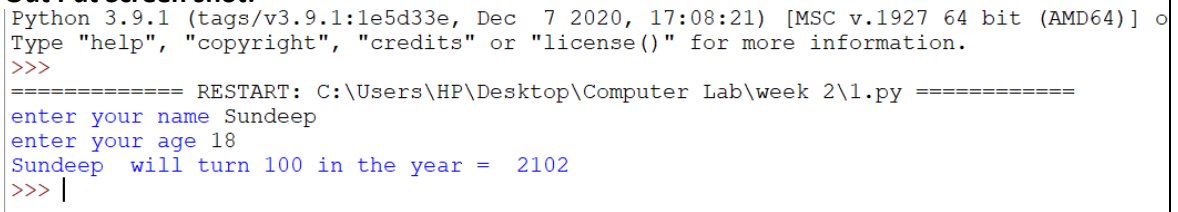


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Section : O

Program 1	Create a program that has two parameters namely name and their age. Print out a message addressed to them that tells them the year that they will turn 100 years old.
	Algorithm: Step 1 = get the input of name ,age details from the user Step 2 =calculate the age at which he/she turns 100 using the formula Step 3 = print the age at age at which he/she turns 100
	Program with appropriate Comments: <pre> name = input("enter your name ") age = int(input("enter your age ")) year= 2120-age print (name," will turn 100 in the year = ",year) </pre>
	Out Put Screen shot: 
Program 2	N students take K apples and distribute them among each other evenly. The remaining (the indivisible) part remains in the basket. How many apples will each single student get? How many apples will remain in the basket? The program reads the numbers N and K. It should print the two answers for the questions above.
	Algorithm: Step 1 = take the input of the number of students and the number of apples Step 2 = calculate the number of apples each student gets using the formula Step 3 = calculate the number of apples left in the basket using the formula Step 4 = print the number of apples each student gets and the number of apples left in the basket
	Program with appropriate Comments:

	<pre> n = int(input("enter the number of students ")) k = int(input("enter the number of apples ")) t = k//n #finds the number of apples each students gets l=k%n #finds the number of apples remaining in the basket print("each student will get",t,"apples") print("number of apples left in the basket",l) </pre>
	<p>Out Put Screen shot:</p> <pre> enter the number of students 5 enter the number of apples 23 each student will get 4 apples number of apples left in the basket 3 </pre>
Program 3	Write a program to calculate the distance between two points.
	<p>Algorithm:</p> <p>step 1= take the values of x1,y1,y1,y2 from the user.</p> <p>step 2 = calculate the distance using the formula.</p> <p>Step 3 = print the distance between two cities.</p>
	<p>Program with appropriate Comments:</p> <pre> x1 = float(input("enter the x coordinate of the first point ")) y1 = float(input("enter the y coordinate of the first point ")) x2 = float(input("enter the x coordinate of the second point ")) y2 = float(input("enter the y coordinate of the second point ")) import math distance = math.sqrt(((x2-x1)**2 + (y2-y1)**2)) # using formula to find the distance print("the distance between two points is = ",distance) </pre>
	<p>Out Put Screen shot:</p> <pre> enter the x coordinate of the first point 2 enter the y coordinate of the first point 2 enter the x coordinate of the second point 3 enter the y coordinate of the second point 3 the distance between two points is = 1.4142135623730951 >>> </pre>
Program 4	Given two timestamps of the same day: a number of hours, minutes and seconds for both of the timestamps. The moment of the first timestamp happened before the moment of the second one. Calculate how many seconds passed between them.
	<p>Algorithm:</p> <p>Step 1 = input the values of number of hours, minutes and seconds for both of the timestamps.</p> <p>Step 2 = convert all the data into seconds</p> <p>Step 3 = Calculate how many seconds passed between them using the formula</p> <p>Step 4 = print the difference in seconds between the two timestamps.</p>

	Program with appropriate Comments: <pre> h1 = int(input("enter the hour of the first timestamp ")) m1 = int(input("enter the minutes of the first timestamp ")) s1 = int(input("enter the seconds of the first timestamp ")) h2 = int(input("enter the hour of the second timestamp ")) m2 = int(input("enter the minutes of the second timestamp ")) s2 = int(input("enter the seconds of the second timestamp ")) t1 = (h1*3600)+(m1*60)+s1 #converting the timestamp 1 into seconds t2 = (h2*3600)+(m2*60)+s2 #converting the timestamp 2 into seconds diff = t2-t1 #finding the difference between the timestamps print("the difference between the two timestamps in seconds is = ",diff) </pre>
	Out Put Screen shot: <pre> enter the hour of the first timestamp 2 enter the minutes of the first timestamp 30 enter the seconds of the first timestamp 30 enter the hour of the second timestamp 3 enter the minutes of the second timestamp 40 enter the seconds of the second timestamp 40 the difference between the two timestamps in seconds is = 4210 >>> </pre>
Program 5	Given a 4-digit integer number, display the individual digits & also compute the sum of digits.
	Algorithm: Step 1 = input the 4-digit integer number Step 2 = display the individual digits using the formula. Step 3 = calculate the sum of all the digits. Step 4 = Display the individual digits and the sum of the digits.
	Program with appropriate Comments: <pre> num = int(input("enter the four digit number ")) th = num//1000 #finding the digits that are entered num = num%1000 h = num//100 num = num%100 t = num//10 num = num%10 u = num print ("the number of the digit are =",th,h,t,u) sum = u+t+h+th #finding the sum of all digits print("the sum of the digits is ",sum) </pre>

