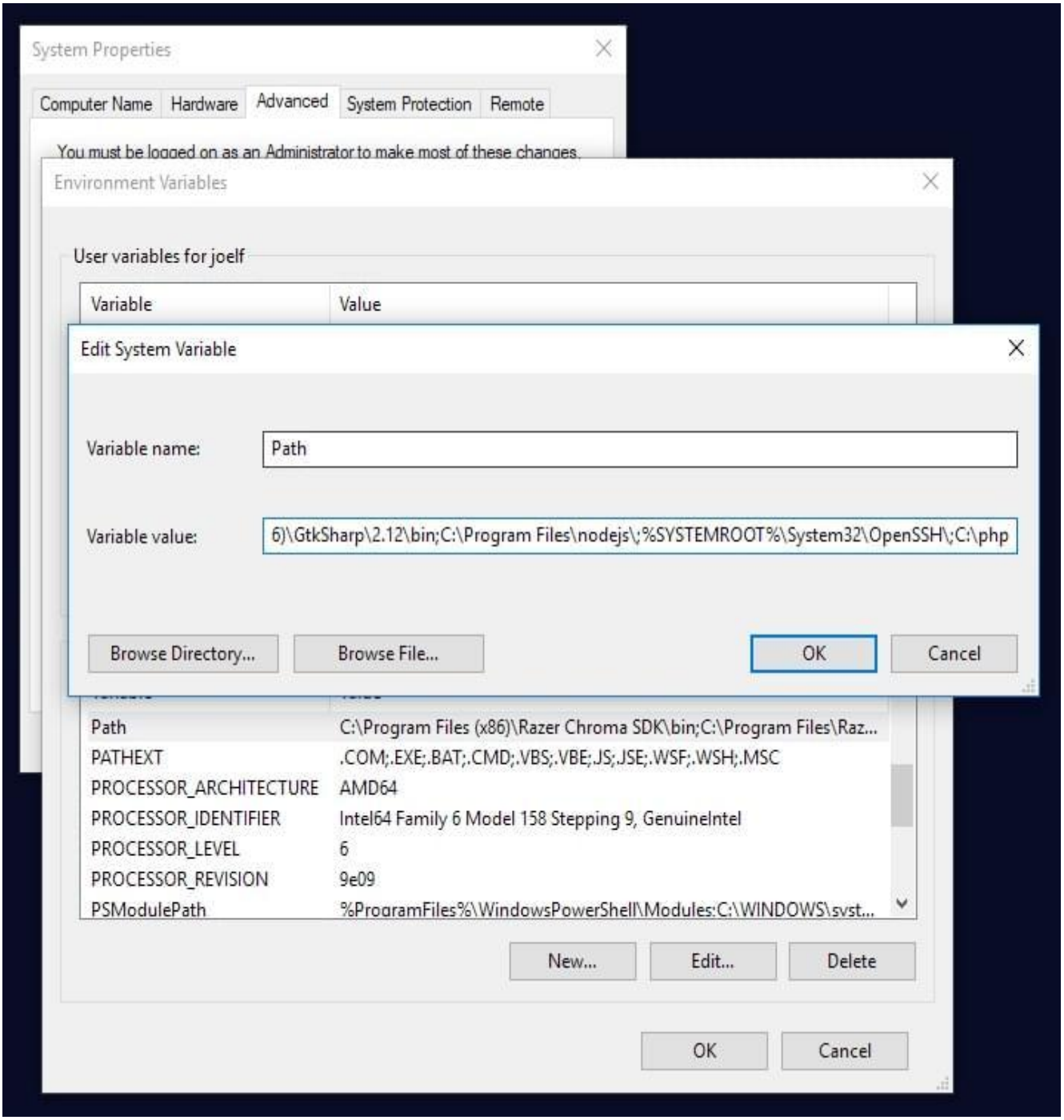
As always, remember to virus scan all downloads.

Step 2: extract the files

We will install Apache in C:Apache2, so extract the ZIP file to the root of the C: drive.

Apache can be installed anywhere on your system, but you will need to change the configuration file paths accordingly…

Step 3: configure Apache



Make the leap into server-side programming with a comprehensive cover of PHP & MySQL.

Apache is configured with the text file confhttpd.conf contained in the Apache folder. Open it with your favourite text editor.

Note that all file path settings use a '/' forward-slash rather than the Windows backslash. If you installed Apache anywhere other than C:Apache2, now is a good time to search and replace all references to "c:/Apache2".

