

Savitribai Phule Pune University

Faculty of Science and Technology

Board of Computer Applications

Guidelines to conduct Online Practicals for B.C.A.(Science) and M.Sc. (Computer Application) A.Y.2020-21

Guidelines for		
Class	Semester	Pattern
Term-I (Odd Semesters)		
FYBCA	I	2019
SYBCA	III	2019
TYBCA	V	2016
MSc(CA)-I	I	2019
MSc(CA)-II	III	2019
Term-II (Even Semesters)		
FYBCA	II	2019
SYBCA	IV	2019
TYBCA	VI	2016
MSc(CA)-I	II	2019
MSc(CA)-II	IV	2019

TERM- I (Odd Semesters)

FYBCA (Science) Sem-I Laboratory Courses (Pattern 2019)

BCA115: Fundamental of Computers Laboratory

Virtual Lab/Online Demonstration/Video.

To be conducted as per Practical Workbook from Set A or B

Assignment No.	Title of Assignment
1	Operating System Commands
2	Microsoft Word I
3	Microsoft Word II
4	Spreadsheet I
5	Spreadsheet II
6	Microsoft PowerPoint I
7	Microsoft PowerPoint II
8	Shell Commands
9	Introduction to HTML
10	Working with List and Hyperlink
11	Working with Table
12	Working with Frames
13	Working with Forms

BCA116: C Programming Laboratory

Virtual Lab/Online Demonstration/Video.

To be conducted as per Practical Workbook from Set A or B

Assignment No.	Title of Assignment
1	Familiarization with Programming Environment
2	Use of data types, simple operators (expressions)
3	Debugging and Single-Stepping of Programs
4	Decision making statements (if and ifelse, Nested structures)
5	Decision making statements (switch case)
6	Use of while loops
7	Use of for loops
8	Nested loops
9	Exit, goto, continue, break

10	Writing C programs in modular way
11	Call by value
12	Call by reference
13	Recursive functions
14	Use of arrays (1-D array) and functions
15	Use of multidimensional array (2-D arrays) and functions

BCA117: Applied Mathematics Laboratory

Virtual Lab/Online Demonstration/Video.

To be conducted as per Practical Laboratory Workbook

Assignment No.	Title of Assignment
Section –I : Mathematics Assignments	
1	Set Theory
2	Logic
3	Relations
4	Functions
5	Counting
Section-II: Statistics Assignments	
1	Using R execute the basic commands, array, list and Frames
2	Create a Matrix using R and Perform the operations addition, inverse, transpose and multiplication operations
3	Using R execute the statistical functions : mean, median, mode, quartiles, range, interquartile range and histogram
4	Using R, drawing scatter Plots, Line Plots, Bar Plots
5	Using R import the data from Excel/.CSV file and perform Operations
6	Using R import the data from Excel/.CSV file and Calculate the standard deviation
7	Using R import the data from Excel/.CSV file and draw the skewness

BCA118: Business Communication Laboratory

Virtual Lab/Online Demonstration/Video.

Suggested Environment: Google Meet / MS-Teams / Zoom / any other online meeting

Assignment No.	Title of Assignment
1	Self-introduction and introducing others

2	Telephonic Conversation
3	Listening Comprehension
4	Reading Introduction
5	Group Discussion
6	Writing Skill
7	Mock interview
8	Speaking Skills

SYBCA (Science) Sem-III Laboratory Courses (Pattern 2019)

BCA234: Data Structure Laboratory

Virtual Lab/Online Demonstration/Video.

To be conducted as per Practical Workbook from Set A or B

Assignment No.	Title of Assignment
1	Non-Recursive Sorting Techniques
2	Recursive Sorting Techniques
3	Searching Techniques
4	Linked List
5	Stack
6	Queue
7	Binary Search Tree
8	Graph

BCA235: Database Management System-II Laboratory

Virtual Lab/Online Demonstration/Video.

To be conducted as per Practical Workbook from Set A or B

Assignment No.	Title of Assignment
1	Nested Queries
2	Views
3	Stored Functions
4	Errors and Exceptions
5	Cursors
6	Triggers

BCA236: Computer Networks and Web Programming Laboratory

Virtual Lab/Online Demonstration/Video.

