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## **GAUTAM BUDDHA UNIVERSITY**

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## **PYTHON PRACTICAL LAB FILE**

## **LAB CODE**: **CS-385**

## 

## **PROGRAM:B.Tech(COMPUTER SCIENCE)**

## **SEMESTER: V**

## 

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## **SUBMITTED BY**: **SUBMITTED TO:**

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**225/LCF/003**

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| --- | --- | --- | --- |
| S | NAME OF THE PROGRAM | DATE | SIGNATURE |
| 1 | WAP to implement operators in python. |  |  |
| 2 | WAP to print a star pattern in python |  |  |
| 3 | WAP to implement string operations in python |  |  |
| 4 | WAP to print list in 5-6 ways |  |  |
| 5 | WAP to show stack and queue implementation using a list in python |  |  |
| 6 | WAP to implement dictionary and make a dictionary of faculty and students and store them separately in lists |  |  |
| 7 | WAP to implement generator functions (lambda, map & filter) |  |  |
| 8 | WAP to demonstrate use of file writing and reading in text file. |  |  |
| 9 | WAP to implement exceptional handling |  |  |
| 10 | Write a python program to implement multiple inheritance |  |  |
| 11 | WAP to use NumPy and Pandas to generate a list. |  |  |

# Experiment 1

**Aim:** To show uses of the operators in Python.

**Code:**

a = 40

b = 70

# arithemetic operators

print("Arithematic operators")

print("+: ", a+b)

print("-: ", a-b)

print("\*: ", a\*b)

print("/: ", a/b)

print("\*: ", a\*2)

print("//: ", a//b)

print("+: ", a+b)

print("%: ", a % b)

print("\n")

# relational operators

print("relational operators")

print(a > b)

print(a >= b)

print(a <= b)

print(a < b)

print(a == b)

print(a != b)

print("\n")

# logical operators

print("logical operators")

print(a and b)

print(a or b)

print(not a)

print("\n")

# bitwise operators

print("bitwise operators")

print(a & b)

print(a ^ b)

print(a | b)

print("\n")

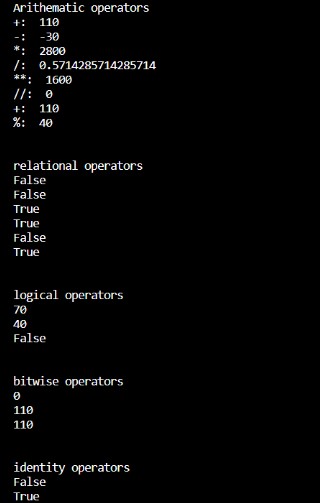
# identity operators

print("identity operators")

print(a is b)

print(a is not b)

**Output:**



**Experiment 2**

**Aim:** To display the star pattern using for loops.

**Code:**

num = int(input("enter a number"))

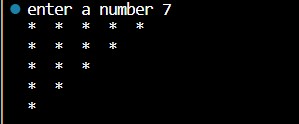
for i in range(num):

for j in range(1, num-(i+1)):

print("\* ", end=" ")

print()

**Output:**



**Experiment 3**

**Aim:** To perform using operations using inbuilt methods.

**Code:**

a = " Hello Gautam Buddha University" print("String operations\n")

print("Original String : ", a)

print("Coverts all to lowercase : ",a.lower())

print("converts all to uppercase : ",a.upper())

print("Swaps the cases of alphabets : ", a.swapcase())

print("Checks whether the string is alphabet or not : ",a.isalpha()) print("Checks whether the string is digit or not : ", a.isdigit())

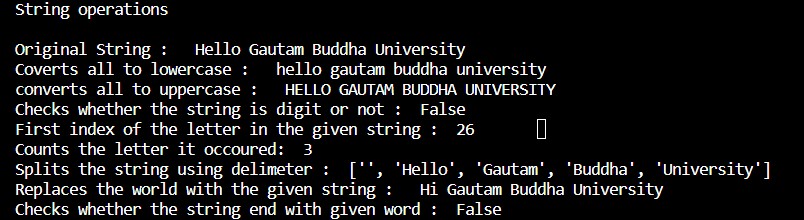
print("First index of the letter in the given string : ", a.index("r"))

print("Counts the letter it occoured: ", a.count("a"))

print("Splits the string using delimeter : ", a.split(" "))

print("Replaces the world with the given string : ", a.replace("Hello", "Hi")) print("Checks whether the string end with given word : ", a.endswith("d"))