There are several lines you should change for your production environment:

Line 46, listen to all requests on port 80:

Listen *:80

Line 116, enable mod-rewrite by removing the # (optional, but useful):

LoadModule rewrite_module modules/mod_rewrite.so

Line 172, specify the server domain name:

ServerName localhost:80

Line 224, allow .htaccess overrides:

AllowOverride All

Step 4: change the web page root (optional)

By default, Apache return files found in its htdocs folder. I would recommend using a folder on an another drive or partition to make backups and re-installation easier. For the purposes of this example, we will create a folder called D:WebPages and change httpd.conf accordingly:

Line 179, set the root:

DocumentRoot "D:/WebPages"

and line 204:

<Directory "D:/WebPages">

Step 5: test your installation

Your Apache configuration can now be tested. Open a command box (Start > Run > cmd) and enter:

```
cd Apache2bin

httpd -t
```

Correct any httpd.conf configuration errors and retest until none appear.

Step 6: install Apache as a Windows service

The easiest way to start Apache is to add it as a Windows service. From a command prompt, enter:

```
cd Apache2bin
httpd -k install
```

Open the Control Panel, Administrative Tools, then Services and double-click Apache2.2. Set the Startup type to "Automatic" to ensure Apache starts every time you boot your PC.

Alternatively, set the Startup type to "Manual" and launch Apache whenever you choose using the command "net start Apache2.2".

Step 7: test the web server

Create a file named index.html in Apache's web page root (either htdocs or D:WebPages) and add a little HTML code:

```
<html>

<head><title>testing Apache</title></head>

<body><p>Apache is working!</p></body>
```

</html>

Ensure Apache has started successfully, open a web browser and enter the address http://localhost/. If all goes well, your test page should appear.

WEEK #3

Problems Based on HTML Programming

1# Create a table to show your class time table.

- Use tables to provide layout to your HTML page describing your college infrastructure.
- Use and tags to provide a layout to the above page instead of a table layout.

2# Use frames such that page is divided into 3 frames 20% on left to show contents of pages, 60% in center to show body of page, remaining on right to show remarks. Embed Audio and Video into your HTML web page.

3# Create a webpage with HTML describing your department use paragraph and list tags.

- Apply various colours to suitably distinguish key words, also apply font styling like italics, underline and two other fonts to words you find appropriate, also use header tags.
- Create links on the words e.g. —Wi-Fi and —LAN to link them to Wikipedia pages.
- Insert an image and create a link such that clicking on image takes user to other page.
- Change the background colour of the page; At the bottom create a link to take user to the top of the page.

WEEK #4

Problems Based on HTML/CSS/JAVASCRIPT Programming

1# Develop static pages (using only HTML) of an online book store, the pages should resemble: www.amazon.com, the website should consist the following pages, home page, registration and user login, user profile page, books catalog, shopping cart, payment by credit card, order confirmation.

2# Write an HTML page that contains a selection box with a list of 5 countries, when the user selects a country, its capital should be printed next to the list; Add CSS to customize the properties of the font of the capital (color, bold and font size).

3# Write a java script program to test the first character of a string is uppercase or not. Write a pattern that matches e-mail addresses.

4# Write a java script program which compute, the average marks of the following students then this average is used to determine the corresponding grade.

5# To design the scientific calculator and make event for each button using java script.

WEEK #5

Problems Based on HTML/CSS/JAVASCRIPT/XML Programming

1# Develop and demonstrate a HTML file that includes JavaScript script for the following problems:

a) Input: A number n obtained using prompt

Output: The first n Fibonacci numbers

b) Input: A number n obtained using prompt

Output: A table of numbers from 1 to n and their squares using alert

2# Develop and demonstrate, using JavaScript, a HTML document that collects the USN (the valid format is: A digit from 1 to 4 followed by two upper-case characters followed by two digits followed by two upper-case characters followed by three digits; no embedded spaces allowed) of the user. Event handler must be included for the form element that collects this information to validate the input. Messages in the alert windows must be produced when errors are detected.

3# Develop and demonstrate, using JavaScript script, a HTML document that contains three short paragraphs of text, stacked on top of each other, with only enough of each showing so that the mouse cursor can be placed over some part of them. When the cursor is placed over the exposed part of any paragraph, it should rise to the top to become completely visible. Modify the above document so that when a paragraph is moved from the top stacking position, it returns to its original position rather than to the bottom.

4# Design an XML document to store information about MCA student. The information must include Enrolment number, Name, and Name of the Department, semester, Year of Joining, and e-mail id. Make up sample data for 3 students. Create a CSS style sheet and use it to display the document.

5# Create an XSLT style sheet for one student element of the above document and use it to create a display of that element.

WEEK #6

Problems Based on PHP Programming

1# To create a PHP program to demonstrate the different file handling methods.

