Assignment 1

List Program

```
list = []
list.insert(0, 5)
list.insert(1, 3)
list.insert(2, 12)
print(list)
list.remove(list[0])
print(list)
list.append(10)
print(list)
list.sort()
print(list)
list.pop(0)
print(list)
list.reverse()

print(list)
```

```
[5, 3, 12]
[3, 12]
[3, 12, 10]
[3, 10, 12]
[10, 12]
[12, 10]
```

Calculator Program

```
[23] 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))
     else:
         print("Invalid Input")
```

```
Select operation.
1.Add
2.Subtract
3.Multiply
4.Divide
Enter choice(1/2/3/4): 1
Enter first number: 5
Enter second number: 7
5.0 + 7.0 = 12.0
```

String Program

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

str1 = str(input("Enter a string: "))
str2 = str(input("Enter another string: "))
concat = str1 + " " + str2
print(concat)

reverse = str1[::-1]
print(reverse)

slice = str2[3:8]
print(slice)
```

```
Enter a string: python
Enter another string: programming
python programming
nohtyp
gramm
```

Why is Python a popular programming language?

Easy to learn

- Python reads and writes very similarly to standard English.
- It uses a simplified syntax with an emphasis on natural language, for a much easier learning curve for beginners.

Massive Community support

- The Python community is extremely active.
- When developers are up against deadlines and in desperate need of help, they can work with the community to crowdsource fast, effective solutions.

efficient, fast, and reliable

- Python is efficient and reliable, allowing developers to create powerful applications with a minimum of effort.
- Completing coding projects is easy rather than time-consuming, and the results are able to stand toe to toe with applications created using more-demanding languages.

Versatile web-development solutions

- Using available open-source libraries, Python developers can get their web applications up and running quickly and easily.

Well suited to data science and analytics

- Python is particularly effective for analyzing and organizing data sets. In fact, for data science and analytics projects, Python is second only to R language in terms of popularity.
- Its out-of-the-box data analysis capabilities, combined with its growing ecosystem of data-focused frameworks, help ensure that Python remains a popular data-science programming solution.

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

Django

- Django is a free and open-source full-stack python framework, it includes all the necessary features by default.
- Django uses its ORM mappers to map objects to database tables.
- The main databases that django works on are PostgreSQL, MySQL, SQLite, Oracle.

Bottle

- Routing
- Templating
- Access to form data, file uploads, cookies, headers etc.
- Abstraction layer over the WSGI standard

Pyramid

- Pyramid makes it easy to write web applications.
- Pyramid offers many features that make writing complex software take less effort.

Web2py

- It does not have any prerequisites for installation and configuration.
- It has the ability to run on different platforms. Example- windows, mac, linux etc.
- Comes with an ability to read multiple protocols.
- Web2Py provides data security against vulnerabilities like cross site scripting, sql injection and other malicious attacks.

Flask

- Built-in development server
- A fast debugger
- Integrated support for unit testing
- RESTful request dispatching

Full form of WSGI?

WSGI stands for Web Server Gateway Interface