Q1: Program to check whether a year is a leap year or not.

Program:
```
year = int(input("Enter a year:"))
if (year % 400 == 0) or (year % 4 == 0 and year % 100 != 0):
    print(year, "is a leap year")
else
    print(year, "is not a leap year")
```

// output.

Enter a year 2004
2004 is a leap year.

Q2: Program to count positives, negatives, odds and evens.

Program:
```
pos = neg = odd = even = 0
for i in range(4):
    n = int(input("Enter a number:"))
    if n > 0:
        pos += 1
    elif n < 0:
        neg += 1
    if n % 2 == 0:
        even += 1
    else:
        odd += 1.
print("positive:", pos)
print("Negative=", neg)
print("odd", odd)
print("Even", even).
```

Enter a number: 5
Enter a number: -2
Enter a number: 3
Enter a number: 0
positve = 2
Negative: 1
odd: 2
Even: 2

Q3: Program to count small letters, capital letters, vowels, and consonants.

```
//program: s=c=v=con=0
for i in range(5):
    ch=input("Enter Alphabet:")
    if ch.islower():
        small += 1
    if ch.upper():
        capital += 1
    if ch.lower() in "aeiou":
        vowels += 1
    else:
        consonants += 1

print("small letters:", s)
print("capital letters:", c)
print("vowels:", v)
print("consonants:", con)
```

Output:

```
Enter Alphabet: A
Enter Alphabet: b
Enter Alphabet: e
Enter Alphabet: F
Enter Alphabet: g

small letters: 3
capital letter: 2
vowels: 2
consonants: 3
```

Q4: Program to calculate tax based on cost.

Program:

```
cost = int(input("Enter cost in Rs:"))
if cost > 100000:
    tax = cost * 0.15
elif cost > 50000:
    tax = cost * 0.10
else:
    tax = cost * 0.05
print("Tax to be paid:", tax)
```

Output:

```
Enter cost in Rs: 80000
Tax to be paid: 8000.0
```

Q5: Program to assign grade based on marks.

Program:

```
marks = int(input("Enter marks:"))
if marks >= 90:
    grade = "O"
elif marks >= 80:
    grade >= "A"
elif marks >= 70:
    grade >= "B"
elif marks >= 60:
    grade >= "C"
elif mark >= 50:
    grade >= "D"
elif marks >= 40:
    grade = "E"
else:
    grade = "F"
print("Grade", grade)
```

Output:

```
Enter marks: 79
Grade: B
```

Q6: Program to check Armstrong Number

Program:
```
num = int(input("Enter a 3-digit number: "))
sum = 0
temp = num
while temp > 0:
    digit = temp % 10
    sum += digit ** 3
    temp //= 10
if num == sum:
    print("Armstrong")
else:
    print("NOT an Armstrong").
```

output:

Enter a 3-digit number: 370
Armstrong.

Q7: Program to check if date is between 3/20 and 6/20.

Program:
```
m = int(input("Enter month (1-12): "))
d = int(input("Enter day (1-31): "))
if (m == 3 and d >= 20) or (m in [4,5]) or
                (m == 6 and d <= 20):
    print("True")
else:
    print("False")
```

output:

Enter month (1-12): 4
Enter day (1-31): 20
True.

Q8: Program to count currency notes.

Program:
```
amt = int(input("Enter amount:"))
n20 = amt // 20
amt %= 20
n10 = amt // 10
amt %= 10
n5 = amt // 5
amt %= 5
n1 = amt
print("20:", n20, "notes")
print("10", n10, "notes")
print("5", n5, "notes")
print("1", n1, "notes")
```

Output:

```
Enter amount: 97
20: 4 notes
10: 1 notes
5: 1 notes
1: 2 notes
```

Q9: Program to find quadrant or axis.