2# To develop a registration form using PHP and do necessary validations

- Design the HTML form with elements username, first name, last name, password, confirm password, email, gender etc
- Display the user input using PHP

3# Write a program in PHP for type casting of a variable.

WEEK #7

Problems Based on PHP Programming

1# Prepare Electricity bill from user input based on a given tariff. Write a PHP program to input previous reading and present reading and prepare an electricity bill using the following conditions.

Units	Consumed Rate
<100	Rs. 3/ Unit
Between 100 and 200	Rs. 4/ Unit
Between 200 and 300	Rs. 5/ Unit
>300	Rs. 6/ Unit

2# To save the user input details to a text file and display its contents. Design an HTML form to input the salary details of an employee (employee name, basic pay, DA and HRA)

3# Write a PHP script to accept user input data and store it in a text file. Write a PHP script to display the contents of the file

WEEK #8

Problems Based on PHP Programming

1# Design the personal information form, submit and retrieve the form data using php $_POST,$_GET,$ REQUEST variable.

2# Write a program In PHP to Sort an array using Bubble Sort function.

3# Write a program in PHP to display Multiplication Table using nested for loop

4# Write a PHP program to store current date-time in a COOKIE and display the 'Last visited on' date-time on the web page upon reopening of the same page.

5# Write a PHP program to store page views count in SESSION, to increment the count on each refresh, and to show the count on web page.

WEEK #9

Problems Based on PHP Programming

1# Write a PHP program to connect to a database and retrieve data from a table and show the details in a neat format

- Marklist of a student is entered and saved to MySQL table using PHP
- Data stored in MySQL table is displayed

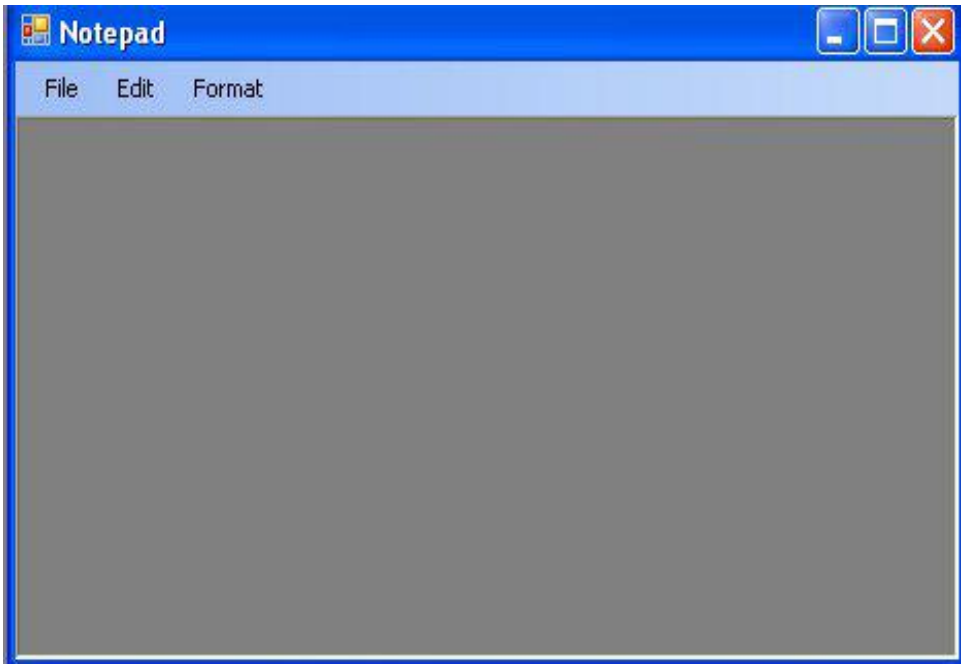
2# Write a PHP code to insert ,delete, select the data from database

3# Write a PHP code to create database & table in Mysql.

