WP - Python Assignment 1

Br Sp II - Web Programming
Division F | Batch F1

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1. Write a program to demonstrate different datatypes in python.

```
#Q1
a = 2
b = "a"
c = 2.1
d = [2,4]
e = {1, 3}
f = {"a":1, "b":2}
g = 2 + 3j
h = True
i = (2, 3)
print(a, type(a))
print(b, type(b))
print(c, type(c))
print(d, type(d))
print(e, type(e))
print(f, type(f))
print(g, type(g))
print(h, type(h))
print(i, type(i))
```

```
2 <class 'int'>
a <class 'str'>
2.1 <class 'float'>
[2, 4] <class 'list'>
{1, 3} <class 'set'>
{'a': 1, 'b': 2} <class 'dict'>
(2+3j) <class 'complex'>
True <class 'bool'>
(2, 3) <class 'tuple'>
```

2. Write a program to perform different arithmetic operations on numbers in python.

```
print("Addition: 2+3 = ", 2+3)
print("Multiplication: 2*3 = ", 2*3)
print("Division: 3/2 = ", 3/2)
print("Floor Division: 3//2 = ", 3//2)
print("Modulo: 3%2 = ", 3%2)
print("Power: 2^3 = ", 2**3)
```

```
Addition: 2+3 =  5
Multiplication: 2*3 =  6
Division: 3/2 =  1.5
Floor Division: 3//2 =  1
Modulo: 3%2 =  1
Power: 2^3 =  8
```

3. Create a list and perform the following methods 1) insert() 2) remove() 3) append()
   4) len() 5) pop() 6) clear()

```
# Q3
l = [1,2,3,4,5]
print("Original List: ", l)
l.pop()
print("Pop Method (without argument): ", l)
l.pop(0)
print("Pop Method (with argument): ", l)
l.append("a")
print("Append Method: ", l)
l.extend(["x", "y"])
print("Extend Method: ", l)
l.remove(2)
print("Remove Method: ", l)
l.insert(3, "A")
print("Insert Method: ", l)
print("Length Function: ", len(l))
l.clear()
print("Clear Method: ", l)
```

```
Original List:  [1, 2, 3, 4, 5]
Pop Method (without argument):  [1, 2, 3, 4]
Pop Method (with argument):  [2, 3, 4]
Append Method:  [2, 3, 4, 'a']
Extend Method:  [2, 3, 4, 'a', 'x', 'y']
Remove Method:  [3, 4, 'a', 'x', 'y']
Insert Method:  [3, 4, 'a', 'A', 'x', 'y']
Length Function:  6
Clear Method:  []
```

4. Create a dictionary and apply the following methods 1) Print the dictionary items 2)
access items 3) use get() 4) change values 5) use len()

```
# Q4
dict1 = {
    "fname" : "Steve",
    "lname" : "Jobs",
    "company" : "AAPL"
}
print("Original Dictionary: ", dict1)
print("Dictionary Items: ", dict1.items())
print("Using get(): ", dict1.get("fname"))
dict1["company"] = "NeXT"
print("Changed the value: ", dict1)
print("Using len(): ", len(dict1))
```

```
Original Dictionary:  {'fname': 'Steve', 'lname': 'Jobs', 'company': 'AAPL'}
Dictionary Items:  dict_items([('fname', 'Steve'), ('lname', 'Jobs'), ('company', 'AAPL')])
Using get():  Steve
Changed the value:  {'fname': 'Steve', 'lname': 'Jobs', 'company': 'NeXT'}
Using len():  3
```

5. Write a program to create, concatenate and print a string

```
# Q5
str1 = "Violets and Purples"
str2 = "Diamonds and Circles"
print("Printing both the strings: ", str1, str2)
print("Concatenation: ", str1+str2)
```

```
Printing both the strings:  Violets and Purples Diamonds and Circles
Concatenation:  Violets and PurplesDiamonds and Circles
```

6. Write a python program to add two numbers.

```
# Q6
a = 2
b = 3
print("Addition of two numbers: ", a+b)
```

```
========== RESTART: /Users/
Addition of two numbers:  5
```

7. Write a python program to print a number is positive/negative using if-else.

```
# Q7
a = input("Enter a number - ")
if a > 0:
    print("Positive")
elif a<0:
    print("Negative")
```

```
Enter an integer - -100
Negative

========== RESTART: /Users/garvitshah/
Enter an integer - 4
Positive
```

8. Write a python program to find largest of three numbers

```
# Q8
A = input("1st Number: ")
B = input("2nd Number: ")
C = input("3rd Number: ")
a, b, c = float(A), float(B), float(C)
if a>b and a>c:
    print("Largest Number:", A)
elif b>a and b>c:
    print("Largest Number:", B)
else:
    print("Largest Number:", C)
```

```
1st Number: 13
2nd Number: 2
3rd Number: 9
Largest Number: 13
```

9. Python program for factorial of a number

```
# Q9
n = int(input("Enter the number - "))
fact = 1
for i in range(1, n+1):
    fact *= i
print("Factorial of", n, "is", fact)
```

```
Enter the number - 5
Factorial of 5 is 120
```

10. Python program for simple interest

```
#Q10
p = float(input("Principal: "))
t = float(input("Time (in yrs): "))
r = float(input("Rate (in % p.a.): "))
si = (p*t*r)/100
print("Simple Interest:", si)
```

```
Principal: 100
Time (in yrs): 1
Rate (in % p.a.): 10
Simple Interest: 10.0
```

11. Python program to check Perfect Number (Example: 6, divisors of 6 are 3,2,1 and sum of
divisors is the number itself)

```
# Q11
n = int(input("Enter a number to check - "))
sum = 1
for i in range(2, n):
    if n%i ==0:
        sum += i
if sum == n:
    print("Perfect Number")
else:
    print("Imperfect Number”)
```

```
Enter a number to check - 6
Perfect Number

======= RESTART: /Users/garvitshah/Desktop/(
Enter a number to check - 10
Imperfect Number
```

12. Python program to calculate grade of a student. Take in the marks of 5 subjects and display the grade.

```
# Q12
marks = float(input("Enter your marks - "))
if marks>90 and marks<=100:
    print("Grade A")
elif marks>80 and marks<= 90:
    print("Grade B")
elif marks>70 and marks <= 80:
    print("Grade C")
elif marks>60 and marks<=70:
    print("Grage D")
elif marks >= 50 and marks <=60:
    print("Grade E")
elif marks < 50:
    print("Grade F = Fail !")
```

```
Enter your marks - 96
Grade A
```