**Output:**



**Experiment4**

**Aim:** Program to print list in six different ways.

**Code:**

# Python program to print list

a = [1, 2, 3, 4, 5]

# printing the list using loop

for x in range(len(a)):

print(a[x])

print("\n")

# using the sep parameter in print()

# printing the list using \* operator separated by comma print("using the sep parameter")

print(\*a)

# printing the list using \* and sep operator print("printing lists separated by commas")

print(\*a, sep = ", ")

print("printing lists in new line")

print(\*a, sep = "\n")

print("\n")

# convert a list to a string for display print("convert a list to astring for display")

a =["Geeks", "for", "Geeks"]

# print the list using join function()

print(' '.join(a))

# print the list by converting a list

# integers to string

a = [1, 2, 3, 4, 5]

print(str(a)[1:-1])

print("\n")

# using map() function

print("using map() function")

a = [1, 2, 3, 4, 5]

print(' '.join(map(str, a)))

print("in new line") print('\n'.join(map(str, a)))

print("\n")

# using list comprehension

print("use list comprehension")

a = [1, 2, 3, 4, 5]

[print(i, end=' ') for i in a]

print("\nIn new line")

[print(i) for i in a]

print("\n")

# using indexing and slicing print('using indexing and slicing')

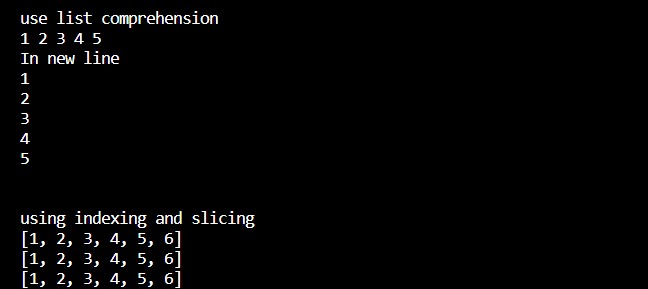
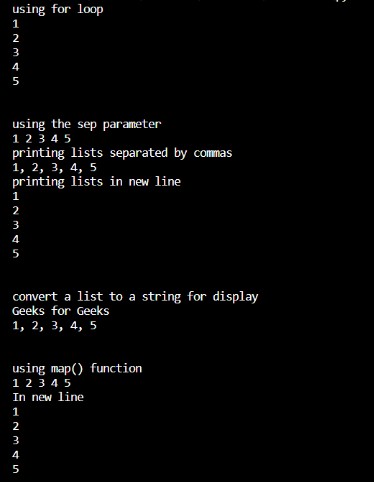
list = [1, 2, 3, 4, 5, 6]

print(list[:]) #method 1

print(list[0:]) #method 2

print(list[0:len(list)])#method3

**Output:**



# Experiment 5

**Aim:** To implement the stack and queue using a list.

**Code:**

class queue\_implementation:

def \_\_init\_\_(self, list1=[]):

self.list1=list1

def enqueue(self, n):

self.list1.append(n)

def display(self):

if(len(self, list1)==0):

print("empty queue")

else:

for i in range(len(self.list1)-1, -1, -1):

print(self.list1[i], end=" ")

print("\n")

def dequeue(self):

if(len(self.list) == 0):

print("Empty queue")

else:

self.list1.pop(0)

class stack\_implementation:

def \_\_init\_\_(self, list1=[]):

self.list1 = list1

def push(self, n):

self.list1.append(n)

def display\_stack(self):

for i in range(len(self.list1) -1, -1, -1):

print(self.list1[i], end=" ") print("\n")

def pop\_stack(self): if(len(self.list1) == 0): print("Stack is empty")

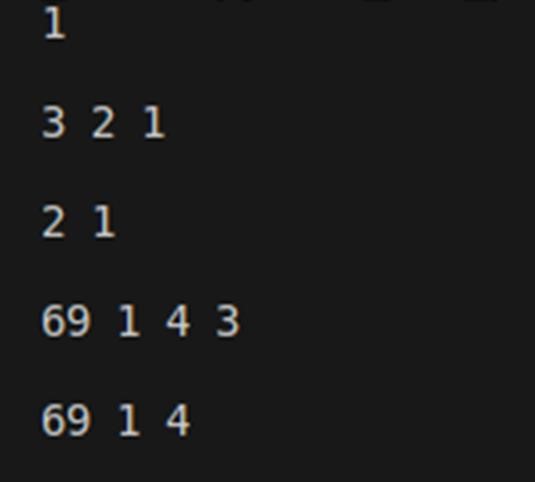
else:

self.list1.pop()

obj1 = stack\_implementation () obj1.push(1) obj1.display\_stack() obj1.push(2) obj1.push(3) obj1.display\_stack() obj1.pop\_stack() obj1.display\_stack()

obj2 = queue\_implementation() obj2.enqueue(3) obj2.enqueue(4) obj2.enqueue(1) obj2.enqueue(69) obj2.display() obj2.dequeue() obj2.display()