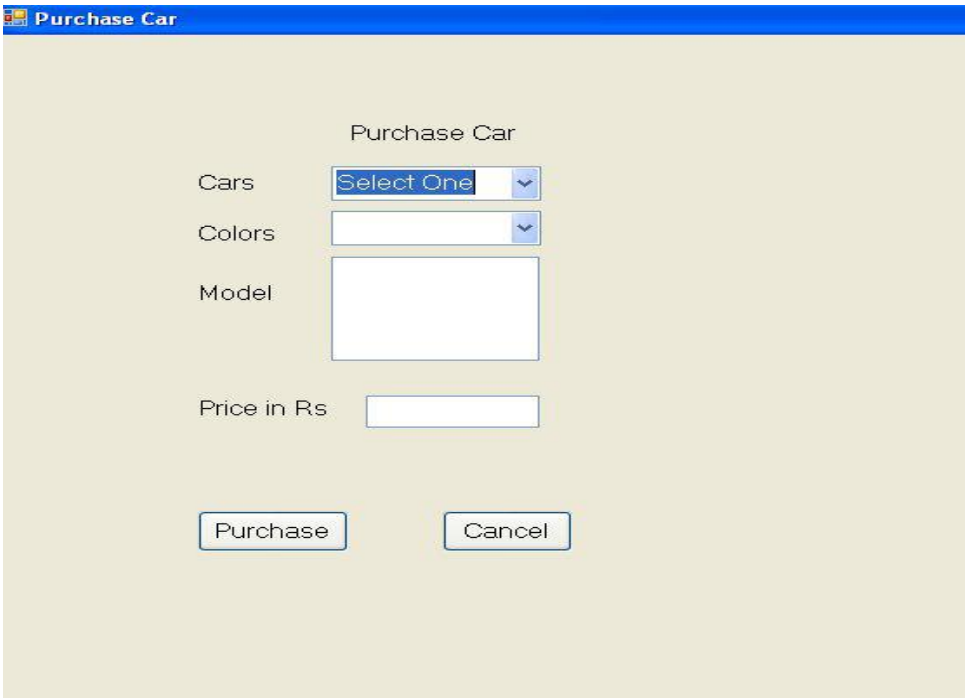
WEEK #10

Problems Based on ASP.NET Programming

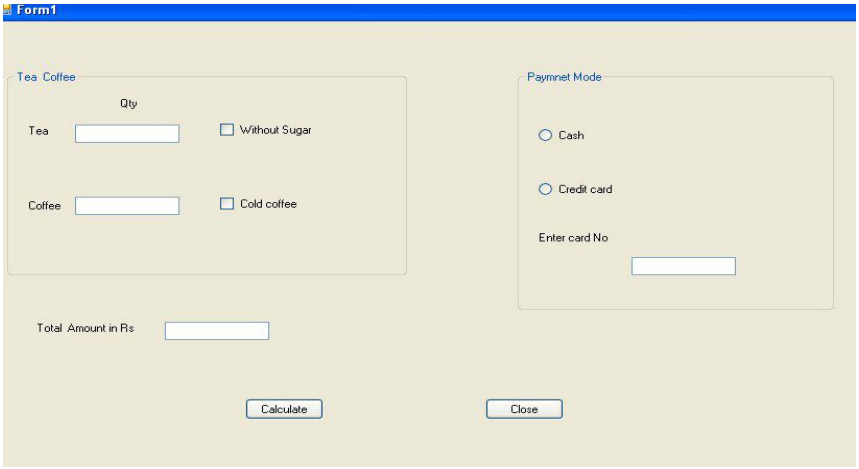
1# Develop an application which is similar to notepad using menus.



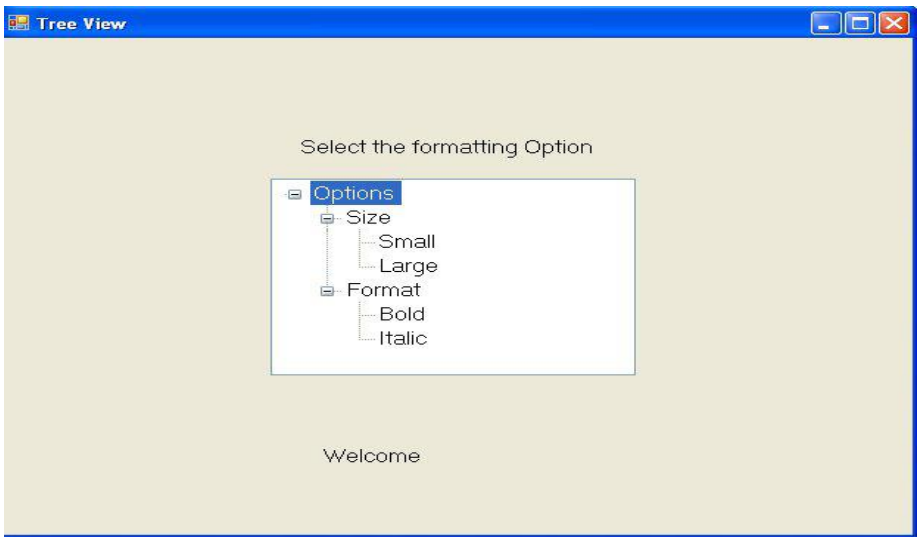
2# (a) Develop an application for facilitating purchasing order .



