Module 3 : Python Assignment

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.

2. Write a Calculator program in Python?
3. Write a program to concatenate, reverse and slice a string?
4. Why is Python a popular programming language?
5. What are the other Frameworks that can be used with python?
6. Full form of WSGI?

List Operations

```
1. list =[]
2. n=0
3.
4. while(n != 100):
5.     print("\nOptions")
6.     print("1. Insert an element in the list at a position")
7.     print("2. Print the list")
8.     print("3. Delete the first occurence of an integer")
9.     print("4. Append an element to the end of the list")
10.    print("5. Sort the list")
11.    print("6. Popthe element from the list")
12.    print("7. Reverse the list")
13.    print("100. To exit")
14.
15.    n = int(input("\nEnter your choice :"))
16.    # exit the program
```

```
17.  if(n==1):
18.    element = int(input("Enter the element to insert :"))
19.    pos=int(input("Enter the position"))
20.
21.    list.insert(pos, element)
22.    print(element, "is inserted")
23.   #print the list
24.  elif(n==2):
25.     print(list)
26.    #delete a number
27.  elif(n==3):
28.       x = int(input("Enter the number to delete:"))
29.       if(x in list):
30.          list.remove(x)
31.          print(x,"deleted from the list")
32.       else:
33.          print(x,"is not found in the list")
34.  # append an integer to the list
35.  elif(n==4):
36.         x = int(input("Enter the number to append:"))
37.         list.append(x)
38.         print(x,"appended to the list")
39.    #sort the list
40.  elif(n==5):
41.        list.sort()
42.        print("list is sorted")
43.   #pop an element from the list
44.  elif(n==6):
45.     list = list[0:len(list)-1]
46.     print(list)
47.  # reverse the list
48.  elif(n==7):
49.    list.reverse()
50.    print(list)
```

Output:

Shell

```
Options
1. Insert an element in the list at a position
2. Print the list
3. Delete the first occurence of an integer
4. Append an element to the end of the list
5. Sort the list
6. Popthe element from the list
7. Reverse the list
100. To exit
Enter your choice :4
Enter the number to append:55
55 appended to the list

Options
1. Insert an element in the list at a position
2. Print the list
3. Delete the first occurence of an integer
4. Append an element to the end of the list
5. Sort the list
6. Popthe element from the list
7. Reverse the list
100. To exit

Enter your choice :2
[55]
```

```
Options
1. Insert an element in the list at a position
2. Print the list
3. Delete the first occurence of an integer
4. Append an element to the end of the list
5. Sort the list
6. Popthe element from the list
7. Reverse the list
100. To exit

Enter your choice :100
>
```

2. Calculator Program:

ef 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_cal = input("Let's do next calculation? (yes/no): ")
    if next_cal == "no":
      break
    else:
      print("Invalid Input")
```

Output:

Shell

```
Select operation.
1.Add
2.Subtract
3.Multiply
4.Divide
Enter choice(1/2/3/4): 3
Enter first number: 5
Enter second number: 10
5.0 * 10.0 = 50.0
Let's do next calculation? (yes/no): yes
Enter choice(1/2/3/4): 1
Enter first number: 5
Enter second number: 10
5.0 + 10.0 = 15.0
Let's do next calculation? (yes/no): no
>
```

3. String Operations

```
str1 = 'Hello'

str2 ='World!'

str = str1+str2

print("\nConcatenation = ", str)

print("Reversed string :",list(reversed(str)))

slicestr=slice(5)

print("Sliced String :",str[slicestr])
```

Output:

```
Shell
Concatenation =  HelloWorld!
Reversed string : ['!', 'd', 'l', 'r', 'o', 'W', 'o', 'l', 'l', 'e', 'H']
Sliced String : Hello
>
```

4. Why is Python a popular programming language?
    - Beginner-Friendliness
    - Versatility
    - Awesome community and resources
    - Automation Soup
    - Python works with IOT
    - Big companies use Python
    - Image Processing
    - Graphical Analysis
    - Natural Language Processing
    - Machine Learning
    - Artificial Intelligence
    - Great libraries and frameworks
        - Numpy
        - Matplotlib
        - SciPy
        - Django

5. What are the frameworks that can be used with python?
    a. Flask
    b. Bottle
    c. Django
    d. Web2py
    e. AIOHTTP
    f. CherryPy
    g. Dash
    h. Falcon

6. Full form of WSGI?

A **Web Server Gateway Interface** (WSGI) server implements the web server side ofthe WSGI interface for running Python web applications. Why is WSGI necessary? Atraditional web server does not understand or have any way to run Python applications.

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