**Data Science Lab**
**Assignment_1**

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CSE A

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For the **.py** files please visit **GitHub**

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1. Write a python program to define an integer value and print the values.

code=>

```
x = 5
print("\n\nThe value of the integer is ", x, end = "\n\n")
```

output=>

```
PS C:\Users\Asus\Documents\DSc_Assignment\Assignment_1_Intro_to_Python> python .\p1.py


The value of the integer is  5
```

2. Write a python program to find the addition of two integer numbers taken as input from the User.

Code=>

```
print("\n\nEnter two integers...\n")
x = int(input("Enter the first integer: "))
y = int(input("Enter the second integer: "))
sum = x+y
print("\nSum of the two given intergers is: ", sum, end="\n\n")
```

Output=>

```
PS C:\Users\Asus\Documents\DSc_Assignment\Assignment_1_Intro_to_Python> python .\p2.py


Enter two integers...

Enter the first integer: 56
Enter the second integer: 234

Sum of the two given intergers is:  290
```

3. Write a python program to check the given year is a leap year or not.

code=>

```
def Leap_Year(year):
    if(year%400==0):
        print("This is a leap year\n")
```

```
    elif(year%4==0 and year%100 != 0):
        print("This is a leap year\n")
    else:
        print("This is not a leap year\n")

year = int(input("\nEnter the year: "))
Leap_Year(year)
```

Output=>

```
PS C:\Users\Asus\Documents\DSc_Assignment\Assignment_1_Intro_to_Python> python .\p3.py

Enter the year: 2023
This is not a leap year

PS C:\Users\Asus\Documents\DSc_Assignment\Assignment_1_Intro_to_Python> python .\p3.py

Enter the year: 2020
This is a leap year

PS C:\Users\Asus\Documents\DSc_Assignment\Assignment_1_Intro_to_Python> python .\p3.py

Enter the year: 2100
This is not a leap year

PS C:\Users\Asus\Documents\DSc_Assignment\Assignment_1_Intro_to_Python> python .\p3.py

Enter the year: 2000
This is a leap year
```

4. Write a python program for swapping the value of two integers.

code=>

```
print("\n\nEnter two integers...\n")
x = int(input("Enter the first integer: "))
y = int(input("Enter the second integer: "))

print("\nPrinting the integers before swapping in the order... " ,x,y)

temp = x
x = y
y = temp

print("\nPrinting the integers after swapping in the order... " ,x,y,end="\n\n")
```

Output=>

```
PS C:\Users\Asus\Documents\DSc_Assignment\Assignment_1_Intro_to_Python> python .\p4.py


Enter two integers...

Enter the first integer: 51
Enter the second integer: 63

Printing the integers before swapping in the order...  51 63

Printing the integers after swapping in the order...  63 51
```

5. Write a python program for swapping the value of two integers without a third variable.

Code=>

```
print("\n\nEnter two integers...\n")
x = int(input("Enter the first integer: "))
y = int(input("Enter the second integer: "))

print("\nPrinting the integers before swapping in the order... " ,x,y)
x,y = y,x
print("\nPrinting the integers after swapping in the order... " ,x,y,end="\n\n")
```

Output=>

```
PS C:\Users\Asus\Documents\DSc_Assignment\Assignment_1_Intro_to_Python> python .\p5.py


Enter two integers...

Enter the first integer: 55
Enter the second integer: 63

Printing the integers before swapping in the order...  55 63

Printing the integers after swapping in the order...  63 55
```

6. Write a python program to find the ASCII value of the given character.

Code=>

```
ch = input("\nENter the character: ")
print("ASCII value of the input character is : ", ord(ch), end="\n\n")
```

Output=>

```
PS C:\Users\Asus\Documents\DSc_Assignment\Assignment_1_Intro_to_Python> python .\p6.py

ENter the character: b
ASCII value of the input character is :  98

PS C:\Users\Asus\Documents\DSc_Assignment\Assignment_1_Intro_to_Python> python .\p6.py

ENter the character: C
ASCII value of the input character is :  67
```

7. Write a python program to calculate the square root of a number.

code=>

```
import numpy as np
x = float(input("Enter the number: "))

print("The sqare root of the number is : ", np.sqrt(x), end="\n\n")
```

Output=>

```
PS C:\Users\Asus\Documents\DSc_Assignment\Assignment_1_Intro_to_Python> python .\p7.py
Enter the number: 215
The sqare root of the number is :  14.66287829861518

PS C:\Users\Asus\Documents\DSc_Assignment\Assignment_1_Intro_to_Python> python .\p7.py
Enter the number: 10.24
The sqare root of the number is :  3.2
```

8. Write a python program to generate a random number between 0 and 15.

Code=>

```
import random
x = random.randint(0,15)
print("\na Random number between 0 to 15 is:",x, end = "\n\n")
```

Outputt=>

```
PS C:\Users\Asus\Documents\DSc_Assignment\Assignment_1_Intro_to_Python> python .\p8.py

a Random number between 0 to 15 is: 4

PS C:\Users\Asus\Documents\DSc_Assignment\Assignment_1_Intro_to_Python> python .\p8.py

a Random number between 0 to 15 is: 7

PS C:\Users\Asus\Documents\DSc_Assignment\Assignment_1_Intro_to_Python> python .\p8.py

a Random number between 0 to 15 is: 11
```

9. Take a list of 10 numbers of your choice. Write a python program to print the following:
a. Print all the elements after the 5th index
b. Print all the elements before 6th index

c. Print all the elements between the 2nd and 8th indices

Code=>

```
import random
list = []
for x in range(0,20):
    list.append(random.randint(0,1000))

print("\nPrinting total list: \n", list[:],end="\n\n")
print("\nPrinting after 5th index: (Excluding 5th index)\n", list[6:],end="\n\n")
print("\nPrinting before 6th index: (Excluding 6th index)\n", list[:6],end="\n\n")
print("\nPrinting between 2nd and 8th index: (Including 2nd and 8th) \n",
list[2:9],end="\n\n")
```

Output=>

```
PS C:\Users\Asus\Documents\DSc_Assignment\Assignment_1_Intro_to_Python> python .\p9.py

Printing total list:
 [872, 135, 752, 116, 811, 984, 376, 796, 694, 901, 872, 282, 921, 880, 711, 261, 484, 60, 405, 666]


Printing after 5th index: (Excluding 5th index)
 [376, 796, 694, 901, 872, 282, 921, 880, 711, 261, 484, 60, 405, 666]


Printing before 6th index: (Excluding 6th index)
 [872, 135, 752, 116, 811, 984]


Printing between 2nd and 8th index: (Including 2nd and 8th)
 [752, 116, 811, 984, 376, 796, 694]
```

10. Write a python program to find the area of a triangle.

Code=>

```
import numpy as np
print("\nEnter the length of the sides of the triangle\n")

x = float(input("Enter the length of the first side: "))
y = float(input("Enter the length of the second side: "))
z = float(input("Enter the length of the third side: "))

s= (x+y+z)/2

area = np.sqrt(s*(s-x)*(s-y)*(s-z))
print("\nThe area of the triangle is: ", area, " sq. units\n\n")
```

Output=>

```
PS C:\Users\Asus\Documents\DSc_Assignment\Assignment_1_Intro_to_Python> python .\p10.py

Enter the length of the sides of the triangle

Enter the length of the first side: 13
Enter the length of the second side: 5
Enter the length of the third side: 12

The area of the triangle is:  30.0  sq. units
```