DAY-2

Example

Python Numbers

1. x = 1   # int
   y = 2.8 # float
   z = 1j   # complex
2. **To verify the type of any object in Python, use the type() function.**
   print(type(x))
   print(type(y))
   print(type(z))
3. **Integers:**
   x = 1
   y = 35656222554887711
   z = -3255522
   print(type(x))
   print(type(y))
   print(type(z))
4. **Floats:**
   x = 1.10
   y = 1.0
   z = -35.59
   print(type(x))
   print(type(y))
   print(type(z))
5. x = 35e3
   y = 12E4
   z = -87.7e100
   print(type(x))
   print(type(y))
   print(type(z))
6. **Complex:**
   x = 3+5j
   y = 5j
   z = -5j
   print(type(x))
   print(type(y))
   print(type(z))

7. **Convert from one type to another**
   ```
   x = 1 # int
   y = 2.8 # float
   z = 1j # complex
   #convert from int to float:
   a = float(x)
   #convert from float to int:
   b = int(y)
   #convert from int to complex:
   c = complex(x)
   print(a)
   print(b)
   print(c)
   print(type(a))
   print(type(b))
   print(type(c))
   ```
8. **Import the random module, and display a random number between 1 and 9.**
   ```
   import random
   print(random.randrange(1,10))
   ```

Python Casting

1. **Integers:**
   ```
   x = int(1)   # x will be 1
   y = int(2.8) # y will be 2
   z = int("3") # z will be 3
   ```
2. **Floats:**
   ```
   x = float(1)     # x will be 1.0
   y = float(2.8)   # y will be 2.8
   z = float("3")   # z will be 3.0
   w = float("4.2") # w will be 4.2
   ```
3. **Strings:**
   ```
   x = str("s1") # x will be 's1'
   y = str(2)    # y will be '2'
   z = str(3.0)  # z will be '3.0'
   ```

Python Strings

1. ```
   print("Hello")
   print('Hello')
   ```
2. **Assign String to a Variable**
   ```
   a = "Hello"
   print(a)
   ```
3. **You can use three double quotes**
   ```
   a = """Lorem ipsum dolor sit amet,
   consectetur adipiscing elit,
   ```
   ```

```
sed do eiusmod tempor incididunt
ut labore et dolore magna aliqua."""
print(a)
```

4.
```
a = '''Lorem ipsum dolor sit amet,
consectetur adipiscing elit,
sed do eiusmod tempor incididunt
ut labore et dolore magna aliqua.'''
print(a)
```

5. **Get the character at position 1 (remember that the first character has the position 0)**
```
a = "Hello, World!"
print(a[1])
```

6. **Get the characters from position 2 to position 5**
```
b = "Hello, World!"
print(b[2:5])
```

7. **Get the characters from position 5 to position 1, starting the count from the end of the string**
```
b = "Hello, World!"
print(b[-5:-2])
```

8. **The len() function returns the length of a string**
```
a = "Hello, World!"
print(len(a))
```

9. **The strip() method removes any whitespace from the beginning or the end:**
```
a = " Hello, World! "
print(a.strip()) # returns "Hello, World!"
```

10. **The lower() method returns the string in lower case**
```
a = "Hello, World!"
print(a.lower())
```

11. **The upper() method returns the string in upper case**
```
a = "Hello, World!"
print(a.upper())
```

12. **The replace() method replaces a string with another string.**
```
a = "Hello, World!"
print(a.replace("H", "J"))
```

13. **The split() method splits the string into substrings if it finds instances of the separator**
```
a = "Hello, World!"
print(a.split(",")) # returns ['Hello', ' World!']
```

14. **Check if the phrase "ain" is present in the following text**
```
txt = "The rain in Spain stays mainly in the plain"
x = "ain" in txt
print(x)
```

15. **Check if the phrase "ain" is NOT present in the following text**
```
txt = "The rain in Spain stays mainly in the plain"
x = "ain" not in txt
print(x)
```

16. **Merge variable a with variable b into variable c.**
    a = "Hello"
    b = "World"
    c = a + b
    print(c)
17. **To add a space between them, add a " "**
    a = "Hello"
    b = "World"
    c = a + " " + b
    print(c)
18. **String Format**
    age = 36
    txt = "My name is John, I am " + age
    print(txt) # Generates error
19. **Use the format() method to insert numbers into strings**
    age = 36
    txt = "My name is John, and I am {}"
    print(txt.format(age))
20. quantity = 3
    itemno = 567
    price = 49.95
    myorder = "I want {} pieces of item {} for {} dollars."
    print(myorder.format(quantity, itemno, price))
21. quantity = 3
    itemno = 567
    price = 49.95
    myorder = "I want to pay {2} dollars for {0} pieces of item {1}."
    print(myorder.format(quantity, itemno, price))
22. **Escape Character**
    txt = "We are the so-called "Vikings" from the north."# Generates Error
23. **The escape character allows you to use double quotes when you normally would not be allowed**
    txt = "We are the so-called \"Vikings\" from the north."

