

### Assignment – 3

#### Python programming

Assignment Date	19 September 2022
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Maximum Marks	2 Marks

#### Question-1:

Consider a list (list = []). You can perform the following commands: insert i e: Insert integer at position . print: Print the list. remove e: Delete the first occurrence of integer . append e: Insert integer at the end of the list. sort: Sort the list. pop: Pop the last element from the list. reverse: Reverse the list. Initialize your list and read in the value of followed by lines of commands where each command will be of the types listed above. Iterate through each command in order and perform the corresponding operation on your list.

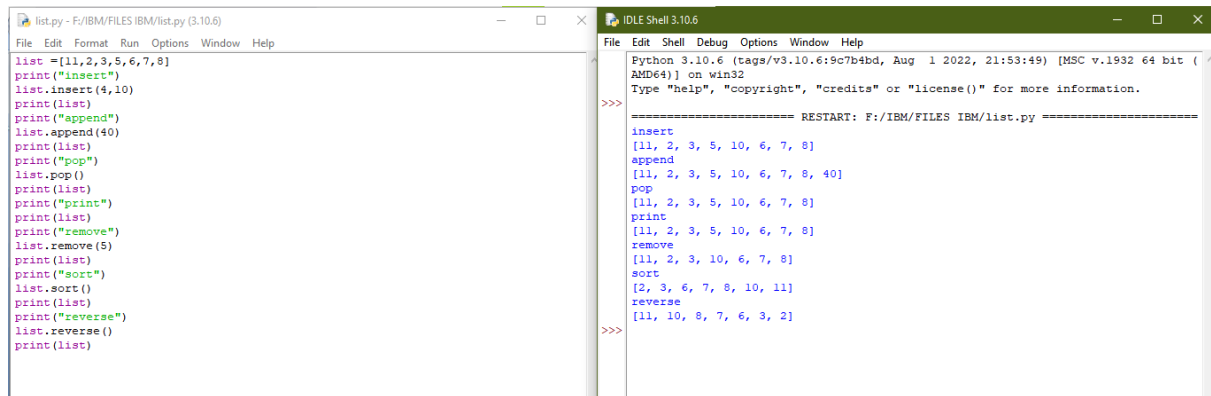
#### Solution:

```
list=[11,2,3,5,6,7,8]
print("insert")
list.insert(4,10)
print(list)
print("append")
list.append(40)
print(list)
print("pop")
list.pop()
print(list)
print("print")
print(list)
print("remove")
list.remove(5)
print(list)
print("sort")
list.sort()
print(list)
```

```
print("reverse")
```

```
list.reverse()
```

```
print(list)
```



The screenshot shows a Python IDE with two windows. The left window, titled 'list.py - F:/IBM/FILES IBM/list.py (3.10.6)', contains the following code:

```
list = [11, 2, 3, 5, 6, 7, 8]
print("insert")
list.insert(4, 10)
print(list)
print("append")
list.append(40)
print(list)
print("pop")
list.pop()
print(list)
print("print")
print(list)
print("remove")
list.remove(5)
print(list)
print("sort")
list.sort()
print(list)
print("reverse")
list.reverse()
print(list)
```

The right window, titled 'IDLE Shell 3.10.6', shows the output of the program:

```
>>>
Python 3.10.6 (tags/v3.10.6:9c7b4bd, Aug 1 2022, 21:53:49) [MSC v.1932 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.

>>>
===== RESTART: F:/IBM/FILES IBM/list.py =====
insert
[11, 2, 3, 5, 10, 6, 7, 8]
append
[11, 2, 3, 5, 10, 6, 7, 8, 40]
pop
[11, 2, 3, 5, 10, 6, 7, 8]
print
[11, 2, 3, 5, 10, 6, 7, 8]
remove
[11, 2, 3, 10, 6, 7, 8]
sort
[2, 3, 6, 7, 8, 10, 11]
reverse
[11, 10, 8, 7, 6, 3, 2]
>>>
```

## Question-2:

Write a Calculator program in Python?

### Solution:

```
def add(x, y):
    return x + y
def subtract(x, y):
    return x - y
def multiply(x, y):
    return x * y
def divide(x, y):
    return x / y
print("Select operation.")
print("1.Add")
print("2.Subtract")
print("3.Multiply")
print("4.Divide")
while True:
    choice = input("Enter choice(1/2/3/4): ")
    if choice in ('1', '2', '3', '4'):
        num1 = float(input("Enter first number: "))
        num2 = float(input("Enter second number: "))
        if choice == '1':
            print(num1, "+", num2, "=", add(num1, num2))
        elif choice == '2':
            print(num1, "-", num2, "=", subtract(num1, num2))
```

```

elif choice == '3':
    print(num1, "*", num2, "=", multiply(num1, num2))
elif choice == '4':
    print(num1, "/", num2, "=", divide(num1, num2))
next_calculation = input("Let's do next calculation? (yes/no): ")
if next_calculation == "no":
    break
else:
    print("Invalid Input")

```

The screenshot shows a Python IDE with two windows. The left window, titled 'calculator.py - F:/IBM/FILES IBM/calculator.py (3.10.6)', contains the source code for a calculator. The right window, titled 'IDLE Shell 3.10.6', shows the output of the program's execution.

