RV College of Engineering®
Autonomous Institution Affiliated to Visvesvaraya Technological University, Belagavi
Approved by AICTE New Delhi

Department of Artificial Intelligence and Machine Learning

INTRODUCTION TO PYTHON PROGRAMMING

LABORATORY PROGRAMS

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Go, Change the World

Practice Programs

1. Write a Python Program to Print Hello world.

```
print ('Hello, World!')
```

2. Write a Python Program to add Two Numbers

```
# This program adds two numbers

num1 = 1.5
num2 = 6.3

# Add two numbers
sum = num1 + num2

# Display the sum
print (sum)
```

3. Write a Python Program to add Two Numbers

```
# Store input numbers
num1 = input ('Enter first number: ')
num2 = input ('Enter second number: ')

# Add two numbers
sum = float(num1) + float(num2)

# Display the sum
print ('The sum of {0} and {1} is {2}'.format(num1, num2, sum))
```

4. Write a Python Program to find the Area of the Circle

```
import math

radius = input("Enter the Radius of the Circle: ")
area = math.pi* pow(float(radius), 2)
print ("Area is %.6f" % area)
```

5. Write a Python Program to Swap two Numbers

```
x = int(input("Enter the Value for X: "))
y = int(input("Enter the Value for Y: "))

# Swapping Technique
temp = y
y = x
x = temp

print("X and Y Values after Swapping \n", x, y)
print("x = ",  x)
print("y = ", y)
```

6. Write a Program to Swap Two Variable without Using 'temp Variable'

```
x = int(input("Enter the Value for X: "))
y = int(input("Enter the Value for Y: "))
x, y = y, x
print("x =", x)
print("y =", y)
```

7. Write a Python Program to find the ASCII Value of a Given Character

```
Character = input('Enter a Character: ')
print("The ASCII value of '" + Character + "' is", ord(Character))
```

8. Write a Python Program to Print a Character from their corresponding ASCII values

```
ASCII_VALUE = int(input("Enter the ASCII VALUE: "))
print("The Character Associated with the ASCII Value '"+str(ASCII_VALUE)+"' is", chr(ASCII_VALUE))
```

9. Write a Python Program to remove a word from a String.

```
print("Enter the String: ")
text = input()

print("Enter a Word to Delete: ")
word = input()

text = text.replace(word, "")

print()
print(text)
```

10. Write a Python Program to illustrates the Set Operations

```
E = {0, 2, 4, 6, 8};
N = {1, 2, 3, 4, 5};
# Union Operation
print ("Union of E and N is",E | N)
# Intersection Operation
print("Intersection of E and N is",E & N)
# SET Difference
print("Difference of E and N is",E - N)
# Symmetric SET Difference
print("Symmetric difference of E and N is",E^N)
```

11. Write a Python Program to print the calendar of the given Month and Year

```
import calendar

YEAR = int(input("Enter the Year: "))  # year
MONTH = int(input("Enter the Month: "))     # month

# Display the Calendar
print(calendar.month(YEAR, MONTH))
```

Laboratory Exercise

SL.No	Program

1	**Write a program to find the largest prime factor of a given integer**
	#Read the input
	n=input("Enter the Number: ")
	#convert to int
	n = int(n)
	maxPrime = -1
	#Run this loop for Even Numbers
	
	while n%2 == 0: #to check even number
	maxPrime = n
	n=n/2 #Reduce the number dividing by 2
	print("N: ", n
	#Run this loop for odd numbers
	#num**2 to find the squareroot of given number
	#i starts from 3 and incremented by 2
	#because we need to check only for odd numbers
	print("N1: ", n)
	for i in range(3, int(n**0.5)+1, 2):
	#to check even number
	while n%i==0:
	maxPrime = i
	#Reduce the number dividing by 2
	n = n/i
	#if n is greater assign maxPrime = n
	if n>2:
	maxPrime=n
	#To print max prime factor
	print("Max Prime factor : ",int(maxPrime))

2	Write a program to find the height of the ball thrown by a basketball player.
	#declare a value
	a=-16
	#read velocity from user
	b=int(input("Enter the velocity : "))
	#read player height
	pHeight=float(input("Enter player height : "))