To be conducted as per Practical Workbook from Set A or B

Assignment No.	Title of Assignment
1	Networking Commands
2	LAN Environment & Network Topology
3	Basic HTML Tags
4	GIT & GITHUB
5	List & Tables
6	Frames & Forms

7	CSS
8	Basics of JavaScript
9	Functions in JavaScript
10	Validation Using JavaScript & Event Handling
11	Designing HTML Screens
12	File Uploads, Field & Form Validation
13	Cookies
14	XML

TYBCA (Science) Sem-V Laboratory Courses (Pattern 2016)

BCA505: Java Programming Laboratory

Virtual Lab/Online Demonstration/Video.

To be conducted as per Practical Workbook from Set A or B

Assignment No.	Title of Assignment
1	Java Tools and IDE, Simple Java programs
2	Usage of Class and Object
3	Inheritance and Interfaces
4	Collections
5	Exception Handling and I/O
6	Swings
7	Applet Programming
8	JDBC
9	Servlet
10	JSP

BCA506: Advanced Web Technology Laboratory

Virtual Lab/Online Demonstration/Video.

To be conducted as per Practical Workbook from Set A or B

Assignment No.	Title of Assignment
1	Introduction to Classes & objects
2	Inheritance ,Interface and Introspection
3	PHP Global Variables & Form Methods
4	Self-referencing pages, Sticky forms with Multi-value Parameters
5	File uploads and Form Validation
6	Cookies &Sessions
7	Database
8	XML
9	AJAX

M.Sc.(Computer Application) Sem-I Laboratory Courses (Pattern 2019)

CA-CBOPP-1A Object Oriented Programming with C++ Laboratory

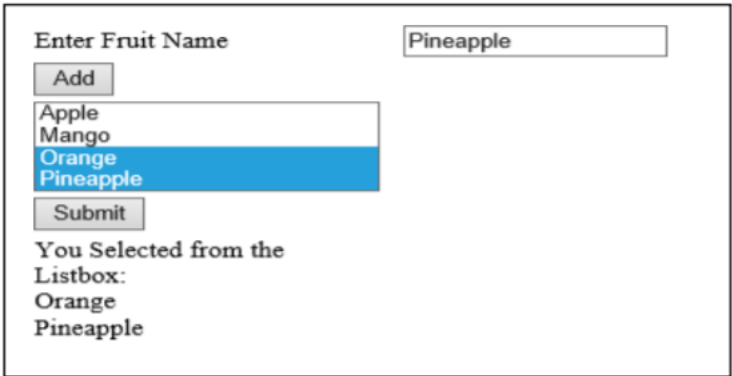
Virtual Lab/Online Demonstration/Video.

Sr. No.	Practical Assignment
1	Write a C++ program to prompt the user to input her/his name and print this name on the screen , as shown below. The text from keyboard can be read by using cin >> and to display the text on the screen you can use cout <<.
2	Write a C++ program to create a class Student which contains data members as Roll_Number, Stud_Name, Marks in five subjects. Write member functions to accept Student information. Display all details of student along with a percentage and class obtained depending on percentage. (Use array of objects)
3	Write a C++ program to find the factorial of a number using a recursive function
4	Create a C++ class for a student object with the following attributes—roll no, name, number of subjects, marks of subjects. Write member function for accepting marks and display all information of student along with total and Percentage. Display marklist with Use of manipulators.
5	Write a program in C++ that copies one file to another file
6	Write a C++ program to print area of circle, square and rectangle using inline function.
7	Create two classes' dist1 (meters, centimeters) and dist2 (feet, inches). Accept two distances from the user, one in meters and centimeters and the other in feet and inches. Find the sum and difference of the two distances. Display the result in both (meters and centimeters) as well as feet and inches (use friend function).
8	Create a class time that contains hours, minute and seconds as data members. Write the member function to overload operator '+' to add two object of type time,(Use Parameterized constructor to accept values for time).
9	Write a C++ program using class which contains two data members of type integer. Create and initialize the object using default constructor, parameterized constructor and parameterized constructor with default value. Write a member function to display maximum from given two numbers for all objects
10	Create a class time that contains hours, minute and seconds as data members. Write the member function to overload operator '+' to add two object of type time,(Use Parameterized constructor to accept values for time).
11	Write a menu driven C++ program using class to perform all arithmetic operation
12	Write a C++ program to create a class novel which contains data member as id,name,and author. Write member function to accept and display novel information .Also display the count of novels(use static data member to maintain the count of novel
13	Write a C++ Program to prompt the user to input 3 integer values and print these values in forward and reverse order.