Python Booleans

1. **Boolean Values**
    print(10 > 9)
    print(10 == 9)
    print(10 < 9)
2. **Print a message based on whether the condition is True or False**
    a = 200
    b = 33
    if b > a:
      print("b is greater than a")
    else:

```
  print("b is not greater than a")
```

3. **Evaluate a string and a number**
```
print(bool("Hello"))
print(bool(15))
```
4. **Evaluate two variables**
```
x = "Hello"
y = 15
print(bool(x))
print(bool(y))
```
5. **The following will return True.**
```
bool("abc")
bool(123)
bool(["apple", "cherry", "banana"])
```
6. **The following will return False**
```
bool(False)
bool(None)
bool(0)
bool("")
bool(())
bool([])
bool({})
```
7.
```
class myclass():
  def __len__(self):
    return 0
myobj = myclass()
print(bool(myobj))
```
8. **Check if an object is an integer or not**
```
x = 200
print(isinstance(x, int))
```

Python Lists

1. **Creating a List**
```
thislist = ["apple", "banana", "cherry"]
print(thislist)
```
2. **Print the second item of the list:**
```
thislist = ["apple", "banana", "cherry"]
print(thislist[1])
```
3. **Print the last item of the list**
```
thislist = ["apple", "banana", "cherry"]
print(thislist[-1])
```
4. **Return the third, fourth, and fifth item**
```
thislist = ["apple", "banana", "cherry", "orange", "kiwi", "melon", "mango"]
print(thislist[2:5])
```

5. **This example returns the items from the beginning to "orange"**
```
thislist = ["apple", "banana", "cherry", "orange", "kiwi", "melon", "mango"]
print(thislist[:4])
```
6. **This example returns the items from "cherry" and to the end**
```
thislist = ["apple", "banana", "cherry", "orange", "kiwi", "melon", "mango"]
print(thislist[2:])
```
7. **This example returns the items from index -4 (included) to index -1 (excluded)**
```
thislist = ["apple", "banana", "cherry", "orange", "kiwi", "melon", "mango"]
print(thislist[-4:-1])
```
8. **Change the second item**
```
thislist = ["apple", "banana", "cherry"]
thislist[1] = "blackcurrant"
print(thislist)
```
9. **Print all items in the list, one by one**
```
thislist = ["apple", "banana", "cherry"]
for x in thislist:
  print(x)
```
10. **Check if "apple" is present in the list**
```
thislist = ["apple", "banana", "cherry"]
if "apple" in thislist:
  print("Yes, 'apple' is in the fruits list")
```
11. **Print the number of items in the list**
```
thislist = ["apple", "banana", "cherry"]
print(len(thislist))
```
12. **Using the append() method to append an item**
```
thislist = ["apple", "banana", "cherry"]
thislist.append("orange")
print(thislist)
```
13. **Insert an item as the second position**
```
thislist = ["apple", "banana", "cherry"]
thislist.insert(1, "orange")
print(thislist)
```
14. **The remove() method removes the specified item**
```
thislist = ["apple", "banana", "cherry"]
thislist.remove("banana")
print(thislist)
```
15. **The pop() method removes the specified index, (or the last item if index is not specified)**
```
thislist = ["apple", "banana", "cherry"]
thislist.pop()
print(thislist)
```
16. **The del keyword removes the specified index**
```
thislist = ["apple", "banana", "cherry"]
del thislist[0]
print(thislist)
```

17. The del keyword can also delete the list completely

```
thislist = ["apple", "banana", "cherry"]
del thislist
```

18. The clear() method empties the list

```
thislist = ["apple", "banana", "cherry"]
thislist.clear()
print(thislist)
```

19. Make a copy of a list with the copy() method

```
thislist = ["apple", "banana", "cherry"]
mylist = thislist.copy()
print(mylist)
```

20. Join two list

```
list1 = ["a", "b" , "c"]
list2 = [1, 2, 3]
list3 = list1 + list2
print(list3)
```

21. Append list2 into list1

```
list1 = ["a", "b" , "c"]
list2 = [1, 2, 3]
for x in list2:
  list1.append(x)
print(list1)
```

22. Use the extend() method to add list2 at the end of list1

```
list1 = ["a", "b" , "c"]
list2 = [1, 2, 3]
list1.extend(list2)
print(list1)
```

23. Using the list() constructor to make a List

```
thislist = list(("apple", "banana", "cherry")) # note the double round-brackets
print(thislist)
```