	#calculate time use formula
	t=float(-b/(2*a))
	print("Time : ",t," seconds")
	
	#to calculate the height use formula
	h=(a*(t**2))+(b*t)
	
	#print the result
	print("Height is : ",h," feet")
	
	#add the player height with ball height
	h=h+ pHeight
	print("Total Height is : ",h," feet")

3	**Write a program to find the Golden ratio** **#read number of series you need** **n=int(input("Enter number of series : "))** **# Golden series** **# Iterative method, with values saved in a list** fiblist = [0,1] for i in range(0, n): fiblist.append(fiblist[i] + fiblist[i+1]) print("Series are",fiblist) **#computing the ratio of successive terms in the list of Fibonacci numbers** gratio=[fiblist[i] / float(fiblist[i-1]) for i in range(2,len(fiblist))] print("Golden ratio : ",gratio)
4	**Read a paragraph from the user and count the number of words, and frequency of Words appearing, and search for the specific word.** str = ''' New Delhi is the Capital of India . Bangalore is a Capital of Karnataka . Karnataka is India . India is the worlds largest Democratic Country ''' #print the string / paragraph print("Entered Paragraph\n"+str) #The split() method splits a string into a list. #The len() funcion finds the list count wordCount = len(str.split()) print("Total Number of words : ", wordCount) #print the word count

```
counts = dict()                          # Create an empty dictionary
words = str.split()                      # The split() method splits a string into a list.

#Run a loop to iteratively to check the words
for word in words:
    if word in counts:                   #Check whether the word present in the dictionary or not
        counts[word] = counts[word]+ 1   #if word is present increase the word count
    else:
        counts[word] = 1                 #If word is not present add new word to dictionary
        print("Word", counts[word])

#Run loop to display the words count
            #print the dictionary content and occrance using counts[]

#input string / word to search
searchWord=input("\nEnter the word to search :  ")
result = str.find(searchWord)            #find() function finds the word in the string and return the value

if(result != -1):                        #if Found disply success message
    print(searchWord +"  Word found in Paragraph")
else:                                    #if not Found disply unsuccessfull message
    print(searchWord + " !!!!! Word not found in Paragraph")
```

5 **Consider a sequence of numbers with some missing values. Write a python program for inserting the missing values, and remove some of the values from the sequence. Also, add a few more values to the existing sequence.**

```
# Create the Empty List
numbers = []
# Read the Size of the List
n = int(input("Enter Size of the List: "))

# Reading the List Elements
while True:
    if n > 0:
```

```
        i = int(input("Enter the Element to Insert: "))
        numbers.append(i)
        n = n-1
    else:
        break
# Printing the Content of the List
print("List: ",numbers)
# Performing the List Operation
while True:
    print("\n===== MENU =====")
    print("1. Inserting at Specific Position \n2. Remove the Values from the List \n3. Adding the Elements to the List\n4. Display the List\n5. Exit\n")


    choice = int(input("Enter the Choice: "))
    if(choice == 1):
        position = int(input("Enter the Position to Insert: "))

        item = int(input("Enter the Item to Insert at the Given position: "))
        numbers.insert(position, item)

    elif(choice == 2):
         position = int(input("Enter the Position to Delete an Item: "))
         numbers.pop(position)

    elif(choice == 3):
        item = int(input("Enter an Item to add: "))
        numbers.append(item)

    elif(choice == 4):
        print("\n===== List Content =====")
        print(numbers)

    elif(choice == 5):
        print("Exiting.....")
        break
```

