```python
#1. Write a program to loop through a list of numbers and add +2 to every value
to elements in list.
A = [1,2,3,4,5,6,7,8,9]
for i in range (0,len(A)):
    A[i] = A[i] + 2
print(A)
```

Output: -

```
[3, 4, 5, 6, 7, 8, 9, 10, 11]
```

```python
#2. Write a program to get below pattern.
n=5
for i in range(n,0,-1):
    j=i
    while j>0:
        print(j,end='')
        j-=1
    print()
```

Output: -

```
54321
4321
321
21
1
```

```python
#3. Python program to print Fibonacci sequence.
nterms = int(input("How many terms you want?: "))
n1,n2 = 0,1
i = 0
if nterms<= 0:
    print("Please enter a positive integer.")
elif nterms == 1:
    print("Fibonacci sequence upto",nterms,":")
    print(n1)
else:
    print("Fibonacci sequence:")
    while i < nterms:
        print(n1)
        nth = n1 + n2
        n1 = n2
        n2 = nth
        i += 1
```

Output: -

```
How many terms you want?: 8
Fibonacci sequence:
0
1
1
2
3
5
8
13
```

```python
#4. Explain Armstrong number and write a code with a function.
print("A number is called Armstrong number if it is equal to the sum of the cubes
 of its own digits.")
print("For example:- 153 is an Armstrong number since,")
print("153 = 1*1*1 + 5*5*5 + 3*3*3")

def armstrong(n):
    sum = 0
    temp = n
    while temp>0:
        digit = temp%10
        sum += digit**3
        temp //= 10
    if n == sum:
        print(n,"is an Armstrong number.")
    else:
        print(n,"is not an Armstrong number.")

B = int(input("Enter the number you want to check if it's Armstrong number: "))
armstrong(B)
```

Output: -

```
A number is called Armstrong number if it is equal to the sum of the cubes of its
own digits.
For example:- 153 is an Armstrong number since,
153 = 1*1*1 + 5*5*5 + 3*3*3
Enter the number you want to check if it's Armstrong number: 153
153 is an Armstrong number.

Enter the number you want to check if it's Armstrong number: 555
555 is not an Armstrong number.
```

```python
#5. Write a program to print the multiplication table of 9.
num = 9
for i in range(1,11):
    print(num, 'x',i, '=', num*i)
```

Output: -

```
9 x 1 = 9
9 x 2 = 18
9 x 3 = 27
9 x 4 = 36
9 x 5 = 45
9 x 6 = 54
9 x 7 = 63
9 x 8 = 72
9 x 9 = 81
9 x 10 = 90
```

```python
#6. Write a program to check if number is negative or positive.
number = int(input("Enter a number: "))
if number<0:
    print("Your number is Negative.")
elif number == 0:
    print("Zero is neither Negative nor Positive number.")
else:
    print("Your number is Positive.")
```

Output: -

```
Enter a number: 5
Your number is Positive.
Enter a number: -8
Your number is Negative.
```

```python
#7. Write a program to convert the number of days to ages.
n_o_days = int(input("Enter number of days: "))
print("Your number of days converted into age =",int(n_o_days/365),"years.")
```

Output: -

```
Enter number of days: 2920
Your number of days converted into age = 8 years.
```

```python
#8. Solve Trigonometry problem using math function write a program to solve using
 math function.
import math
print(math.sin(math.pi/6))
print(math.cos(math.pi/6))
print(math.tan(math.pi/6))

a = int(input("Enter one side's length of pythagoras triangle: "))
b = int(input("Enter second side's length of pythagoras triangle: "))
print("The value of hypotenuse of",a,"and",b,"is :",math.hypot(a,b))

print("The converted value from degrees to radians is: ",math.radians(60))
print("The converted value from radians to degrees is: ",math.degrees(math.pi/2))
```

Output: -

```
0.49999999999999994
0.8660254037844387
0.5773502691896257
Enter one side's length of pythagoras triangle: 5
Enter second side's length of pythagoras triangle: 12
The value of hypotenuse of 5 and 12 is : 13.0
The converted value from degrees to radians is:  1.0471975511965976
The converted value from radians to degrees is:  90.0
```

```python
#9. Create a calculator only on a code level by using if condition
(Basic arithmetic calculations).
print("Choose arithmetic operation you want to perform.")
print("1.Add\n2.Subtract\n3.Multiply\n4.Divide")

choice = int(input("Enter your choice(1 to 4): "))
if choice == 1:
    a = int(input("Enter first number: "))
    b = int(input("Enter second number: "))
    print("Result is: ",a+b)
elif choice == 2:
    a = int(input("Enter first number: "))
    b = int(input("Enter second number: "))
    print("Result is: ",a-b)
elif choice == 3:
    a = int(input("Enter first number: "))
    b = int(input("Enter second number: "))
    print("Result is: ",a*b)
elif choice == 4:
```

```
    a = int(input("Enter first number: "))
    b = int(input("Enter second number: "))
    print("Result is: ",a/b)
else:
    print("Invalid choice! Please try again.")
```

Output: -

```
Choose arithmetic operation you want to perform.
1.Add
2.Subtract
3.Multiply
4.Divide
Enter your choice(1 to 4): 4
Enter first number: 30
Enter second number: 5
Result is:  6.0
```