1. Write a program to check if the given number is positive or negative.

```
num = float (input ("Enter a number:"))
if (num > 0):
    print ("The number is Positive.")
elif (num < 0):
    print ("The number is Negative.")
else:
    print ("The number is Zero.")
```

2. Write a program to input any alphabet and check whether it is vowel or consonant.

```
char = input ("Enter an alphabet:").lower()
if (char in "aeiou"):
    print("Vowel")
else:
    print("Consonant")
```

3. Write a program to input angles of a triangle and check whether triangle is valid or not.

```
angle1 = float (input ("Enter first angle:"))
angle2 = float (input ("Enter second angle:"))
angle3 = float (input ("Enter third angle:"))
if (angle1 + angle2 + angle3 == 180):
    print ("The triangle is valid.")
else:
    print ("The triangle is not valid.")
```

4. Write a program to input all sides of a triangle and check whether triangle is valid or not.

```
a = float (input ("Enter first side:"))
b = float (input ("Enter second side:"))
c = float (input ("Enter third side:"))
if (a + b > c) and (a + c > b) and (b + c > a):
    print ("The triangle is valid.")
else:
    print ("The triangle is not valid.")
```

5. Write a program to check whether the triangle is equilateral, isosceles or scalene triangle.

```
a = int (input ("Enter first side:"))
b = int (input ("Enter second side:"))
c = int (input ("Enter third side:"))
if (a == b == c):
    print ("The triangle is Equilateral")
elif (a == b  or  b == c  or  a == c):
    print ("The triangle is Isosceles")
else:
    print ("The triangle is Scalene")
```

6. Write a program to calculate profit or loss.

```
cp = float (input ("Enter Cost Price:"))
sp = float (input ("Enter Selling Price:"))
if (sp > cp):
    print ("Profit =", sp - cp)
elif (sp < cp):
    print ("Loss =", cp - sp)
```

```
    else:
        print ("No Profit, No Loss")
```

7. Write a program to check if user has entered correct userid and password.

```
correct_userid = "admin"
correct_password = "12345"
userid = input ("Enter User ID:")
password = input ("Enter Password:")
if (userid == correct_userid and password == correct_password):
    print ("Login Successful!")
else:
    print ("Invalid User ID or Password")
```

8. Write a program to prompt user to enter userid and password. After verifying userid and password display a 4 digit random number and ask user to enter the same. If user enters the same number then show him success message otherwise failed. (Something like captcha)

```
import random
correct_userid = "admin"
correct_password = "1234"

userid = input ("Enter User ID:")
password = input ("Enter Password:")

if userid == correct_userid and password == correct_password:
    print ("Login Successful!")
    # Generate a 4-digit random number as captcha
    captcha = random.randint(1000, 9999)
    print ("Captcha:", captcha)
```

```
        user_input = input ("Enter the captcha:")
        if (user_input == str(captcha)):
            print ("Access Granted!")
        else:
            print ("Captcha Incorrect Access Denied!")
else:
        print ("Invalid Credentials")
```

9. Input 5 subject marks from user and display grade (eg. First class)

```
s1 = int (input ("Enter marks for Subject 1:"))
s2 = int (input ("Enter marks for Subject 2:"))
s3 = int (input ("Enter marks for Subject 3:"))
s4 = int (input ("Enter marks for Subject 4:"))
s5 = int (input ("Enter marks for Subject 5:"))
total = s1 + s2 + s3 + s4 + s5
percentage = total / 5
if (percentage >= 75):
    grade = "Distinction"
elif (percentage >= 60):
    grade = "First Class"
elif (percentage >= 50):
    grade = "Second Class"
elif (percentage >= 40):
    grade = "Pass"
else:
    grade = "Fail"
print ("Total Marks:", total)
print ("Percentage:", percentage, "%")
print ("Grade:", grade)
```

10. Write a program to check if person is eligible to marry or not (male age >=21 and female age>=18).

```
age = int (input ("Enter your age:"))
gender = input ("Enter your gender (M/F):")
if (gender == "M" and age >= 21) or (gender == "F" and age >= 18):
    print ("Eligible for marriage")
else:
    print ("Not eligible for marriage")
```

11. Accept age of five people and also per person ticket amount and then calculate total amount to ticket to travel for all of them based on following condition :

a. Children below 12 = 30% discount

b. Senior citizen (above 59) = 50% discount

c. Others need to pay full.

```
total_amount = 0
for i in range (5):
    age = int (input ("Enter age:"))
    price = float (input ("Enter ticket price:"))
    if (age < 12):
        price *= 0.7
    elif (age > 59):
        price *= 0.5
    total_amount += price
print ("Total ticket cost:", total_amount)
```

12. Write a program to check if given 3 digit number is a palindrome ornot.

```
num = input ("Enter a 3-digit number:")
if (num == num[::-1]):
    print("Palindrome")
else:
    print ("Not a Palindrome")
```

13. Write a program to input electricity unit charges and calculate total electricity bill according to the given condition:

```
units = float (input ("Enter electricity units consumed:"))
bill = 0
if (units <= 50):
    bill = units * 0.50
elif (units <= 150):
    bill = (50 * 0.50) + ((units - 50) * 0.75)
elif (units <= 250):
    bill = (50 * 0.50) + (100 * 0.75) + ((units - 150) * 1.20)
else:
    bill = (50 * 0.50) + (100 * 0.75) + (100 * 1.20) + ((units - 250) * 1.50)
surcharge = bill * 0.20
total_bill = bill + surcharge
print (f"Total electricity bill: Rs. {total_bill:.2f}")
```