14	Implement multiple and hierarchical inheritance. The class AllRounder derives information from both Bowler and Batsman classes which in turn derive information from the class Cricketer. Define all 4 classes and write a program to do the following: - Accept the details of n objects. - Display the details of n objects. - Display the object having highest runs
15	Write a class Complex (real,img) along with appropriate constructors. Also write appropriate functions to overload '+' and '-' operator

CA-CBOPP-1B ASP.NET Laboratory

Virtual Lab/Online Demonstration/Video.

Sr. No.	Practical Assignment
1	Create C# dialogue boxes for font dialogue, color dialogue & print dialogue box
2	Write a web application in Asp.net using c# to select date from calendar control and display name of the day, name of the month from the selected date
3	Write a web application in asp.net using c# to design a master page with two content pages, one content page will display the student's personal information and another will show the student's academic information
4	Write a web application in asp.net using c# to create a table book (bid, title, author_name, publication, edition, price). Insert records into table and display appropriate message using label server control.
5	Write web application for Calculator
6	Write web application in asp.net to validate Email of user.
7	Write a web application in asp.net using c# to insert records into table hospital (hno, hname, no_of_dept, doctor_name, date_of_registration). Display hospital details in GridView..
8	Write a web application in asp.net using c# to design following web page, accept fruit name from the user and add it to the list box on clicking of add button, user can select multiple fruit names from list box, click on submit button all selected fruit names should get displayed on label control 
9	.Write a web application in asp.net using c# to design a master page with two content pages, one content page will display the student's personal information and another will show the student's academic information

CA-CBOPP-1C Software Testing (Manual) Laboratory

Virtual Lab/Online Demonstration/Video.

Sr. No.	Practical Assignment
1	Describe what you would like to do in a new job as a Software Tester?
2	Why Testing is important in Software Industry?
3	What are the different types of Testing? Explain each.
4	What are the advantages of starting early testing in SDLC?
5	List five key differences Smoke Testing Vs Sanity Testing?
6	Develop Test Plan for Flight Reservation System Application? Make sure you cover all the sections and it should look like professional document?
7	Develop Traceability Matrix for Flight Reservation Application?
8	What are Non-functional Requirement in SRS?
9	What is Agile Methodology?
10	Have you developed bug report? If yes, then explain what are various sections did you include in your bug report?
11	Write a detailed defect report for this sample defect: After logging into Gmail, it navigates to Google.com No hint here. :) Just write a good and complete defect report

CA - CCPP-1 : Web Technology Laboratory

Virtual Lab/Online Demonstration/Video.

Sr. No.	Practical Assignment
1	Write a JavaScript to create an image slider.(Use array to store images)
2	Write a JavaScript Program to read a number from user, store its factors into the array and display that array. (Handle onClick Event)
3	Write a java script function to display Clock in the textbox.
4	Write a JavaScript program to read a character string from user and perform the following functions: Accept a character from user and count the number of occurrences of that character in the string.Accept a Position from user and print the character at specified position.
5	Write a JavaScript program to design student registration form and perform following validation:- Check all fields should not contain a null value- Check name field contains only alphabets- Mobile No. field should be of 10 digits.sPin code field should be of 06 digits.
6	Consider the following entities and their relationship. Doctor (doc_no, dname, address, city, area) Hospital (hosp_no, hname, hcity) Doctor-Hospital related with many-one relationship. Create a RDB in 3NF for above and solve the following. Using above database write a script in PHP to print the Doctor visiting to the hospital in tabular format. Accept hospital name from user[Use PostgreSQL]

