Green University of Bangladesh

Department of Computer Science and Engineering (CSE)

Faculty of Sciences and Engineering

Semester: (Summer, Year:2024), B.Sc. in CSE (Day)

Lab Report NO 01

Course Title: Artificial Intelligence Lab

Course Code: CSE316 **Section:** 212_D3

Lab Experiment Name: Basic Operations on Python.

Student Details

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Submission Date : 25/03/2024

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Lab Report Status

Marks: …… **Signature:.....**

Comments:..... **Date:.....**

1. TITLE OF THE LAB REPORT EXPERIMENT

Basic Operations on Python.

2. OBJECTIVES/AIM

1. How to work basic python.
2. Using a vscode compiler.
3. Python Basic operations.
4. How to work python loop, Functions and Tuple.
5. How to solve the list item in Python

3. PROCEDURE / ANALYSIS / DESIGN

1. Sum of Odd and Even Numbers from a Set

Initialize two variables to store the sum of odd and even numbers (sum_odd = 0, sum_even =0). Iterate through each number in the set. For each number, check if it is even or odd (use % 2 to determine). Add the number to the appropriate sum variable.

2. Smallest Number from a Set

Use the manual function directly on the set.

3. Sum of Numbers Divisible by 3 and Not by 5

Iterate through numbers 50 to 100 using a loop. Check each number if it's divisible by 3 and not by 5 (num % 3 == 0 and num % 5 != 0).Sum these numbers.

4. Second Highest Number

Convert the set to a list and sort it. Access the second last element.

5. Factorial Using For Loop

Initialize a result variable to 1. Use a for loop to multiply the result by each number up to the input number.

6. Generate Fibonacci Series

Initialize the first two numbers of the series. Use a loop to generate the next numbers by summing the last two numbers. Update the last two numbers with each iteration.

7. Finding the Largest Number Between Two Numbers Using a Function

Define a function that accepts two parameters (the two numbers to compare).Inside the function, use an if-else statement to compare the two numbers. Return the larger number.

8. Finding the Sum of the Numbers Passed as Parameters

Define a function that accepts any number of parameters using *args (this collects arguments into a tuple). Iterate through the args tuple and sum the values. Return the sum.

4. IMPLEMENTATION

1. Write a python program to find the sum of odd and even numbers from a set of numbers.

```
result=0
result2=0
for i in range(10):
  if i % 2 ==0:
    result=result + i
    print("The number is event =>",+ i)
  elif i% 2 !=0:
    result2=result2 + i
    print("The number is odd   =>" , +i)

print("Sum of Even Numbers:",+result)
print("Sum of Odd Numbers",+result2)
```

2. Write a python program to find the smallest number from a set of numbers.

```
numbers = [5, 8, 12, 16, 18, 24, 2]
smallest_number = numbers[0]

for number in numbers:
    if number < smallest_number:
        smallest_number = number

print("The smallest number is:", smallest_number)
```

3. Write a python program to find the sum of all numbers between 50 and 100, which are divisible by 3 and not divisible by 5.

```
sum_count=0

for number in range(50, 100):
    if number % 3 == 0 and number % 5 !=0:
        sum_count = sum_count + number

print("The sum of all numbers between 50 and 100, which are divisible by 3 and not divisible by 5 is:",+sum_count)
```

4. Write a python program to find the second highest number from a set of numbers.

```
numbers = {1, 3, 4, 5, 7, 8, 2}
hig = sec_hig = None

for number in numbers:
    if hig is None or number > hig:
        sec_hig, hig = hig, number
    elif hig > number > (sec_hig if sec_hig is not None else int('-inf')):
        sec_hig = number

print("The second highest number is:", sec_hig)
```

5. Write a python program to find the factorial of a number using for loop.

```
number = int(input("Enter the number: "))

if number < 0:
    result = "Factorial does not exist for negative numbers"
elif number == 0:
    result = 1
else:
    fact = 1
    for i in range(1, number + 1):
        fact *= i
    result = fact
print("The Factorial of", number, "is", result)
```

6. Write a python program to generate Fibonacci series.

```
number = int(input("Enter number of terms:")) a, b = 0, 1
count = 0

if number <= 0:
        print("Please enter a positive integer")
elif number == 1:
        print("Fibonacci sequence up to", number, ":")
        print(a)
else:
        print("Fibonacci sequence:")
        while count < number:
            print(a, end=' ')

            c = a + b
            a = b
            b = c
            count += 1
```