	Out Put Screen shot: <pre> enter the four digit number 2345 the number of the digit are = 2 3 4 5 the sum of the digits is 14 >>> </pre>
Program 6	Swap the contents of two memory locations a) using temporary variable. b) without using temporary variable.
	Algorithm: Step 1 = input the values of a and b Step 2 = print the values of a and b before interchanging Step 3 = inter change the values of a and b using the formula Step 4 = print the values of a and b after interchanging.
	Program with appropriate Comments: <pre> # a) interchanging values using temporary variable a = float(input("enter the value of a ")) b = float(input("enter the value of b ")) print("the value of a before interchanging is ",a) print("the value of b before interchanging is ",b) temp = a a=b b=temp print ("the value of a after interchanging is ",a) print("the value of b after interchanging is ",b) print() # b) interchanging values without using temporary variable a = float(input("enter the values of a ")) b = float(input("enter the values of b ")) print("the value of a before interchanging is ",a) print("the value of b before interchanging is ",b) a = a+b b = a-b a = a-b print("the value of a after interchanging is ",a) print("the value of b after interchanging is ",b) </pre>

	Out Put Screen shot: <pre> enter the value of a 10 enter the value of b 20 the value of a before interchanging is 10.0 the value of b before interchanging is 20.0 the value of a after interchanging is 20.0 the value of b after interchanging is 10.0 enter the values of a 20 enter the values of b 30 the value of a before interchanging is 20.0 the value of b before interchanging is 30.0 the value of a after interchanging is 30.0 the value of b after interchanging is 20.0 >>> </pre>
Program 7	Program to a) Convert temperature in Celsius to Fahrenheit b) Convert temperature in Fahrenheit to Celsius
	Algorithm: Step 1 = take the value of temperature in °C or °F Step 2 = convert °C into °F (or) convert °F into °C step 3 = print the converted values
	Program with appropriate Comments: <pre> #to convert fahrenheit to celcius f = float(input("enter the temperature in fahrenheit ")) c = (f-32) * 5/9 #applying formula print("the temperature in celcius is",c) print() #to convert celcius into fahrenheit c = float(input("enter the temperature in celcius ")) f = (c*9/5)+32 #applying formula print("the temperature in fahrenheit is ",f) </pre>
	Out Put Screen shot:

	<pre> enter the temperature in farenheit 108 the temperature in celcius is 42.22222222222222 enter the temperature in celcius 42.222 the temperature in farenheit is 107.9996 >>> </pre>
Program 8	<p>Given the distance between 2 cities in kilometers. Write a Python program convert it into meters, centimeters, feet and inches and display the result.</p>
	<p>Algorithm:</p> <p>Step 1 = input the distance between two cities in kilometers</p> <p>Step 2 = convert kilometers into meters ,centimeters ,feet and inches using their respective formula</p> <p>Step 3 = print the converted values</p>
	<p>Program with appropriate Comments:</p> <pre> k=float(input("enter the distance between two cities in kilometers is")) m = k*1000 #converting into metre c = m*100 #converting into centimetre f = c/30.48 #converting into feet f= format(f, '.3f') i = c/2.54 #converting into inches i = format(i, '.3f') print ("the distance in kilometers is ",k,"\nthe distance in meters is", m,"\nthe distance in centimeters is ",c,"\nthe distance in feet is ",f, "\nthe distance in inches is ",i) </pre>
	<p>Out Put Screen shot:</p> <pre> enter the distance between two cities in kilometers is 2.5 the distance in kilometers is 2.5 the distance in meters is 2500.0 the distance in centimeters is 250000.0 the distance in feet is 8202.100 the distance in inches is 98425.197 >>> </pre>
Program 9	<p>A school decided to replace the desks in three classrooms. Each desk sits two students. Given the number of students in each class, print the smallest possible number of desks that can be purchased. The program should read three integers: the number of students in each of the three classes, a, b and c respectively</p>

	Algorithm: Step 1 = input the number of students in each class Step 2 = the total number of desks required can be found using the formula Step 3 = print the number of desks required
	Program with appropriate Comments: <pre> a = int(input("enter the number of students in the first class ")) b = int(input("enter the number of students in the second class ")) c = int(input("enter the number of students in the third class ")) sum = a//2+b//2+c//2+a%2+b%2+c%2#finding the total number of benches print("the total number of desks required are ",sum) </pre>
	Out Put Screen shot: <pre> enter the number of students in the first class 20 enter the number of students in the second class 21 enter the number of students in the third class 22 the total number of desks required are 32 >>> </pre>
Program 10	Given the integer N - the number of seconds that is passed since midnight - how many full hours and full minutes are passed since midnight? The program should print two numbers: the number of hours (between 0 and 23) and the number of minutes (between 0 and 1339).
	Algorithm: Step 1 = input the number of seconds that have passed since midnight Step 2 = convert the seconds into full hours using the formula Step 3 = convert the seconds into full minutes using the formula Step 4 = print the number of full minutes and full hours.
	Program with appropriate Comments: <pre> n=int(input("enter the number of seconds that are passed since midnight")) h=n//3600 #finding the number of full hours m=n//60 #finding the number of full minutes print("number of full hours that have passed since midnight",h) print("number of full minutes that have passed since midnight",m) </pre>
	Out Put Screen shot: <pre> enter the number of seconds that are passed since midnight 3900 number of full hours that have passed since midnight 1 number of full minutes that have passed since midnight 65 >>> </pre>