7	Write AJAX program to print movie by selecting an actor's name. create table Movie and Actor with 1:M cardinality as follows: Movie (mno, mname, release_year) Actor(ano, aname) [USE PostgreSQL]
8	Write a AJAX program to print Teacher information from postgresQL table Teacher. Teacher (Tno, Name, Subject, Research area). [Note: Examiner can change postgresql table]
9	Write a script to create XML file as '_Employee.xml'. The element of this xml file are as follows: <pre> <Empdetails> <Employee EMPno= Empname=> <Salary>-----</Salary> <Designation>-----</Designation> </Employee> </Empdetails> </pre>
10	Write a PHP Script to read '_BOOK.xml' file and print specific content of a file using DOMDocument parser. '_Book.xml' file should contain following information with at least 5 records with values. BookInfo Book NO, Book Name, Author Name, Price, Year. [Note: Examiners can change the Book info file to Student info, Teacher info]
11	Write a PHP script for the following. a) Design a form to accept the details of 5 different items such as Item code, Item Name, unit, sold and Rate. b) Display the bill in tabular format. Use only 4 textboxes. [Use explode
12	Write a PHP script, which will return the following component of the URL '_http://www.example.com/php-example/index.php'. List of component: Scheme, Host, Path Excepted o/p Scheme: http Host: www.example.com Path:/php-example/index.php
13	Write a menu driven program to perform various file operations. Accept filename from user. a) Display type of file. b) Delete a file.
14	Write a PHP script for the following. Design a form to accept a string and check whether the given string is Palindrome or not. [Use built-in function.]
15	Write a PHP script to accept the number from user and write a function to calculate the factorial of a given number (non-negative integer). The function accept the number as argument. Write a PHP Program to read two file names from user and append content of first file into second file. Write a PHP script to design a form to compose/write an email with following details. TO Subject Message Send Mail

M.Sc(Computer Application) Sem-III Lab Courses (Pattern 2019)

CA-CBOPP-3A Python Programming Laboratory

Virtual Lab/Online Demonstration/Video.

Sr. No.	Practical Assignment
1	Write a program to check whether the number is even or odd, print out an appropriate message to the user.
2	Write a program which will find all such numbers which are divisible by 7.
3	Write a program which can compute the factorial of a given numbers.
4	Write a program that prints out all the elements of the list that are less than 10
5	Write a program (using functions!) that asks the user for a long string containing multiple words. Print back to the user the same string, except with the words in backwards order. E.g “ I am Msc student” is :”student Msc am I”
6	. Write a program that accepts a sentence and calculate the number of letters and digits
7	Write a Python program of recursion list sum.
8	Write a Python program to solve the Fibonacci sequence using recursion.
9	Write a Python program to get the sum of a non-negative integer.
10	Write a Python program to read a file line by line store it into an array.
11	Write a Python class named Circle constructed by a radius and two methods which will compute the area and the perimeter of a circle

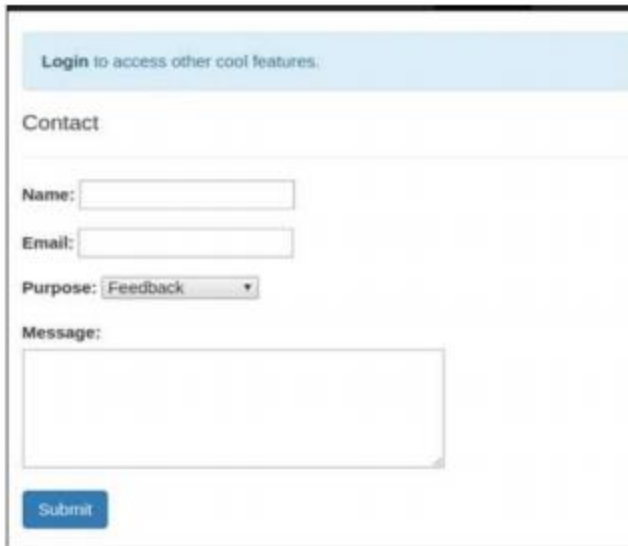
CA-CBOPP-3B Big Data Laboratory

Virtual Lab/Online Demonstration/Video.

Sr. No.	Practical Assignment
1	Hadoop and its components
2	Case study on Sprint
3	Case Study on IBM Watson
4	Case Study on Terra Seismic
5	Case Study on Uber
6	Case study on Twitter
7	Case Study on Kaggle