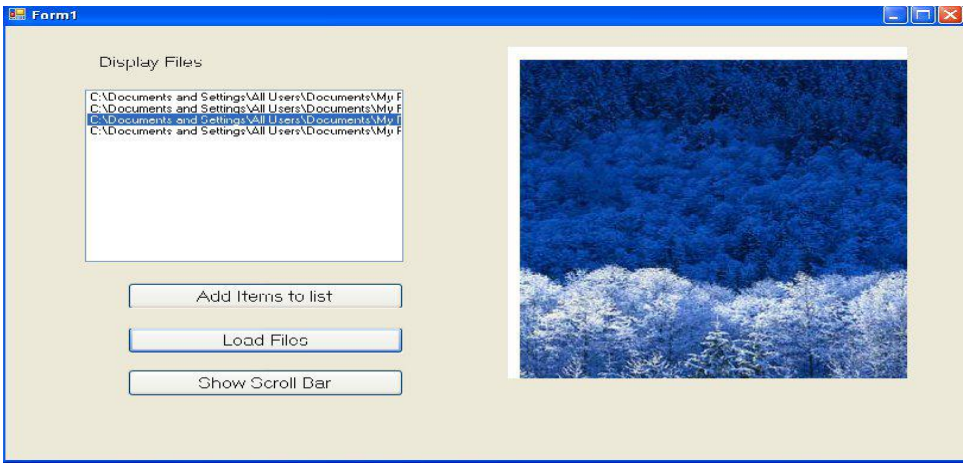
b). Develop an application for billing system in coffee shop



3# Develop an application using tree view control.



4# Develop an application to display the file selected by the user in a web browser control.



WEEK #11

Problems Based on ASP.NET Programming

1# Write a console application that obtains four int values from the user and displays the product.

2# If you have two integers stored in variables var1 and var2, what Boolean test can you perform to see if one or the other (but not both) is greater than 10?

3# Write a console application that places double quotation marks around each word in a string.

4# Create a web page to display the cricket score from the table event (id, name, score). Refresh the website automatically after every 30 seconds.

WEEK #12

Problems Based on ASP.NET Programming

1# Program to display the addition, subtraction, multiplication and division of two numbers using console application.

2# Program to display the first 10 natural numbers and their sum using console application.

3# Write a Program to perform Money Conversion.

4# Write a Program to generate the Quadratic Equation.

5# Write a Program to generate the Temperature Conversion.

WEEK #13

Problems Based on ASP.NET Programming

1# Write a program to simple calculator using windows application.

2# Write a simple ASP.NET program to display the following Web Controls:

- A button with text “click me”. The button control must be in the center of the form.
- A label with a text hello
- A checkbox.

The form name must be Web Controls

3# Write a program that displays a button in green color and it should change into yellow when the mouse moves over it.

4# Write a program containing the following controls:

- A ListBox
- A Button
- An Image
- A Label

The list box is used to list items available in a store. When the user clicks on an item in the list box, its image is displayed in the image control. When the user clicks the button, the cost of the selected item is displayed in the control.

5# Write a Program to generate the factorial operation.

WEEK #14

Problems Based on ASP.NET Programming

1# Write a Program to display the Holiday in calendar.

2# Write a Program to display the vacation in calendar.

3# Write a Program to display the Difference between the two dates in the calendar.

4# Programs using ASP.NET Server controls. Create the application that accepts name, password, age , email id, and user id. All the information entry is compulsory. Password should be reconfirmed. Age should be within 21 to 30. Email id should be valid. User id should have at least a capital letter and digit as well as length should be between 7 and 20 characters.

5# Create a web site in ASP.NET for a School consisting of the following pages:

a) The Home page should consist of four areas containing the following information: Header area containing the logo, name of the school and a photograph of the school. Make sure that you use a good picture format. Left area containing the links to other pages - these links should include - About us, Academics, Infrastructure, Contact us and Feedback. The Content area should display a table showing list of upcoming events of the School along with dates. The Footer area should display the copyright information and current date and time. You need to make sure that the Header and Footer area is same across all the pages of the website.

b) About us page should give information about the Objectives, values and beliefs of the school, preferable in some structured format. You may use lists or tables for the same.

c) Academics page lists details about the teachers and the past activities of the school.

d) Infrastructure page should highlight the available resources of the school.

e) Contact us page should provide information about the school address and contact details.

f) Feedback page should have a feedback form consisting of text box, radio buttons, list boxes etc. This page should get the information from the site visitors about various aspects of schools website. You must use JavaScript to check that all the required fields are entered by the visitor.