**Source Code (calculator.py):**

```

def add(x, y):
    return x + y
def subtract(x, y):
    return x - y
def multiply(x, y):
    return x * y
def divide(x, y):
    return x / y
print("Select operation.")
print("1.Add")
print("2.Subtract")
print("3.Multiply")
print("4.Divide")
while True:
    choice = input("Enter choice(1/2/3/4): ")
    if choice in ('1', '2', '3', '4'):
        num1 = float(input("Enter first number: "))
        num2 = float(input("Enter second number: "))
        if choice == '1':
            print(num1, "+", num2, "=", add(num1, num2))
        elif choice == '2':
            print(num1, "-", num2, "=", subtract(num1, num2))
        elif choice == '3':
            print(num1, "*", num2, "=", multiply(num1, num2))
        elif choice == '4':
            print(num1, "/", num2, "=", divide(num1, num2))
        next_calculation = input("Let's do next calculation? (yes/no): ")
        if next_calculation == "no":
            break
    else:
        print("Invalid Input")

```

**Execution Output (IDLE Shell):**

```

Python 3.10.6 (tags/v3.10.6:9c7b4bd, Aug 1 2022, 21:53:49) [MSC v.1932 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: F:/IBM/FILES IBM/calculator.py =====
Select operation.
1.Add
2.Subtract
3.Multiply
4.Divide
Enter choice(1/2/3/4): 5
Invalid Input
Enter choice(1/2/3/4): 4
Enter first number: 24
Enter second number: 643
24.0 / 643.0 = 0.03732503888024884
Let's do next calculation? (yes/no): yes
Enter choice(1/2/3/4): 2
Enter first number: 214
Enter second number: 554657
214.0 - 554657.0 = -554443.0
Let's do next calculation? (yes/no): no
>>>

```

### Question-3:

Write a program to concatenate, reverse and slice a string?

#### Solution:

```

var1 = "Hello "
var2 = "World"
var3 = var1 + var2
print("concatenation")

print(var3)

def rev(x):
    return x[::-1]

mytxt = rev("hello world")
print("reverse")

print(mytxt)

def slice(y):

```

```

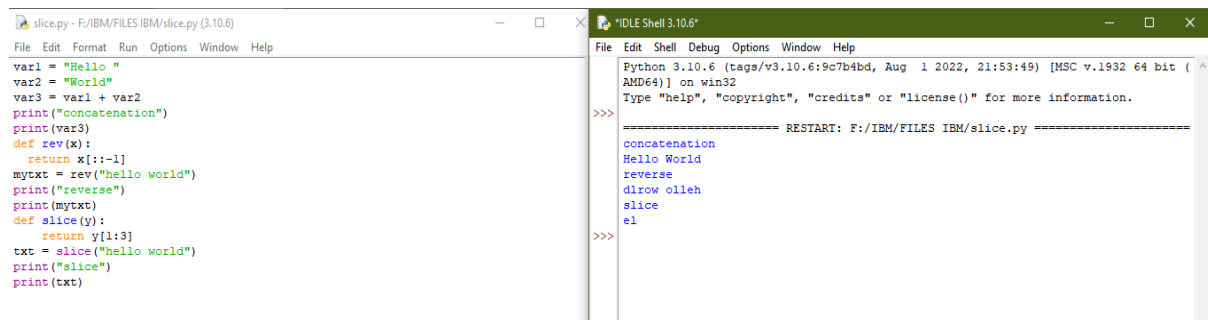
return y[1:3]

txt = slice("hello world")

print("slice")

print(txt)

```



The screenshot shows two windows from a Python IDE. The left window, titled 'slice.py - F:/IBM/FILES IBM/slice.py (3.10.6)', contains the following code:

```

var1 = "Hello "
var2 = "World"
var3 = var1 + var2
print("concatenation")
def rev(x):
    return x[::-1]
mytxt = rev("hello world")
print("reverse")
print(mytxt)
def slice(y):
    return y[1:3]
txt = slice("hello world")
print("slice")
print(txt)

```

The right window, titled 'IDLE Shell 3.10.6', shows the output of the script after execution:

```

Python 3.10.6 (tags/v3.10.6:9c7b4bd, Aug 1 2022, 21:53:49) [MSC v.1932 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: F:/IBM/FILES IBM/slice.py =====
concatenation
Hello World
reverse
dlrow olleh
slice
el
>>>

```

#### Question-4:

Why is Python a popular programming language? Full form of WSGI

#### Solution:

Due to its ease of learning and usage, Python codes can easily be written and executed much faster than other programming languages. One of the main reasons why Python's popularity has exponentially grown is due to its simplicity in syntax so that it could be easy to read and developed by amateur professionals as well.

#### Question-5:

What are the other Frameworks that can be used with python?

#### Solution:

Examples of Python frameworks that support WSGI include Django, CherryPy, Flask, TurboGears, and web2py.

Full form of WSGI

Web Server Gateway Interface