Python Essentials – Hands-on Lab guide

Module 1 – Programing Basics

1. When X=4 and y =3, perform the bitwise operations & (and), |(or)

2. Write a program to display multiplication table of 12, refer the sample program output inline

```
12 * 1   =   12
12 * 2   =   24
12 * 3   =   36
12 * 4   =   48
12 * 5   =   60
12 * 6   =   72
12 * 7   =   84
12 * 8   =   96
12 * 9   =   108
12 * 10  =   120
```

3. Write a program that takes marks of 5 subjects and display the grade, refer the sample program output Inline

   Note – Use the inline Business logic while calculating grades:

   If the average is greater than 90, "Grade: A" is printed.
   If the average is in between 80 and 90, "Grade: B" is printed.
   If the average is in between 70 and 80, "Grade: C" is printed.
   If the average is in between 60 and 70, "Grade: D" is printed.
   If the average is anything below 60, "Grade: F" is printed.

Python Essentials – Hands-on Lab guide

4. Write a program to demonstrate the usage of sample calculator, refer the sample program output inline

```
Select the operation
1. Add
2. Subtract
3. Multiply
4. Division
Enter your Choice (1/2/3/4)2
Enter first number :10
Enter second number :20
Subtraction Result : -10
```

5. Extend the previous program functionality, the calculator program to continue should continue indefinitely, until the user does not have any operation to continue.

```
Select the operation
1. Add
2. Subtract
3. Multiply
4. Division
Enter your Choice (1/2/3/4)1
Enter first number :10
Enter second number :20
Addition Result : 30
Do you want to continue (y/n) ? y
Select the operation
1. Add
2. Subtract
3. Multiply
4. Division
Enter your Choice (1/2/3/4)2
Enter first number :20
Enter second number :30
Subtraction Result : -10
Do you want to continue (y/n) ? n
Calculator program completed
```

Python Essentials – Hands-on Lab guide

Additional Programs for Self-Practice

1. Write a python program to check if the input character is an alphabet or not, refer sample output inline

```
Enter a character: q
q is an Alphabet
```

2. Python program to check whether the number entered by user is even or odd, refer sample program output inline

```
Enter any number: -3
-3 is an odd number
```

Module 2 – Data Structures/ Collections

1. Write a program to swap two elements of the list, refer sample program output inline

```
Before Swapping [1, 2, 3, 4, 5]
after swapping [5, 2, 3, 4, 1]
```

2. Write a program to sum all the list elements, refer sample program output inline

```
Input List [1, 2, 3, 4, 5, 6, 7, 8]
total of List items 36
```

Python Essentials – Hands-on Lab guide

3. Write a program to find size of a sample list and tuple, also find the time taken to initialize a list and tuple 100000 times. Refer sample program input and outputs inline:

```
mylist : [1, 2, 3, 4, 5, 6, 7, 8, 8, 9, 9, 10]
mytuple (1, 2, 3, 4, 5, 6, 7, 8, 8, 9, 9, 10)
size of mylist 160
size of mytuple 144
time taken to execulte mylist statement 100000 times 0.01890348856613855
time take to execute mytuple statement 100000 times 0.0021911217700107954
```

4. Write a program to demonstrate the set operation, union, intersection, difference and subset, refer sample program inputs an outputs inline

```
Set A :   {1, 2, 3, 4, 5}
Set B : {4, 5, 6, 7, 8}
Union Result :   {1, 2, 3, 4, 5, 6, 7, 8}
Intersection Result :   {4, 5}
Difference Result :   {1, 2, 3}
Subset Resule :   False
```

5. Write a Python script to
   add a key to a dictionary.

Sample Dictionary : {'id': '59912', 'name': 'AAA', 'location': 'bengaluru'}

After update,

Expected Result : {'id': '59912', 'name': 'AAA', 'location': 'bengaluru', 'Salary': 500000)

Iterate over dictionary and display the key and values

Python Programming Exercise Questions