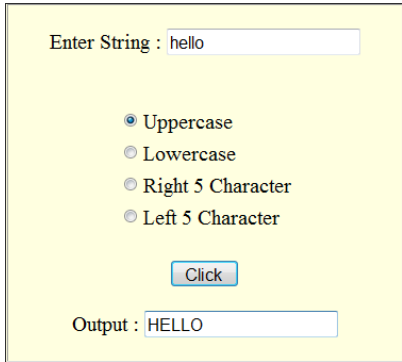
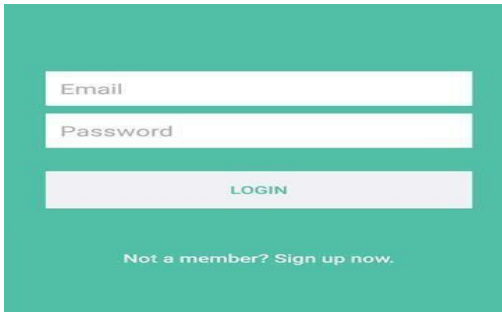
CA-CBOPP-3C DJango Laboratory

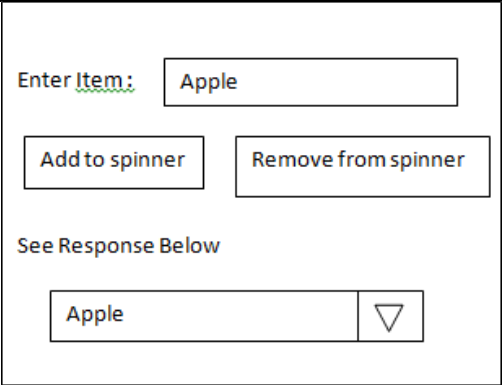
Virtual Lab/Online Demonstration/Video.

Sr. No.	Practical Assignment
1	Create a Django built-in login form with password validation.
2	Design Django Admin App site in which, you can - Add new user. - Modify existing user. - Search and filter users. - Sort the user data by clicking on the column header. - Delete user
3	Create Django templates that represent the HTML GUI that the client can view.
4	Build Django application that illustrate template inheritance
5	Write a Python program to list the tables of given SQLite database file.
6	Write Python Django program to insert, update and delete record in to database table using GUI.
7	Create Django app that will print records of employee having attributes first name, last name and Designation from Django admin.
8	Create Django authentication (or auth) app that provides a wide array of tools for User management ranging from authenticating users to resetting passwords
9	Design Django application that will create contact-us page as shown below 
10	Build REST web services and mapping web URLs with view functions & perform complex routing.
11	Use the built-in HTTP session object parameters to control the session behaviors/patterns

CA-CCPP-3 Android Programming Laboratory

Virtual Lab/Online Demonstration/Video.

Sr. No.	Practical Assignment
1	Create an Android Application that will change color of the screen and change the font size of text View using xml.
2	Create table Customer (id, name, address, phno). Create Android Application for Performing the following operation on the table. (Using sqlite database) i) Insert New CustomerDetails. ii) Show All the CustomerDetails
3	Create an Android Application to accept two numbers and create two buttons (power and Average). Display the result on the next activity on Button click
4	Create an Android Application to perform following string operation according to user selection of radio button 
5	Create a Simple Android Application Which Send —Hello! message from one activity to another with help of Button (Use Intent).
6	Write an Android Program to Change the Image Displayed on the Screen
7	Java Android Program to demonstrate login form with validation. 
8	By using Spinner, Buttons. Write an Android program to draw following GUI.

			
9	Create a Notification in Android and display the notification message on second activity		
10	Create table Company (id, name, address, phno). Create Android Application for Performing the following operation on the table. (Using sqlite database) i) Insert New CompanyDetails. 2) Show All the Company Details.		
11	Construct an Android app that toggles a light bulb on and off when the user clicks on toggle button		
12	Write an Android Application to send Email.		
13	Create a Simple Android Application Which Send —Hello! message from one activity to another with help of Button (Use Intent).		
14	Write a PhoneGap Application to display Hello World using HTML5.		
15	Write a PhoneGap Application to display Digital Bio Data using HTML5		
16	Create an Android application that will change color of the screen and change the font size of text view using xml.		
17	Create table Project (id, name, dept, and city). Create Application to perform the following operations. (Using sqlite database) i) Add records. ii) Display all the records		

TERM- II (Even Semesters)

FYBCA (Science) Sem-II Laboratory Courses (Pattern 2019)

BCA125: Computer Organization Laboratory

Virtual Lab/Online Demonstration/Video.