7. Write a python program to find the largest number between two numbers using function.

```
def find_largest(num1, num2):
     if num1 > num2:
         return num1
    else:
         return num2


if __name__ == "__main__":
```

8. Write a python program to find the sum of the numbers passed as parameters.

```
def sum_of_numbers(*args):
    return sum(args)


result = sum_of_numbers(10, 20, 30, 40, 50)
print("The sum of the numbers is:", result)

result = sum_of_numbers(5, 15, 25)
```

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

```
sum=0
my_list = [1, 2, 3, 4, 5] for x in my_list:
sum=sum+x
print("The sum of all items in the list:",sum)
```

```
    number1 =
int(input("Enter the
first number: "))
    number2 =
int(input("Enter the
second number: "))


    largest =
find_largest(number1,
number2)


    print("The largest
number between and
is:",+largest)
```

```
print("The sum of the
numbers is:", result)
```

10. Write a Python program to reverse a tuple

```
my_tuple
=eval(input("Enter the
values:"))

reversed_tuple =
my_tuple[::-1]

print("Original tuple:",
my_tuple)
print("Reversed tuple:",
reversed_tuple)
```

11. Write a python program to swap two tuples in Python.

```
tuple1 =
eval(input("Enter tuple1
: "))
tuple2 =
eval(input("Enter tuple2
: "))

tuple1, tuple2 = tuple2,
tuple1


print("tuple1:", tuple1)
print("tuple2:", tuple2)
```

12. Write a Python program to get the 4th element from the beginning and the 4th element from the last of a tuple.

```
input_str = input("Enter
tuple elements separated by
commas: ")

tuplex =
tuple(input_str.split(','))

fourth_from_start =
tuplex[3] if len(tuplex) >
3 else 'Not available'
fourth_from_end = tuplex[-
4] if len(tuplex) > 3 else
'Not available'


print(fourth_from_start,
",", fourth_from_end)
```

5. TEST RESULT / OUTPUT

```
The number is odd   => 5
The number is event => 6
The number is odd   => 7
The number is event => 8
The number is odd   => 9
Sum of Even Numbers: 20
Sum of Odd Numbers 25
```

Fig: 01

```
Enter the first number: 18
Enter the second number: 27
The largest number between and is: 27
```

Fig:07

```
The sum of the numbers is: 150
The sum of the numbers is: 45
```

Fig:08

```
 > & C:/Users/HNS/AppData/Local/Micros
ort 01/smallest_number.py"
The smallest number is: 2
PS C:\Users\HNS\Desktop\AI lab report\
```

Fig:02

```
rs/HNS/Desktop/AI lab report/Lab Repor
The sum of all items in the list: 15
PS C:\Users\HNS\Desktop\AI lab report\
```

Fig:09

```
The sum of all numbers between 50 and 100, which are divisible
by 3 and not divisible by 5 is: 1050
PS C:\Users\HNS\Desktop\AI lab report\Lab Report 01>
```

Fig:03

```
Enter the values: 1,2,3,4,5,6,7
Original tuple: (1, 2, 3, 4, 5, 6, 7)
Reversed tuple: (7, 6, 5, 4, 3, 2, 1)
```

Fig:10

```
py"
The second highest number is: 7
PS C:\Users\HNS\Desktop\AI lab r
```

Fig:04

```
Enter tuple1  : 17,18
Enter tuple2  : 27,28
tuple1: (27, 28)
tuple2: (17, 18)
```

Fig:11

```
Enter the number: 5
The Factorial of 5 is 120
PS C:\Users\HNS\Desktop\AI
```

Fig:05

```
Enter tuple elements separated by commas: w,3,r,e,s,o,u,r,c,e
e , u
```

Fig:12

```
Enter number of terms:10
Fibonacci sequence:
0 1 1 2 3 5 8 13 21 34
```

Fig:06

6. ANALYSIS AND DISCUSSION

Python supports the basic arithmetic operations such as addition (+), subtraction (-), multiplication (*), division (/), modulus (%), exponentiation (**), and floor division (//). These operators can be applied to numeric data types like integers and floating-point numbers.