**Output:**



**Experiment 6**

**Aim:** To use the dictionary and make a dictionary of faculty and students and store them separately in lists.

**Code:**

faculty\_dict ={'faculty\_id1': {'name':'ABC',

'department': 'Computer Science'},

'faculty\_id2': {'name': 'EFG',

'department': 'Mathematics'}

}

students\_dict = {

'student\_id1': {'name': 'PQR', 'major': 'Physics'},

'student\_id2': {'name': 'XYZ', 'major': 'History'}

}

faculty\_list = list(faculty\_dict.values()) students\_list = list(students\_dict.values()) print("Faculty List: ")

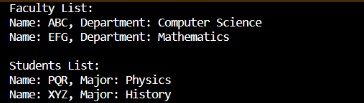
for faculty in faculty\_list:

print(f"Name: {faculty['name']}, Department: {faculty['department']}")

print("\nStudents List: ") for student in students\_dict:

print(f"Nmae: {student['name']},Major: {student['major']}")

**Output:**



# Experiment 7

**Aim:** To show the use of lambda expression.

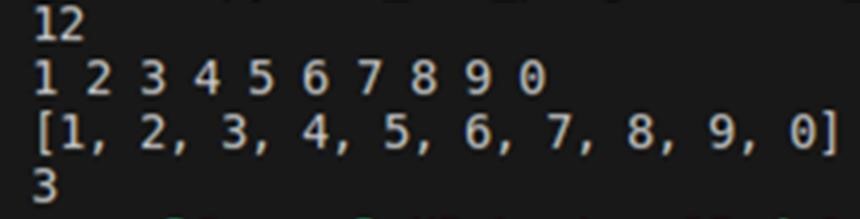
**Code:**

A = lambda x:x+6 print(A(6))

list1=list(map(int, input().split())) print(list1)

y=lambda x, z: z if A(z) +3>x else 6 print(y(6,3))

**Output:**



# Experiment 8

**Aim:** To demonstrate the use of File writing and reading in text file.

**Code:**

with open("file.txt", "w") as f: while(1==1):

line=input("enter the lines: ") f.write(line)

f.write("\n")

choice=input("are you done(Y/N)") if(choice.lower() == "y"):

break

else:

pass

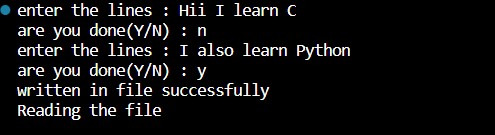
f.close()

print("Written in file successfully") with open("file1.txt","r") as g:

print("Reading the file\n")

print(g.read())

**Output:**



# Experiment 9

**Aim:** To demonstrate error handling.

**Code:**

try:

a=int(input("enter the number: ")) print(a/2)

print(a/0) except(ArithmeticError,ValueError): print("An error Occoured\n")

**Output:**





# Experiment 10

**Aim:** To demonstrate Multiple inheritance using classes

**Code:**

class Employee:

def \_\_init\_\_(self, name): self.name = name

def show(self):

print(f"the name is {self.name}")

class Dancer: def \_\_init\_\_(self, dance): self.dance = dance

def show(self):

print(f"the dance is {self.dance}")

class DancerEmployee(Employee, Dancer): def \_\_init\_\_(self, name, dance):

self.name = name

self.dance = dance

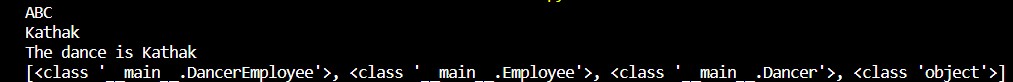
o = DancerEmployee("ABC", "Kathak") print(o.name)

print(o.dance)

o.show()

print(DancerEmployee.mro())

**Output:**



**Experiment 11**

**Aim:** To use NumPy and Pandas to generate a list.

**Code:**

import pandas as pd

import numpy as np

# Creating empty series

ser = pd.Series()

print("Pandas Series: ", ser)

# simple array

data = np.array(['g', 'e', 'e', 'k', 's'])

ser = pd.Series(data)

print("Pandas Series:\n", ser)

**Output:**