Suggested Virtual Lab Tools: logisim-win-2.7.1 software Tool OR Proteus (labcenter.com)

To be conducted as per Practical Workbook

Assignment No.	Title of Assignment
1	Study & Verify the Truth Tables of Logic Gates
2	Study of De-Morgan's theorems
3	Implementation of Code Converters using K-Map
4	Study of Half Adder and Full Adder
5	Study of Decimal to BCD Encoder
6	Study of Multiplexer (2:1) and De-multiplexers (1:2)
7	Study of Flip-flops (SR, D and JKFF)
8	Study of 3-bit Synchronous Up-Down counter

BCA126: ADVANCE C PROGRAMMING LABORATORY

Virtual Lab/Online Demonstration/Video

To be conducted as per Practical Workbook from Set A or B

Assignment No.	Title of Assignment
1	Study of Pre-processor Directive
2	Use of Pointer Variables
3	Advanced use of Pointers
4	Concept of Strings, Array of Strings
5	String Operations using Pointers
6	Command Line Arguments
7	Structures (Using Array and Functions)

8	Nested Structures and Unions
9	Use of Bitwise Operators
10	File Handling

BCA127: Operating Systems Laboratory

Virtual Lab/Online Demonstration/Video

To be conducted as per Practical Workbook from the Set A or B

Assignment No.	Title of Assignment
1	Study of Desktop Environment and Components in Linux Environment
2	Study basic Linux Commands
3	Study redirection and simple filters in Linux
4	Study file permission and other advance Linux Commands
5	Learning Vi Editor
6	Study Basic Commands of Shell Programming
7	Study Conditional statement & Command line in Shell Programming
8	Study Looping control structures in Shell Programming

BCA128: Database Management Systems -I Laboratory

Virtual Lab/Online Demonstration/Video

To be conducted as per Practical Workbook from any one of the Sets A or B

Assignment No.	Title of Assignment
1	Introduction to ER diagram
2	Introduction to ER diagram (Generalization)
3	Introduction to ER diagram (Aggregation)
4	Introduction to PostgreSQL (Demo)
5	To create simple tables, with only the primary key constraint
6	To create more than one table, with referential integrity constraint, PK constraint, Check, unique and not null constraint

7	To drop a table from the database and to alter the schema of a table in the Database.
8	To insert / update / delete records using tables created in previous Assignments.
9	Simple Query and Aggregate functions
10	To query table, using set operations (union, intersect)
11	To query tables using nested queries (Join) Part 1
12	To query tables, using nested queries Part 2
13	Assignment related to small case studies

SYBCA (Science) Sem-IV Laboratory Courses (Pattern 2019)

BCA244: C++ Programming Laboratory

Virtual Lab/Online Demonstration/Video

To be conducted as per Practical Workbook from any one of the Sets A or B

Assignment No.	Title of Assignment
1	Introduction to C++
2	Classes and Objects
3	Constructors
4	Memory Allocation
5	Functions
6	Operator Overloading
7	Inheritance
8	Virtual Functions
9	File Handling

BCA-245: Web Technology Laboratory

Virtual Lab/Online Demonstration/Video

Suggested online Compiler for PHP such as w3schools.com

To be conducted as per Practical Workbook from any one of the Sets A or B

Assignment No.	Title of Assignment
1	PHP Programming
2	Functions
3	Arrays
4	Inheritance and Interfaces
5	Accessing Databases (PostgreSQL)
6	XML and AJAX

BCA-246: Python Programming Laboratory

Virtual Lab/Online Demonstration/Video

Suggested online Compiler for Python such as w3schools.com

To be conducted as per Practical Workbook from any one of the Sets A or B

Assignment No.	Title of Assignment
1	Basic Python
2	Python Strings
3	Python Tuple
4	Python Set
5	Python Dictionary
6	Functions in Python
7	Problem definition & Scope of the Problem
8	Prepare SRS for a given problem
9	Design Data Flow Diagram (Any one case given in lab book)

TYBCA(Science) Sem-VI Laboratory Courses (Pattern 2016)

BCA 605: Lab Course I - Android Programming

Virtual Lab/Online Demonstration/Video

To be conducted as per Practical Workbook from any one of the Sets A or B

Assignment No.	Title of Assignment
1	Introduction to Android
2	Activities, Fragments and Intents
3	Android User Interface and Event Handling
4	Designing Your User Interface with Views
5	Displaying Pictures and Menus
6	Databases – SQLite
7	Messaging and Email
8	Location based services and Google Maps

