PYTHON PROGRAMMING

(BCC302 / BCC402/ BCC302H / BCC402H)

SYLLABUS

UNIT 2 :Python Program Flow Control Conditional blocks

if, else and else if, Simple for loops in python, For loop using ranges, string, list and dictionaries. Use of while loops in python, Loop manipulation using pass, continue, break and else. Programming using Python conditional and loop blocks

Gateway classes

PYTHON PROGRAMMING

UNIT 2

Python Program Flow Control Conditional blocks

LEC-1

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Gateway classes

If-else statement

Syntax

```
if condition:
        #block of statements
else:
      #another block of statements (else-block)
```

Write a program to find out whether a number is even or odd

```
1 x=int(input("enter the number\n"))
2 if x%2==0:
3     print("even number")
4 else:
5     print("odd number")
```

```
enter the number
5
odd number
```

Gateway classes

➢ elif statement

```
if expression 1:
    # block of statements
elif expression 2:
    # block of statements
elif expression 3:
   # block of statement
else:
    #statement
```

```
x=10
if x>10:
    print("hi")
elif x==10:
    print("hello")
```

```
hello
```

Write a program to find out the largest number among three

```
x= int(input("enter the first  number\n"))
y=int(input("enter the second number\n"))
z=int(input("enter the second number\n"))
if x>y and x>z:
    print(x,"is the largest")
elif y>x and y>z:
    print(y,"is the largest")
else:
    print(z, "is the largest")
```

```
enter the first  number
6
enter the second number
7
enter the second number
7
7 is the largest
```

Gateway classes

Write a program to simulate the calculator

```
a=int(input("enter the first number\n"))
b=int(input("enter the second number\n"))
z=input("enter any one +,-,*,%,/,// \n")
if z=="+":
    print("sum=",a+b)
elif z=="-":
    print("sub=",a-b)
elif z=="*":
    print("multiply=",a*b)
elif z=="/":
    print("subtract=",a/b)
elif z=="%":
    print("modlus=",a%b)
else:
    print("floor division",a//b)
```

```
enter the first number
5
enter the second number
5
enter any one +,-,*,%,/,//
+
sum= 10
```

Gateway classes

➢ Nested if else

```
if condition 1:
    if condition2:
        #nested if code
    else:
        #nested else code
else:
    #else code
```

```
enter the first number
5
enter the second number
6
enter the third number
7
7 is largest
```

Write a program to find out the largest number among three using nested –if else

```
x=int(input("enter the first number\n"))
y=int(input("enter the second number\n"))
z=int(input("enter the third number\n"))
if x>y:
    if x>z:
        print(x,"is the largest")
    else:
        print(z,"is the largest")
else:
    if y>z:
        print(y,"is the largest")
    else:
        print(z, "is largest")
```

ateway classes

Write a program to find out whether a year is leap year or not

```
x=int(input("enter the year\n"))
if x%400==0:
    print(x,"is leap year")
elif x%100==0:
    print(x,"is  not leap year")
elif x%4==0:
    print(x,"is leap year")
else:
    print(x,"is leap year")
```

```
enter the year
1600
1600 is leap year
```

Write a program to find out the roots of quadratic equation

```
from math import sqrt
a=float(input("enter the  value of a\n"))
b=float(input("enter the value of b\n"))
c=float(input("enter the value of c\n"))
d=b*b-4*a*c
if d>0:
    print("roots are real and different")
    r1=(-b+sqrt(d))/(2*a)
    r2=(-b-sqrt(d))/(2*a)
    print("root1=",r1)
    print("root2=",r2)
elif d==0:
    print("roots are real and equal")
    r1=r2=-b/(2*a)
    print("root1=",r1)
    print("root2=",r2)
else:
    print("roots are imginary")
```

Oneway classes

```
enter the  value of a
2
enter the value of b
6.8
enter the value of c
2.5
roots are real and different
root1= -0.4193751525134304
root2= -2.9806248474865695
```

SOME BASIC QUESTIONS

Write a Python program that accepts the user's first and last name and prints them in reverse order with a space between them

```
1 fname=input("enter the firstname\n")
2 lname=input("enter the lastname\n")
3 print("hello " + lname+ " " +fname)
```

input

```
enter the firstname
pragya
enter the lastname
rajvanshi
hello rajvanshi pragya
```

Gateway classes

Write a Python program that accepts a sequence of comma-separated numbers from the user and generates a list and a tuple of those numbers.

```
values=input("enter the comma seprated value\n")
list1=values.split(",")
print(list1)
tup1=tuple(list1)
print(tup1)
```

```
enter the comma seprated value
1,2,4,5,7
['1', '2', '4', '5', '7']
('1', '2', '4', '5', '7')
```

Write a Python program to display the first and last colors and middle element from the list

```
colors = ["Red", "Green", "Blue", "Yellow", "Purple"]
print("First color:", colors[0])
print("Last color:", colors[-1])
print("Middle color",colors[5//2])
```

```
First color: Red
Last color: Purple
Middle color Blue
```

Gateway Classes

Write a Python program that accepts an integer (n) and computes the value of n+nn+nnn.

```
n=int(input("enter the number\n"))
n1=n
n2=n*n
n3=n*n*n
print(n1+n2+n3)
```

```
enter the number
2
14
```

