A. A copy center charges 50 won per copy for the first 100 copies and 30 won per copy for each additional copy. Write a program that requests the number as input and displays the total cost.

Enter number of copies: 125

Cost is 5750 won.

Solution:

NC=float(input('Enter number of copies:'))

if NC <= 100:

print('Cost is ', NC\*50, 'Won')

else:

print('Cost is ', (100\*50 + (NC-100)\*30), 'Won')

Output:

Enter number of copies:10

Cost is 500.0 Won

B. A calendar year divisible by four is a leap year, with the exception of the years ending in 00 (that is, those divisible by 100) and not divisible by 400. For instance the years 1600 and 2000 are leap years, but 1700, 1800, and 1900 are not. Write a program that requests a year as input and states whether it is a leap year.

Solution:

Year=int(input('Enter the Year:'))

if (Year % 100) == 0:

if (Year % 400) == 0:

print('The Year ', Year, 'is leap year')

else:

print('The Year ', Year, 'is not leap year')

else:

if (Year % 4) == 0:

print('The Year ', Year, 'is leap year')

else:

print('The Year ', Year, 'is not leap year')

Output:

Enter the Year:1901

The Year 1901 is not leap year

C. The flowchart calculates a person's state tax. Write a program corresponding to the flowchart.



Solution:

income=float(input('Enter your income:'))

if income < 20000:

print('The income tax is ', income \* 0.02)

else:

if income < 50000:

print('The income tax is ', 400 + (income-20000) \* 0.025)

else:

print('The income tax is ', 1150 + (income-50000) \* 0.035)

Output:

Enter your income:60000

The income tax is 1500.0

D. Ask user to enter score in percentage and print the grade. The grade decision are as follows.

|  |  |
| --- | --- |
| **Score** | **Grade** |
| **90-100** | **A** |
| **80-89** | **B** |
| **70-79** | **C** |
| **60-69** | **D** |
| **Below 60** | **F** |

Solution:

score=int(input('Enter Your Score:'))

if score < 0:

print('Invalid Input: Please enter your score between 0 to 100')

else:

if score < 60:

print('Your Grade is: F')

else:

if score < 70:

print('Your Grade is: D')

else:

if score < 80:

print('Your Grade is: C')

else:

if score < 90:

print('Your Grade is: B')

else:

if score <= 100:

print('Your Grade is: A')

else:

print('Invalid Input: Please enter your score between 0 to 100')

Output:

Enter Your Score:99

Your Grade is: A

1. Print average of all numbers divisible by 3 and less than 100.

Solution:

summ = 0

count = 0

for i in range(1,100):

if i % 3 == 0:

summ = summ + i

count = count + 1

print('The average is:', summ / count)

Output:

The average is: 51.0

1. A person born in 1980 can claim, "I will be x years old in the year x squared." '. What is the value of x?

Solution:

import math

a = 1

b = -1

c = -1980

determinant = math.sqrt(b \* b - 4 \* a \* c)

x1 = ((-b + determinant) / (2 \* a))

x2 = ((-b - determinant) / (2 \* a))

if x1 >= 0:

print('The value of x (Age) is:', int(x1))

if x2 >= 0:

print('The value of x (Age) is:', int(x2))

Output:

The value of x (Age) is: 45