BCA-606: Python Programming Laboratory

Virtual Lab/Online Demonstration/Video

To be conducted as per Practical Workbook from any one of the Sets A or B

Suggested Online Compiler - Online Python Compiler or W3schools.com

Assignment No.	Title of Assignment
1	Basic Python
2	Python Strings
3	Python Tuple
4	Python Set
5	Python Dictionary
6	Functions in Python
7	Files
8	Directories
9	Python classes and Objects
10	Exception handling

M.Sc.(Computer Application) Sem-II Lab Courses (Pattern 2019)

CA-CBOPP-2A: Java Programming Laboratory

Virtual Lab/Online Demonstration/Video

Sr. No.	Practical Assignment
1	To find the sum of 10 number of integers entered by user.
2	To learn use of single dimensional array
3	To learn use of a two dimensional array
4	To check if a number is prime or not, by taking the number as input from the keyboard
5	Write a program that show working of different functions of String and StringBuffer classes like setCharAt(), setLength(), append(), insert(), concat() and equals().
6	Write a program to create a "Time" class with methods where Time is computed in terms of hrs and minutes, how to create objects of a class and to see the use of this pointer
7	Write a program to show that during function overloading, if no matching argument is found, then java will apply automatic type conversions (from lower to higher data type)
8	Write a program to show the difference between public and private access specifiers. The program should also show that primitive data types are passed by value and objects are passed by reference and to learn use of final keyword
9	Write a program to show the use of static functions and to pass variable length arguments in a function
10	Write a program that creates illustrates different levels of protection in classes/subclasses belonging to same package or different packages
11	Write a program "DivideByZero" that takes two numbers a and b as input, computes a/b, and invokes Arithmetic Exception to generate a message when the denominator is zero
12	Write a program to demonstrate different mouse handling events like mouseClicked(), mouseEntered(), mouseExited(), mousePressed, mouseReleased() and mouseDragged()
13	Write a program to create your own exception types to handle situation specific to your application (Hint: Define a subclass of Exception which itself is a subclass of Throwable).
14	Write a program to show the use of nested try statements that emphasizes the sequence of checking for catch handler statements.
15	Understanding the behavior of cookies and session management using JSP

CA-CBOPP-2B: Web Services Laboratory

Virtual Lab/Online Demonstration/Video

Sr. No.	Practical Assignment
1	Create 'Dynamic Web Project', which will host your web service functionality to greet the user according to server time and create 'Dynamic Web Project', which will host the client application that will send user name and test the web service
2	Create 'Dynamic Web Project', which will host your web service functionality to find the factorial of given number and create 'Dynamic Web Project', which will host the client application that will send positive integer number and test the web service.
3	Create 'Dynamic Web Project', which will host your web service functionality to select employee details (use database for storing emp details (eno, ename, designation, salary))

	and create 'Dynamic Web Project', which will host the client application that will send employee name and display the details.
4	Create 'Dynamic Web Project', which will host your web service functionality to validate mobile no (use regular expression: should contain only 10 numeric no) and create 'Dynamic Web Project', which will host the client application that will send mobile no and test the web service.
5	Create 'Dynamic Web Project', which will host your web service functionality to find area and volume of the circle and create 'Dynamic Web Project', which will host the client application that tests the web service.
6	Create 'Dynamic Web Project', which will host your web service functionality for returning book price and create 'Dynamic Web Project', which will host the client application that will send Book Name.
7	Create 'Dynamic Web Project', which will host your web service functionality to update the date and time for flight booking for any airways(JET) (use database for storing Flight details) and create 'Dynamic Web Project', which will host the client application that will send request(eg: MakeMyTrip) to test the web service.

