



BRAINWARE UNIVERSITY

[BCA29106][2023- 24]

DETAIL ACTIVITY PLAN FOR PRACTICAL COURSES

Name of the Instructor/Faculty: Mr. RAHUL BIR			
Designation of Faculty: Assistant Professor			
Department of Faculty: Computational Sciences			
Course Name & Code: Python Lab & BCA29106			
Course Credit: 2	Weekly L-T-P: 0-0-4	Total Contact Hours in the semester: 60P	Maximum Marks: 100
Programme(s) Name & Semester/Term: BCA/2nd Sem / 2023-2024			
Target students [Section(s)/Group(s)] & Total Students: BCA Sec-C			

Course Outcomes, Module(s)/Experiment Number and Learning Level Mapping.

Sl.No.	Course Outcomes	Module(s)	Learning level(s) as per Bloom's Taxonomy
1	Define knowledge about the basic concept of writing a program and summarize the role of constants, variables, identifiers, operators, type conversion and loops, decision making Python Language	M1	K1,K2
2	Understand and illustrate the list and matrix representation in python	M2	K2,K3
3	Analyze the role of Functions involving the idea of modularity and construct user defined functions.	M3	K3,K4
4	Illustrate error handling techniques using exception handling and develop python programs using file input/output operations	M4	K2,K3
5	Evaluate and criticize the different package with different types of programmes in python.	M5	K4,K5

Components of Assessments:

1. Continuous Internal Assessments (CIE) as per the syllabus and assessment policy
2. End Semester Examination as per the syllabus and assessment policy

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Experiment No	Name of the Experiment	Date(s) (From-To)	Objective(s)	Duration (in hours)	Book(s) for Theory (If applicable)	Reference (Lab Manual)
1	<ul style="list-style-type: none">i. Write a Python program to accept two numbers from the user and calculate addition.ii. Write a Python program to accept two numbers from the user and calculate subtract.iii. Write a Python program to accept two numbers from the user and calculate multiply.iv. Write a Python program to accept two numbers from the user and calculate the divide.v. Write a Python program to accept sides from the user and find the area of a Square, Rectangle.vi. Write a Python program to accept the radius from the user and calculate the area and circumferences of the circle.vii. Write a Python program to accept two numbers from the user and swap between two numbers using a third variable.viii. Write a Python program to accept two numbers from the user and swap between two numbers without using a third variable.ix. Write a Python program that accepts days from the user and calculates the days, months, and years from the total number of days.x. Write a Python program where $x=(a+b)^2/(a-b)^2$	Monday 12/2/2024 TO Monday 26/2/2024	Basics Programming Constructs	8	Python Cookbook: Recipes for Mastering Python.	
2	<ul style="list-style-type: none">i. Write a python program that will take input temperature as Celsius and print Fahrenheit and Kelvin.ii. Write a python program that will take Basic Salary of an employee and print Cash in hand.iii. Hint: DA= 20% of Basic, TA= 5% of Basic, HRA= 10% of Basic. Salary= Basic + DA + HRA + TAiv. Write a python program that will take Unit price and Quantity of an article and print the cost.v. Write a python program to generate the following output. 5 10 9.vi. WAP program to print the volume of a cylinder when radius and height of the cylinder is given by user. $area=\pi r^2 h$. WAP that asks your height in centimeters and converts it into foot and inches.vii. Write a program to reverse the digits of any two digits number. Accept the number from the user.viii. Write a python program to calculate the compound interest and the amount for any sum of money for a certain period of time, Take the sum, time period, rate of interest from the user.ix. Write a python program to calculate the mean of some range of values taken from the user.	Monday 4/3/2024 TO Thursday 7/3/2024	Basics Programming Constructs	4	Python Cookbook: Recipes for Mastering Python.	



