To familiarize and understand the use and functioning of basic python programs

1. **Write a python code to display a** message
   ```
   print("Welcome to AI Algorithms Lab")
   ```
2. **Basic Datatypes**
   ```
   a=5
   print(a)
    print(type(a))
   ```
3. **Arithmetic Operators**
   ```
   a = 7
   b = 3
   ab_sum = a + b
   print(ab_sum)
   ab_dif = a - b
   print(ab_dif)
   ab_pro = a * b
   print(ab_pro)
   ab_quo = a / b
   print(ab_quo)
   ab_iquo = a // b
   print(ab_iquo)
   ab_rem = a % b
   print(ab_rem)
   ab_pow = a ** b
   print(ab_rem)
   ```

4. **Write a program to find the given number is positive or negative**

   ```
   num = float(input("Enter a number: "))
   # Input: 1.2
   if num > 0:
      print("Positive number")
   elif num == 0:
      print("Zero")
   else:
      print("Negative number")
   ```
5. **Write a python program to check whether a number is prime or not.**
```
num = int(input("enter a number: "))
flag = False
if num > 1:
   for i in range(2, num):
     if (num % i) == 0:
        flag = True
```

```python
            break
    if flag:
        print(num, "is not a prime number")
    else:
        print(num, "is a prime number")
```

6. **Write a python Program to concatenate two list**

```python
list1 = [1, 2, 3]
list2 = [4, 5, 6]

# Concatenate the two lists
concatenated_list = list1 + list2

# Print the concatenated list
print("Concatenated List:", concatenated_list)
```

7. **Write a Python class to convert an integer to a Roman numeral.**

```python
class py_solution:
    def int_to_Roman(self, num):
        val = [
            1000, 900, 500, 400,
            100, 90, 50, 40,
            10, 9, 5, 4,
            1
            ]
        syb = [
            "M", "CM", "D", "CD",
            "C", "XC", "L", "XL",
            "X", "IX", "V", "IV",
            "I"
            ]
        roman_num = ''
        i = 0
        while  num > 0:
            for _ in range(num // val[i]):
                roman_num += syb[i]
                num -= val[i]
            i += 1
        return roman_num


print(py_solution().int_to_Roman(41))
print(py_solution().int_to_Roman(10))
```

8. Displaying Personal Details

```
print('PERSONAL DETAILS')
mynmae=input('Enter your name:')
myage=input('Enter your age:')
myqual=input('Enter your Highest Qualification:')
print('***********************************')
print('My Name is:',mynmae)
print('My age is:',myage)
print('My Qualification is:',myqual)
```

9. Largest of Two Numbers

```
print('Find the largest of Two numbers')
num1=input('Enter first number')
num2=input('Enter second number')
if (num1 > num2):
  print('Largest numebr is:',num1)
else:
  print('Largest numebr is:',num2)
print('Thank You')
```

10. Student Grade Calculation

```
print('Grade Calculation')
a=int(input('Enter mark of sub1'))
b=int(input('Enter mark of sub1'))
c=int(input('Enter mark of sub1'))
avg=int(a+b+c)/3
if(avg>90):
  print('S Grade')
elif(avg<90 and avg>80):
  print('A Grade')
elif(avg < 80 and avg>70):
  print('B Grade')
else:
  print('passed')
```