1.CALCULATION:

```
    def add(num1, num2):
return num1 + num2
def subtract(num1, num2):
return num1 - num2
def multiply(num1, num2):
return num1 * num2
def divide(num1, num2):
return num1 / num2
print("Please select operation -\n"
"1. Add\n"
"2. Subtract\n"
 "3. Multiply\n"
 "4. Divide\n")
 select = int(input("Select operations form 1, 2, 3, 4 :"))
number_1 = int(input("Enter first number: "))
number_2 = int(input("Enter second number: "))
if select == 1:
 print(number_1, "+", number_2, "=", add(number_1, number_2))
elif select == 2:
 print(number_1, "-", number_2, "=", subtract(number_1, number_2))
elif select == 3:
print(number_1, "*", number_2, "=", multiply(number_1, number_2))
elif select == 4:
 print(number_1, "/", number_2, "=", divide(number_1, number_2))
else:
 print("Invalid input")
```

2.NESTED LOOP:

```
X = [[12,7],
[4 ,5],
[3 ,8]]
result = [[0,0,0],
[0,0,0]]
for i in range(len(X)):
for j in range(len(X[0])):
result[j][i] = X[i][j]
for r in result:
print(r)
```

3.FACTORIAL:

```
num = int(input("Enter a number : "))
i=num
result = 1
while(i>=1):
result = result * i
i = i - 1
print("Factorial of ",num, "is : ",result)
```

4.FIBONACCI SERIES:

```
num = int(input("Enter a number : "))
i=num
result = 1
while(i>=1):
result = result * i
i = i - 1
print("Factorial of ",num, "is : ",result)
```

5.FUNCTIONS:

```
def check_relation(a,b):
if(a==b):
return 0
if(a>b):
return 1
if(a<b):
return-1
a=8
b=5
res = check_relation(a,b)
if(res==0):
print("a is equal to b")
if(res==1):
print("a is greater than b")
if(res==-1):
print("a is less than b")
```

6.REMOVING_VOWELS:

```
def remove_vowels(s):
new_str = ""
for i in s:
if i in "aeiouAEIOU":
pass
else:
new_str += i
print("The string without vowels is : ", new_str)
str = input("Enter a string : ")
remove_vowels(str)
```

7.OCCURANCES OF A STRING:

```
def count_ch(s, c):
count = 0
for i in s:
if i == c:
count += 1
return count
str = input("Enter a string: ")
ch = input("Enter the character to be searched : ")
count = count_ch(str,ch)
print("In ", str,ch,"occurs ",count, " times")
```

8.COLLECTIONS:

```
a=int(input("Enter the first number :"))
b=int(input("Enter the second number :"))
print ("a=",a, "b=",b)
(a,b)=(b,a)
print("a=",a, "b=",b)
```

9.TEXT FILE:

```
Matrix = [['aa','bb','ac','ad'],['ba','bb','bc','bd'],['ca','cb','cc','cd']]
f = open('two.txt','wb')
m = 3
n = 4
sm = str(m) + '\n'
sn = str(n) + '\n'
bm = sm.encode()
bn = sn.encode()
f.write(bm)
f.write(bn)
for row in Matrix:
for item in row:
item = item + '\n'
```

```
bt = item.encode()
f.write(bt)
f.close();
```

10.DATABASE:

```
import mysql.connector
mydb mysql.connector.connect(
        host "localhost",
        user"yourusername",
        password"yourpassword" )
 #create database
 print(mydb)
mycursor=mydb.cursor()
mycursor.execute("CREATE DATABASE mysql")
#create table
mycursor=mydb.cursor()
mycursor.execute("CREATE TABLE students (Id number, name VARCHAR(255))")
mycursor=mydb.cursor()
sql-"INSERT INTO customers (Id,name) VALUES (%d,%s)"
val=[("01", "akshar")
mycursor.execute(sql, val)
mydb.commit()
print(mycursor.rowcount, "record inserted.")
 #select table
mycursor.execute("SELECT FROM students")
myresult=mycursor.fetchall()
 for x in myresult:
       print(x)
```