Assignment 2.1

1. Write a program that asks the user to enter a length in centimetres. If the user enters a negative length, the program should tell the user that the entry is invalid. Otherwise, the program should convert the length to inches and print out the result. 1inch = 2.54 centimetres

len=int(input("Enter the centimeter"))

if len > 0:

print("inches=",len/2.5)

else:

print("Invalid input")

**output**

Enter the centimeter5

inches= 2.0

1. Ask the user for a temperature. Then ask them what units, Celsius or Fahrenheit, the temperature is in. Your program should convert the temperature to the other unit. The conversions are F = 9 5C +32 and C = 5 9(F−32).

temp=float(input("Enter the temputer"))

unit=int(input("what unit it is ?\nentr 1 for Fahrenheit enter 2 for Celsius "))

if unit==1:

print("celcius:",9/5 \* unit +32)

elif unit ==2:

print("Fahrenheit:",5/9\*(unit-32))

else:

print("Invalid input")

**output**

Enter the temputer5.3

what unit it is ?

entr 1 for Fahrenheit enter 2 for Celsius 1

celcius: 33.8

1. Ask the user to enter a temperature in Celsius. The program should print a message based on the temperature: If the temperature is less than -273.15, print that the temperature is invalid because it is below absolute zero. • If it is exactly -273.15, print that the temperature is absolute 0. • If the temperature is between- 273.15 and 0, print that the temperature is below freezing. • If it is 0, print that the temperature is at the freezing point. • If it is between 0 and 100, print that the temperature is in the normal range. • If it is 100, print that the temperature is at the boiling point. • If it is above 100, print that the temperature is above the boiling point.

temp=float(input("Enter the tempature in Celsius"))

if temp < -273.15:

print("the temperature is invalid because it is below absolute zero")

elif temp == -273.15:

print("the temperature is absolute 0")

elif temp > -273.15 and temp <=0:

print("that the temperature is below freezing. • If it is 0,")

elif temp > 0 and temp < 100 :

print("the temperature is in the normal range")

elif temp == 100 :

print("that the temperature is at the boiling point. ")

elif temp > 100:

print("the temperature is above the boiling point")

**output**

Enter the tempature in Celsius100

that the temperature is at the boiling point.

1. Write a program that asks the user how many credits they have taken. If they have taken 23 or less, print that the student is a freshman. If they have taken between 24 and 53, print that they are a sophomore. The range for juniors is 54 to 83, and for seniors it is 84 and over.

credit=int(input("Enter the number of credit you have been taken"))

if credit <=23:

print("The student is a freshman")

elif credit <=53:

print("They are a sophomore")

elif credit <=84:

print("They are Juniors")

elif credit >84 :

print("They are seniors")

**output**

Enter the number of credit you have been taken23

The student is a freshman

1. 5. A store charges $12 per item if you buy less than 10 items. If you buy between 10 and 99 items, the cost is $10 per item. If you buy 100 or more items, the cost is $7 per item. Write a program that asks the user how many items they are buying and prints the total cost.

item=int(input("Enter the item you are buying"))

if item <10:

print("price=",item\*12)

elif item < 99:

print("price=",item\*10)

elif item >= 100:

print("price=",item\*7)

**output**

Enter the item you are buying3

price= 36

1. Write a program that asks the user for two numbers and prints Close if the numbers are within .001 of each other and Not close otherwise.

x=float(input("Enter a number"))

y=float(input("Enter a number"))

if x>y and x-y<=0.001:

print("close")

elif x<=y and y-x<=0.001:

print("close")

else:

print("Not close")

**output**

Enter a number0.002

Enter a number0.001

Close

1. A year is a leap year if it is divisible by 4, except that years divisible by 100 are not leap years unless they are also divisible by 400. Write a program that asks the user for a year and prints out whether it is a leap year or not.

year=int(input("Enter the year"))

if (year % 4== 0 and year % 100 !=0) or year % 400 ==0:

print("Leap year")

else :

print("Not a leap year")

**output**

Enter the year2000

Leap year

1. Write a program that asks the user for an hour between 1 and 12, asks them to enter am or pm, and asks them how many hours into the future they want to go. Print out what the hour will be that many hours into the future, printing am or pm as appropriate. An example is shown below.

Enter hour: 8 am How many hours ahead? 5 New hour: 1 pm

hour=int(input("Enter the hour between 1 to 12"))

ap=input("Enter am or pm")

future=int(input("Enter how many hours into the future they want to go "))

if "am" in ap:

if(future > 12-hour):

future-= 12 - hour

print("Time =",future,"pm")

else:

print("Time=",future+hour,"am")

else:

if( future > 12 -hour):

future -=12-hour

print("Time =",future,"am")

else:

print("Time=",future+hour,"pm")

**output**

Enter the hour between 1 to 125

Enter am or pmam

Enter how many hours into the future they want to go 8

Time = 1 pm