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3	<ul style="list-style-type: none"> i. Simple Programs on the if-else statement: ii. Write a PYTHON program to check if a number is even or odd. iii. Write a PYTHON program to find the greater among two numbers. iv. Write a PYTHON program to check whether a person is an adult or not. v. Write a PYTHON program to check whether a given number is positive or not. vi. Write a PYTHON program to check whether a number is divisible by 2 and 3. vii. Write a PYTHON program to check whether a number is divisible by 3 or 5. viii. Write a PYTHON program to check the greatest among 3 numbers. ix. Write a PYTHON program to check the greatest among 3 numbers using the ternary operator. x. Write a PYTHON program to check if a year is a leap year or not. xi. Write a PYTHON program to calculate the electric bill amount, according to the given chart xii. =1 - 100 unit - 5/- xiii. = 101-200 unit - 7/- xiv. =201-300 unit - 10/- xv. = above 300 – 15/- xvi. Write a PYTHON program to calculate the student grade using if-else. xvii. If percentage > 85 print A grade, If percentage < 85 && percentage >= 75 print B grade, If percentage < 75 && percentage >= 50 print C grade, If percentage > 30 && percentage <= 50 print D grade, If percentage <30 print fail. 	<p>Friday 8/3/2024 TO Monday 11/3/2024</p>	<p>Basics Programming Constructs</p>	8	<p>Python Cookbook: Recipes for Mastering Python.</p>	
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4	<ul style="list-style-type: none">i. Write a PYTHON program to convert the temperature from Celsius to Fahrenheit and vice versa.ii. Write a PYTHON program to check whether the last digit of a number is divisible by 3 or not.iii. Write a PYTHON program to check whether a number is buzz or not.iv. Write a PYTHON program to check whether a number is automorphic or not.v. Write a PYTHON program to input any alphabet and check whether it is vowel or consonant.vi. Write a PYTHON program to input any character and check whether it is alphabet, digit or special character.vii. Write a PYTHON program to check whether a character is uppercase or lowercase alphabet.viii. Write a PYTHON program to input week number and print week day.ix. Write a PYTHON program to calculate profit or loss.x. Write a PYTHON program to input marks of five subjects Physics, Chemistry, Biology, Mathematics and Computer. Calculate percentage and grade according to following: Percentage $\geq 90\%$: Grade A , Percentage $\geq 80\%$: Grade B, Percentage $\geq 70\%$: Grade C, Percentage $\geq 60\%$: Grade D, Percentage $\geq 40\%$: Grade E, Percentage $< 40\%$: Grade Fxi. Write a PYTHON program to input basic salary of an employee and calculate its Gross salary according to following:xii. Basic Salary ≤ 10000 : HRA = 20%, DA = 80% Basic Salary ≤ 20000 : HRA = 25%, DA = 90% Basic Salary > 20000 : HRA = 30%, DA = 95%xiii. A school display a notice on the school notice board regarding admission in Class XI for choosing streams according to the marks obtained in English, Maths and Science in Class X Council Examination.	Thursday 14/3/2024 TO Friday 15/3/2024	Basics Programming Constructs	4	Python Cookbook: Recipes for Mastering Python.	
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5	<ul style="list-style-type: none">i. Write a PYTHON program to print n natural numbers using a while loop.ii. Write a PYTHON program to print all odd numbers in a given range.iii. Write a PYTHON program to add first n numbers using a while loop.iv. Write a PYTHON program to print all numbers in a given range divisible by 3 or 5 using a while loop.v. Write a Python program using a loop to count the number of even and odd numbers from a series of numbers.vi. Write a PYTHON program to add all even numbers in a given range.vii. Write a PYTHON program to calculate the factorial of a given number using for loop.viii. Write a PYTHON program to find if a number is prime or not.ix. Write a PYTHON program to find the reverse of a given number.x. Write a PYTHON program to add all the digits of a given number.xi. Write a PYTHON program to print all the Fibonacci series up to a given range.xii. Write a PYTHON program to find a number is Armstrong or not.xiii. Write a PYTHON program to find whether a number is a palindrome or not.xiv. Write a Python program to check whether a number is perfect or not.xv. Write a Python program to find out prime numbers between 1 to 100.xvi. Write a python program to print the Fibonacci number.	Monday 18/3/2024 TO Thursday 21/3/2024	Basics Programming Constructs	4	Python Cookbook: Recipes for Mastering Python.	
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6	<p>i. Write a program that accepts a list from the user and prints the alternate element of the list.</p> <p>ii. Write a program that accepts a list of users. Your program should reverse the content of the list and display it. Do not use reverse() method.</p> <p>iii. Find and display the largest number of a list without using the built-in function max(). Your program should ask the user to input values in a list from a keyboard.</p> <p>iv. Write a program that reads a string from the user containing a date in the form mm/dd/yyyy. It should print the date in the form of March 12, 2021.</p> <p>v. Write a program that inputs a string and asks the user to delete a given word from a string.</p> <p>vi. Find the sum of each row of the matrix of size m x n. For example, the following matrix output will be like this:</p> <div style="display: flex; align-items: center;"> <table border="1" style="border-collapse: collapse; text-align: center;"> <tr><td>2</td><td>11</td><td>7</td><td>12</td></tr> <tr><td>5</td><td>2</td><td>9</td><td>15</td></tr> <tr><td>8</td><td>3</td><td>10</td><td>42</td></tr> </table> <div style="margin-left: 20px;"> <p>vii. Sum of row 1 = 32</p> <p>viii. Sum of row 2 = 31</p> <p>ix. Sum of row 3 = 63</p> </div> </div>	2	11	7	12	5	2	9	15	8	3	10	42	Friday 22/3/2024 TO Monday 25/3/2024	Lists	8	Python Cookbook: Recipes for Mastering Python.	
2	11	7	12															
5	2	9	15															
8	3	10	42															
7	<p>i. Write a Python program to create a tuple.</p> <p>ii. Write a Python program to create a tuple with different data types.</p> <p>iii. Write a Python program to unpack a tuple in several variables.</p> <p>iv. Write a Python program to add an item to a tuple.</p> <p>v. Write a Python program to convert a tuple to a string.</p> <p>vi. Write a Python program to find the repeated items of a tuple.</p> <p>vii. Write a Python program to convert a tuple to a dictionary.</p> <p>viii. Write a Python program to compute the sum of all the elements of each tuple stored inside a list of tuples.</p>	Thursday 28/3/2024 TO Friday 29/3/2024	Lists	6	Python Cookbook: Recipes for Mastering Python.													
Class Test 1: 1st April to 6th April 2024																		