6 **Create an Employee 'Employee' Database using dictionaries and perform the insert, search and display operations.**

```
# Creating the Dictionary
Employee = dict()

while True:

    print("===== Employee Database =====\n")
    print(" 1. Create Employee\n 2. Add New Employee\n 3. Search Employee\n 4. Delete Employee\n 5. Display\n")
    print("============================")

    Choice = int(input("Enter the Choice: "))

    if Choice == 1:
        n = int(input("Enter the Number of Employees: "))
        for i in range(n):
            print("--------------------------------------")
            print("Enter the Employee {0} Details".format(i+1))
            print("--------------------------------------")
            EmpId = int(input("Enter the EmployeeId: "))

            EmpDetails = []
            EmpName = input("Enter the Employee Name: ")
            EmpDOB = input("Enter the DOB: ")
            Designation = input("Enter the Disignation: ")

            EmpDetails.append(EmpName)
            EmpDetails.append(EmpDOB)
            EmpDetails.append(Designation)
            Employee[EmpId] = EmpDetails
            print("--------------------------------------")

    elif Choice == 2:
        EmpId = int(input("Enter the EmployeeId: "))

        EmpDetails = []
        EmpName = input("Enter the Employee Name: ")
        EmpDOB = input("Enter the DOB: ")
        Designation = input("Enter the Disignation: ")

        EmpDetails.append(EmpName)
        EmpDetails.append(EmpDOB)
        EmpDetails.append(Designation)
        Employee[EmpId] = EmpDetails
        print("----------------------------------------")

    elif Choice == 3:
        EId = int(input("Enter the EmployeeId to Display: "))
```

```
        print(Employee.get(EId))
        print("----------------------------------------")

    elif Choice == 4:
        EId = int(input("Enter the EmployeeId to Delete: "))
        print(Employee.pop(EId))
        print("----------------------------------------")

    elif Choice == 5:
        Status = bool(Employee)
        if  Status == False:
            print("\n No Employee Details Found to Print \n")
        else:
            print(Employee)

    else:
        print("Invalid Choice")
        break
```

7 **Implement Set and Tuple Operations**

```
# create empty set and tuple
setdata=set()
tupledata=tuple()


#run infinite loop for menu
while 1:
    choice=input("Enter your choice \nS : Set Operation\nT : Tuple Operations\nN : Terminate\n")
    if choice=="s":
        while 1:
            print("Choose the Set operation")
            print("1 : Add/Insert")
            print("2 : Remove/Delete")
            print("3 : Update/Append")
            print("4 : Display/View")
            print("0 : Exit")
            operations=int(input())
            if operations == 1:
                data=input("Enter the elements to add : ")
#read the data from the user
                setdata.add(data)#adds data to set
                print(setdata)
```

```
        elif operations == 2:
            data=input("Enter the elements to delete : ") #read the data from the user
            setdata.discard(data)#delets perticular data from the set
            print(setdata)
        elif operations == 3:
            data=input("Enter the elements to update : ")#read the data from the user
            setdata.update(data)#Update data
            print(setdata)
        elif operations == 4:
            print(setdata)#print set
        elif operations == 0:
            break
        else:
            print("Invalid Choice")
elif choice == "t":
    while 1:
        print("Choose the Tuple operation")
        print("1 : Add/Insert")
        print("2 : Delete Tuple")
        print("3 : display/View")
        print("0 : Exit\n")
        operations=int(input())
        if operations == 1:
            data=input("Enter the elements to add : ")#read the data from the user
            tupledata+=(data,)#New data is appended to the tuple

        elif operations == 2:
            del tupdata #delets entire tuple
            print("Tuple Deleted")

        elif operations == 3:
            print(tupledata)#prints the tuple data

        elif operations == 0:
            break
        else:
```

	print("Invalid Choice") elif choice == "n": break

8	**Create a text file called my_file.txt with some content, capitalize the first letter of every word, and print the content of the file in reverse order.**
	
	def write():
	String = input("Enter the paragraph: ")
	file = open('D:\\NS\\College\\Department\\CourcesHandled\\PythonProgramming\\LabPrograms\\my_file.txt', 'w')
	file.write(String)
	file.close()
	
	def read():
	with open("D:\\NS\\College\\Department\\CourcesHandled\\PythonProgramming\\LabPrograms\\my_file.txt") as file:
	data = file.read()
	file.close()
	print("----------")
	print("Original Content")
	print("----------")
	print(data)
	print("----------")
	print("Modified Content")
	print("----------")
	print(data.title())
	print("----------")
	write()
	read()