Program:
```
x = float(input("Enter x coordinate:"))
y = float(input("Enter y coordinate:"))
if x==0 and y==0:
    print("Origin")
elif x==0:
    print("point on y-axis")
elif y==0:
    print("point on x-axis")
elif x>0 and y>0:
    print("Quadrant I")
elif x<0 and y>0:
    print("Quadrant II")
elif x<0 and y<0:
    print("Quadrant III")
else:
    print("Quadrant IV")
```

Output:

Enter x coordinate:- 1
Enter y coordinate:- -2.5

Quadrant III

Q10: Program to find future day of week

Program:

```
today = int(input("Enter today's day:"))
after = int(input('Enter the no of days elapsed since today:"))
future = (today + after)%7
if today == 0:
    t = "Sunday"
elif today == 1:
    t = "Monday"
elif today == 2:
    t = "Tuesday"
elif today == 3:
    t = "Wednesday"
elif today == 4:
    t = "Thursday"
elif today == 5:
    t = "Friday"
else:
    t = "Saturday".

if future == 0:
    f = "Sunday"
elif future == 1:
    f = "Monday"
elif future == 2:
    f = "Tuesday"
elif future == 3:
    f = "Wednesday"
elif future == 4:
    f = "Thursday"
elif future == 5:
    f = "Friday"
else:
    f = "Saturday"
print("Today is", t, "and the future day is", f)
```

Output:

Enter today's day: 1
Enter the no of days elapsed since today: 3
Today is Monday and the future day is Thursday.

Q11: Program to calculate Electricity bill.

Program:
```
units = int(input("Enter number of units:"))
if units <= 100:
    bill = units * 1.5
elif units <= 200:
    bill = 100 * 1.5 + (units - 100) * 2.5
elif units <= 300:
    bill = 100 * 1.5 + 100 * 2.5 + (units - 200) * 4
else:
    bill = 100 * 1.5 + 100 * 2.5 + 100 * 4 + (units - 300) * 5
print("Total Electricity Bill", bill).
```

Output:

```
Enter number of units: 250
Tota Electricity Bill : 650.0
```

Q12: Program to check perfect number.

Program:
```
num = int(input("Enter a 3-digit number:"))
sum = 0
for i in range(1, num):
    if num % i == 0:
        sum += i
    if sum == num:
        print(num, "is a perfect No.")
    else:
        print(num, "is not a perfect No.")
```

Output:

```
Enter a 3-digit number: 496
496 is a perfect No.
```

Q13: Program to display appropriate title.

Program:

```
gender = input("What is your gender (M or F):")
fname = input("First name:")
lname = input("Last name:")
age = int(input("Age:"))

if gender.upper() == "F":
    if age >= 20:
        married = input("Are you married",
                        fname, "(y or n)?")
        if married.lower() == "y":
            print("Then I shall call you Mrs",
                  fname, lname)
        else:
            print("Then I shall call you Ms",
                  fname, lname).
    else:
        print(fname, lname).

else:
    if age >= 20:
        print("Then I shall call you Mr.",
              fname, lname)
    else:
        print(fname, lname).
```

Output:

```
What is your gender (M or F): M
First name: virat
Last name: Kohli
Age: 36

Then I shall call you Mr. Virat Kohli.
```

Q14: Program to find month number to month name.

Program:

```
month = int(input("Enter month number:"))
if month == 1:
    print("January")
elif month == 2:
    print("February")
elif month == 3:
    print("March")
elif month == 4:
    print("April")
elif month == 5:
    print("may")
elif month == 6:
    print("June")
elif month == 7:
    print("July")
elif month == 8:
    print("August")
elif month == 9:
    print("September")
elif month == 10:
    print("October")
elif month == 11:
    print("November")
elif month == 12:
    print("December")
else:
    print("Invalid month Number")
```

Output:

```
Enter month Number: 3
March
```

Q15: Write a python program to display the following table.

Program:

```
print("a\tb\tpow(a,b)")
a=1
b=2
while a<=5:
    print(a,"\t",b,"\t",a**b)
    a+=1
    b+=1
```

output:

a	b	pow(a,b)
1	2	1
2	3	8
3	4	81
4	5	1024
5	6	15625

Seen 1/11/25

V. good