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8	<ul style="list-style-type: none">i. Write a PYTHON program to check whether a number is prime or not using function.ii. Write a PYTHON program to check if a number is a palindrome or not using function.iii. Write a PYTHON program to calculate the factorial of a given number using function.iv. Write a PYTHON program to calculate the Fibonacci series using function.v. Write a PYTHON program to swap two numbers by call by value and call by address.vi. Write a program to find LCM and GCD of two numbers using user define function.	Monday 8/4/2024 TO Friday 10/5/2024	Function & Modules	8	Python Cookbook: Recipes for Mastering Python.	
9	<ul style="list-style-type: none">i. Write a Python program to create a dictionary and update existing key values.ii. Write a Python program, to sum up, all the items in a dictionary.iii. Write a Python program to multiply all the items in a dictionary.iv. Write a Python program to sort (ascending and descending) a dictionary by value.v. Write a Python program to concatenate the following dictionaries to create a new one.vi. Write a Python program to check whether a given key already exists in a dictionary.vii. Write a Python program to change the value of a specific item by referring to its key name.viii. Write a Python program to sort a given dictionary by keyix. Write a Python program to match key values in two dictionaries.x. Write a Python program to check if a specific Key and a value exist in a dictionary.xi. Write a Python program to check all values are the same in a dictionary.xii. Python Program to Count the Frequency of Words Appearing in a String Using a Dictionaryxiii. Write a Python program to create a dictionary and check whether a given key already exists in a dictionary.	Monday 13/5/2024 TO Friday 17/5/2024	Function & Modules	8	Python Cookbook: Recipes for Mastering Python.	
10	<ul style="list-style-type: none">i. Write a program to create a text file named 'std_rec' with record stu_name, stu_roll and stu_marks.ii. Write a python program in python to create a binary file and print the content of the file.iii. Write a program to demonstrate Object and Class in Python.iv. Write a program to demonstrate Inheritance in python.v. Create a GUI program for calculator using python tkinter.vi. Create a GUI program for Calendar using python tkinter.	Monday 20/5/2024 TO Thursday 23/5/2024	File Handling, OOPS & Event Driven Programming	4	Python Cookbook: Recipes for Mastering Python.	



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11	i. Write a program to element-wise addition of two numpy arrays. ii. Write a program for multiplying two matrix(2D numpy array). iii. Create a program to create a line graph for two different array using matplotlib. iv. Write a program in matplotlib for creating a Pie chart. V. Program to demonstrate Scipy and its functions.	Thursday 30/5/2024 TO Friday 31/5/2024	Packages	6	Python Cookbook: Recipes for Mastering Python.	
Class Test 2: 3rd June to 8th June 2024						

Total Experiment/ Lab Hours: 11 Experiments/ 60 hours

Details of the extended activities to be conducted (if applicable)

Activity No	Name of the Activities	Date(s)	Objective(s)	Duration (in hours)	Types of Activities (Mini Project/Field Work/Hands-on)	Reference (Lab Manual)
1						
2						
3						

Suggested Readings

1. Python Cookbook: Recipes for Mastering Python.

Laboratory Manual

Other Learning Resources (Name and/or URL of Journals/MOOCs/Online Resources, if Applicable)

1. https://www.youtube.com/watch?v=7wnove7K-ZQ&list=PLu0W_9lII9agwh1XjRt242xIpHhPT2llg

Signature of the Faculty