Write a Python program to count the number 4 in a given list.

```
numbers = [1, 4, 6, 4, 8, 4, 9]
y= numbers.count(4)
print("Number of 4s in the list:", y)
```

input

```
Number of 4s in the list: 3
```

Write a Python program to calculate the number of days between two dates. *Sample dates* : (2014, 7, 2), (2014, 7, 11)

```
from datetime import date
first_date = date(2014, 7, 2)
last_date = date(2014, 7, 11)
z = last_date - first_date
print(z.days)
```

input

```
9
```

Gateway Classes

Python program that takes a string and a non-negative integer n, then returns n copies of the first two characters of the given string

```
1  string1 = "Python"
2  n = 3
3  x= string1[0:2]
4  result = x * n
5  print(result)
```

```
PyPyPy
```

Write a Python program to test whether a passed letter is a vowel or not

```
letter = input("Enter a letter: ")
if letter in 'aeiouAEIOU':
    print(letter,"is a vowel.")
else:
    print(letter,"is not vowel")
```

```
Enter a letter: A
A is a vowel.
```

Write a Python program that concatenates all elements in a list into a string and returns it.

```
elements = ['Hello', 'world', 'this']
result = ''.join(elements)
print(type(result))
print("Concatenated string:", result)
```

```
<class 'str'>
Concatenated string: Helloworldthis
```

Gateway classes

Write a Python program to sum three given integers. However, if two values are equal, the sum will be zero

```
num1 = int(input("Enter the first integer: "))
num2 = int(input("Enter the second integer: "))
num3 = int(input("Enter the third integer: "))
if num1 == num2 or num1 == num3 or num2 == num3:
    result = 0
else:
    result = num1 + num2 + num3
print("The result is:", result)
```

```
Enter the first integer: 2
Enter the second integer: 2
Enter the third integer: 3
The result is: 0
```

Write a Python program to sum two given integers. However, if the sum is between 15 and 20 it will return 20

```
num1 = int(input("Enter the first integer: "))
num2 = int(input("Enter the second integer: "))
result = num1 + num2
if 15 <= result <= 20:
    result = 20
print("The result is:", result)
```

```
Enter the first integer: 12
Enter the second integer: 3
The result is: 20
```

eway classes

Write a Python program to add two objects if both objects are integers.

```
obj1 = input("Enter the first object: ")
obj2 = input("Enter the second object: ")
if obj1.isdigit() and obj2.isdigit():
    result = int(obj1) + int(obj2)
    print("The sum is:", result)
else:
    print("Both objects are not integers.")
```

```
Enter the first object: 3
Enter the second object: 6
The sum is: 9
```

Write a Python program to sum two given integers. However, if the sum is between 15 and 20 it will return 20

```
num1 = int(input("Enter the first integer: "))
num2 = int(input("Enter the second integer: "))
result = num1 + num2
if 15 <= result <= 20:
    result = 20
print("The result is:", result)
```

```
Enter the first integer: 12
Enter the second integer: 3
The result is: 20
```

Gateway classes

Write a Python program to parse a string to float or integer

```
n = "246.2458"
print(float(n))
print(int(float(n)))
```

```
246.2458
246
```

Calculate the hypotenuse of a right angled triangle

```
from math import sqrt
print("Input lengths of shorter triangle sides:")
a = float(input("a: "))
b = float(input("b: "))
c = sqrt(a**2 + b**2)
print("The length of the hypotenuse is:", c)
```

```
Input lengths of shorter triangle sides:
a: 5
b: 4
The length of the hypotenuse is: 6.4031242374328485
```

Write a Python program to count the number of occurrences of a specific character in a string.

```
S=input("Enter a string: ")
c=input("Enter the character to count")
z=S.count(c)
print(z)
```

```
Enter a string: python
Enter the character to countp
1
```

Gateway classes

Write a Python program to remove the first item from a specified list

```
my_list = ['apple', 'banana', 'cherry', 'date']
if my_list:
    my_list.pop(0)
print("Updated list:", my_list)
```

```
Updated list: ['apple', 'cherry', 'date']
```

Write a Python program to test whether all numbers in a list are greater than a certain number.

```
numbers = [10, 20, 30, 40, 50]
threshold = int(input("Enter the threshold number: "))
if all(num > threshold for num in numbers):
    print("YES")
else:
    print("FALSE")
```

```
Enter the threshold number: 5
YES
```

Gateway classes

Write a Python program to sum all the items in a list

```
numbers = [1,2,3,4]
result = 0
for num in numbers:
    result += num
print("The sum of all items is:", result)
```

```
The sum of all items is: 10
```

Write a Python program to multiply all the items in a list.

```
1 numbers = [1,2,3,4]
2 result = 1
3 for num in numbers:
4     result *= num
5 print("The product of all items is:", result)
```

input

```
The product of all items is: 24
```

Write a Python program to get the largest number from a list

```
1 numbers = [10, 25, 47, 3, 99, 56]
2 largest = numbers[0]
3 for num in numbers:
4     if num > largest:
5         largest = num
6 print("The largest number is:", largest)
```

```
The largest number is: 99
```

Gateway classes

Write a Python program to count the number of strings from a given list of strings. The string length is 2 or more and the first and last characters are the same

```
strings = ['abc', 'xyz', 'aba', '1221', 'a']
count = 0
for s in strings:
    if len(s) >= 2 and s[0] == s[-1]:
        count += 1
print( count)
```

```
2
```

Write a Python program to get the smallest number from a list

```
1  numbers = [10, 25, 47, 3, 99, 56]
2  smallest = numbers[0]
3  for num in numbers:
4      if num < smallest:
5          smallest = num
6  print("The smallest number is:", smallest)
```

```
The smallest number is: 3
```

Gateway classes



Gateway classes