WEEK - 3
Selection Controls

1) Ms. Sita, the faculty handling programming lab for you is very strict. Your seniors have told you that she will not allow you to enter the week's lab if you have not completed at least half the number of problems given last week. Many of you didn't understand this statement and so they requested the good programmers from your batch to write a program to find whether a student will be allowed into a week's lab given the number of problems given last week and the number of problems solved by the student in that week.

Input Format: Input consists of 2 integers. The first integer corresponds to the number of problems given and the second integer corresponds to the number of problems solved.

Output Format: Output consists of the string “IN” or “OUT”.

Input	Result
8 3	OUT

PROGRAM :

```
a=int(input())
b=int(input())
if b>=a/2:
        print(“IN”)
else:
        print(“OUT”)
```

2) The length of a month varies from 28 to 31 days. In this exercise you will create a program that reads the name of a month from the user as a string. Then your program should display the number of days in that month. Display “28 or 29 days” for February so that leap years are addressed.

Input	Result
February	February has 28 or 29 days in it.
March	March has 31 days in it.
April	April has 30 days in it.

PROGRAM :

```
c=input()
```

if c==’January’ or c==’March’ or c==’May’ or c==‘July’ or c==’August’ or c==’October’ or c==’December’:

print(c,”has 31 days in it.”)

elif c==’February”:

print(c,”has 28 or 29 days in it.”)

else:

print(c,”has 30 days in it.”)

3) Write a program to find the eligibility of admission for a professional course based on the following criteria:

Marks in Maths >= 65

Marks in Physics >= 55

Marks in Chemistry >= 50

(Or)

Total in all three subjects >= 180

Input	Result
70 60 80	The candidate is eligible

PROGRAM :

M1=int(input())

M2=int(input())

M3=int(input())

Tot=M1+M2+M3

if (M1 >= 65 and M2>=55 and M3>=50) or Tot>=180:

print(“The candidate is eligible”)

else:

print(“The candidate is not eligible”)

4) In this exercise you will create a program that reads a letter of the alphabet from the user. If the user enters a, e, i, o or u then your program should display a message indicating that the entered letter is a vowel. If the user enters y then your program should display a message indicating that sometimes y is a vowel, and sometimes y is a consonant. Otherwise your program should display a message indicating that the letter is a consonant.

Input	Result
y	Sometimes it's a vowel... Sometimes it's a consonant.
c	It's a consonant.

PROGRAM :

```
C=input()
if C==’a’ or C==’e’ or C==’i’ or C==’o’ or C==’u’:
        print(“It’s a vowel”)
elif C==’y’:
        print(“Sometimes it’s a vowel… Sometimes it’s a consonant.”)
else:
        print(“It’s a consonant”)
```

5) Most years have 365 days. However, the time required for the Earth to orbit the Sun is actually slightly more than that. As a result, an extra day, February 29, is included in some years to correct for this difference. Such years are referred to as leap years. The rules for determining whether or not a year is a leap year follow:

• Any year that is divisible by 400 is a leap year.

• Of the remaining years, any year that is divisible by 100 is not a leap year.

• Of the remaining years, any year that is divisible by 4 is a leap year.

• All other years are not leap years.

Write a program that reads a year from the user and displays a message indicating whether or not it is a leap year.

Input	Result
1900	1900 is not a leap year.

PROGRAM :

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

6) Write a Python program that accepts three parameters. The first parameter is an integer. The second is one of the following mathematical operators: +, -, /, or *. The third parameter will also be an integer.

The function should perform a calculation and return the results. For example, if the function is passed 6 and 4, it should return 24.

Input	Result
11 + 14	25

PROGRAM :

```
a=int(input())
c=input()
b=int(input())
if c==’+’:
        print(a+b)
elif c==’-‘:
        print(a-b)
elif c==’*’:
        print(a*b)
else:
        print(a/b)
```

7) In the 1800s, the battle of Troy was led by Hercules. He was a superstitious person. He believed that his crew can win the battle only if the total count of the weapons in hand is in multiples of 3 and the soldiers are in an even number of count. Given the total number of weapons and the soldier's count, Find whether the battle can be won or not according to Hercules's belief. If the battle can be won print True otherwise print False.

Input format: Line 1 has the total number of weapons, Line 2 has the total number of Soldiers.

Output Format: If the battle can be won print True otherwise print False.

Input	Result
32 43	False

PROGRAM :

```
a=int(input())
b=int(input())
if a%3==0 and b%2==0:
```

```
    print('True')
else:
    prinr('False')
```

8) A triangle can be classified based on the lengths of its sides as equilateral, isosceles or scalene. All three sides of an equilateral triangle have the same length. An isosceles triangle has two sides that are the same length, and a third side that is a different length. If all of the sides have different lengths then the triangle is scalene.

Write a program that reads the lengths of the three sides of a triangle from the user. Then display a message that states the triangle's type.

Input	Result
60 60 60	That's a equilateral triangle
40 40 80	That's a isosceles triangle

PROGRAM :

```
a=int(input())
b=int(input())
c=int(input())
if(a==b==c):
    print("That's a equlateral triangle")
elif(a==b or b==c or a==c):
    print("That's a isosceles triangle")
else:
    print("That's a scalene triangle")
```

9) Write a program to calculate and print the Electricity bill where the unit consumed by the user is given from test case. It prints the total amount the customer has to pay. The charge are as follows:

Unit	Charge / Unit
Upto 199	@1.20
200 and above but less than 400	@1.50
400 and above but less than 600	@1.80
600 and above	@2.00

If bill exceeds Rs.400 then a surcharge of 15% will be charged and the minimum bill should be of Rs.100/-

Input	Result
100.00	120.00

PROGRAM :

```
a=int(input())
if a>100 and a<=199:
        print("%.2f"%(a*1.2))
elif a>200 and a<400:
        print("%.2f"%(a*1.50))
elif a>=400 and a<600:
        print("%.2f"%(a*1.2)+a*1.5)
elif a>600:
        print("%.2f"%(a*1.2)+a*1.5)
else:
        print("100.00")
```

10) Write a program that reads an integer from the user. Then your program should display a message indicating whether the integer is even or odd.

Input	Result
5	5 is odd.

PROGRAM :

```
a=int(input())
if a%2==0:
        print(a,”is even”)
else:
        print(a,”is odd”)
```