CA-CBOPP-2C: Software Testing (Automated) Laboratory

Virtual Lab/Online Demonstration/Video

Sr. No.	Practical Assignment
1	Download & Install Selenium WebDriver
2	Write different components in Selenium
3	Work on Selenium Form WebElement: TextBox, Submit Button, sendkeys(),click()
4	How to Find All/Broken links using Selenium WebDriver
5	Configure JSON file format
6	Create Grid sample test case
7	Solve examples related to POM
8	Download & Install TestNG and configure Eclipse
9	Create Program in TestNG and Execute
10	Work on Maven - Configure, Generate report

CA-CCPP-2: Data Mining and Warehousing Laboratory

Virtual Lab/Online Demonstration/Video

Sr. No.	Practical Assignment
1	Build a classification model and usage of weka to use a Decision Tree algorithm to classify weather data from the “weather.arff” file. Perform initial preprocessing and create a version of the initial dataset in which all numeric attributes should be converted to categorical data.
2	Use database weather.arff. Apply hierarchical clustering algorithm for clustering and find out number of clusters created.
3	Use database “Diabetes.arff”. Apply Linear Regression and find out total number of instances. (using weka)

4	Use Naïve Bayes algorithm to Glass data from the “Glass.arff” file. Perform initial preprocessing and create a version of the initial data set in which the ID field should be removed and the "Type" attribute should be converted to categorical data.(using weka)
5	Use Zero R classification algorithm to labour data from the “labour.arff” file. Perform initial preprocessing and analyze confusion matrix. (using weka)
6	Use Apriori algorithm to soybean data of a transaction and identify all frequent k-item set and min support is 60% from the “soybean.arff” file. Perform initial preprocessing and find all the frequent item sets. (using weka)
7	Use the EM algorithm for database glass-database.arff, with the default settings and find out total number of clustered instances?
8	Use the FP Growth algorithm and Apriori algorithm for database Wine.arff, with the default settings and find out which algorithm generates maximum rules?
9	Use Apriori algorithm to vote data of a transaction and identify all frequent k-item set and min support is 40% from the “vote.arff” file. Perform initial preprocessing and find derive FP-tree. (using weka)
10	Write a script in R to create a list containing string, numbers, vectors, and logical values
11	Write a script in R to create two vectors of different lengths and give these vectors as input to array and print that array.
12	Write a script in R to create two vectors of different lengths and give these vectors as input to array and print third row of second matrix of the array
13	Write a script in R to create a simple bar plot of five subjects marks
14	Write a script in R to create two vectors of different lengths and give these vectors as input to array and print addition of those matrices
15	Write a script in R to create two vectors of different lengths and give these vectors as input to array and print subtraction of those matrices

M.Sc.(Computer Application) Sem-IV (Pattern 2019)

Industrial Training/ On-Campus Project (Dissertation)

- Full time within semester IV dissertation/project
- Total Credits: 20
- Total Marks : 500
 - Internal Evaluation (Continuous Assessment): 150 Marks
 - External Evaluation (University Examination): 350 Marks

Guidelines:

- Each student will take up either training at an industry/research institute or will work on project idea for college campus
- Student will work fulltime in whole semester to complete the project/dissertation.
- Students can work in online mode/work from home during this training period.
- The college will appoint faculty members to work as coordinators/mentors to supervise this activity as per University guidelines.
- Students will communicate the coordinator/mentor/project guide at least once in a week
- Continuous assessment will be carried out by the faculty mentor for 150 marks on the basis of weekly communication, performance, progress report, time to time presentations given by the student.
- At least two presentations of students will be conducted by faculty mentor during continuous assessment.
- Student will also submit synopsis and dissertation reports during the period of Industrial training project (ITP) to the faculty mentor.
- After Completion of the ITP, a student will have to submit the project completion certificate from the respective industry/research institute.
- A student will produce/submit the report in the format as given below.
- End semester/University examination will be of 350 marks and will be conducted by Panel of three examiners: faculty mentor/coordinator, expert from industry (appointed by the college) and one external examiner from affiliated college (appointed by the University).

Project Report Format

Sr.No.	Particulars	Page Nos
I	Abstract	
II	Acknowledgement	
III	Completion Certificate by Industry/ Institute	
IV	College Certificate	
Report Documentation Content		
1	Introduction	
2	Existing System	
3	Need for New System	
4	Problem Definition	
5	Proposed System: I. Explanation II. Methodology used	
6	Scope of the System	
7	Hardware and Software Requirement	
8	Feasibility Study I. Operational II. Technical III. Economical	
9	Diagrams: I. System Flow Diagram II. E-R Diagram III.UML Diagrams	
10	Data Dictionary / Database Design	
11	Screen Designing A. I/O Screen Designing B. Output Formats	
12	Test Cases Design	
13	Conclusions & Future Enhancements	
14	Bibliography, References and Published work (Paper/Book Chapter/Copyright/Patent etc)	