

**Sample Program 1 - Display Result:**

**Best Programming Practices**

1. Use variables for all values, including inputs, fixed values, and results.
2. Avoid hardcoding values.
3. Use meaningful variable names.
4. Properly name programs and classes.

* String name = "Eric";
* double height = Convert.ToDouble(Console.ReadLine());
* double totalDistance = distanceFromToVia + distanceViaToFinalCity;

1. Maintain proper indentation.

**Problem Statement:** Write a program to display Sam with Roll Number 1, Percent Marks 99.99, and the result ‘P’ indicating Pass (‘P’) or Fail (‘F’).

**Program Requirements:**

* Use variables for all values (name, roll number, percent marks, result).
* Avoid hardcoding values.
* Follow proper naming conventions.

**Code Format (C#)**:

// Creating a class with the name DisplayResult indicating the purpose is to display

// result. Notice that the class name is a Noun.

using System;

class DisplayResult {

public static void Main(string[] args) {

// Create a string variable 'name' and assign value "Sam"

string name = "Sam";

// Create an int variable 'rollNumber' and assign value 1

int rollNumber = 1;

// Create a double variable 'percentMarks' and assign value 99.99

double percentMarks = 99.99;

// Create a char variable 'result' and assign value 'P' for pass

char result = 'P';

// Display the result

Console.WriteLine($"Displaying Result:\n{name} with Roll Number {rollNumber} has Scored {percentMarks}% Marks and Result is {result}");

}

}

**Sample Program 2 - Eric Travels:**

**Problem Statement:** Eric travels from Chennai to Bangalore via Vellore. The distance from Chennai to Vellore is 156.6 km and the time taken is 4 hours 4 minutes. The distance from Vellore to Bangalore is 211.8 km and the time taken is 4 hours 25 minutes. Compute the total distance and total time from Chennai to Bangalore.

**Program Requirements:**

* Use variables to hold city names and travel data.
* Calculate and display the total distance and total time.
* Proper indentation and naming conventions.

**Code Format (C#)**:

using System;

class TravelComputation {

public static void Main(string[] args) {

// Create a variable 'name' to indicate the person traveling

string name = "Eric";

// Create variables 'fromCity', 'viaCity', and 'toCity' for the cities

string fromCity = "Chennai", viaCity = "Vellore", toCity = "Bangalore";

// Create variables for distances and times

double distanceFromToVia = 156.6;

int timeFromToVia = 4 \* 60 + 4; // Time in minutes

double distanceViaToFinalCity = 211.8;

int timeViaToFinalCity = 4 \* 60 + 25; // Time in minutes

// Compute the total distance and total time

double totalDistance = distanceFromToVia + distanceViaToFinalCity;

int totalTime = timeFromToVia + timeViaToFinalCity;

// Print the travel details

Console.WriteLine($"The Total Distance travelled by {name} from {fromCity} to {toCity} via {viaCity} is {totalDistance} km and the Total Time taken is {totalTime} minutes");

}

}

**Level 1 Practice Programs**

**1. Write a program to find the age of Harry if the birth year is 2000. Assume the Current Year is 2024**  
**I/P => NONE**  
**O/P => Harry's age in 2024 is \_\_\_**

| **using System;**  **class Solution {  public static void Main() {**  **// creating variables to store birth year and current year   int birthYear = 2000;  int currentYear = 2024;**  **// calculating age of the Harry  int age = currentYear - birthYear;**  **// printing the age  Console.WriteLine("Harry's age in 2024 is {0}" , age);  } }** |
| --- |
|  |

**2. Sam’s mark in Maths is 94, Physics is 95, and Chemistry is 96 out of 100. Find the average percent mark in PCM**  
**I/P => NONE**  
**O/P => Sam’s average mark in PCM is \_\_\_**

| **using System;**  **class Solution {  public static void Main() {  // create variables to store marks  int maths = 94;  int physics = 95;  int chemistry = 96;   // calculating average percent marks   double average = (maths + physics + chemistry) / 3.0;   // printing average marks scored  Console.WriteLine("Sam's average marks in PCM is {0}" , average);  } }** |
| --- |

**3. Create a program to convert the distance of 10.8 kilometers to miles.**  
**Hint:** 1 km = 1.6 miles  
**I/P => NONE**  
**O/P => The distance \_\_\_ km in miles is \_\_\_**

| **using Sy class Solution {  public static void Main() {  // creating variables to store distance in kilometers and miles  double kilometers = 10.8;  double milesToKilometerFactor = 1.6;   // calculating distance in miles  double miles = kilometers / milesToKilometerFactor;   // printing distance in miles  Console.WriteLine("The distance {0} km in miles is {1}" , kilometers , miles);  } }** |
| --- |

**4. Create a program to calculate the profit and loss in number and percentage based on the cost price of INR 129 and the selling price of INR 191.**  
**Hint:**  
Use a single print statement to display multiline text and variables.  
Profit = selling price - cost price  
Profit Percentage = profit / cost price \* 100  
**I/P => NONE**  
**O/P =>**  
The Cost Price is INR \_\_\_ and Selling Price is INR \_\_\_  
The Profit is INR \_\_\_ and the Profit Percentage is \_\_\_

| using System;  class Solution {  public static void Main() {  // creating variables to store the cost price and selling price  int costPrice = 129;  int sellingPrice = 191;   // calculating profit and profit percentage  int profit = sellingPrice - costPrice;  double profitPercentage = (profit / (double) costPrice) \* 100;   // printing the result  Console.WriteLine("The Cost Price is INR {0} and Selling Price is INR {1}" , costPrice , sellingPrice);  Console.WriteLine("The Profit is INR {0} and the Profit Percentage is {1}" , profit , profitPercentage);  } } |
| --- |

**5. Suppose you have to divide 14 pens among 3 students equally. Write a program to find how many pens each student will get if the pens must be divided equally. Also, find the remaining non-distributed pens.**  
**Hint:**  
Use Modulus Operator (%) to find the reminder.  
Use Division Operator to find the Quantity of pens  
**I/P => NONE**  
**O/P => The Pen Per Student is \_\_\_ and the remaining pen not distributed is \_\_\_**

| **using System;  class Solution {  public static void Main() {  //creating variables to store number of pens and students  int totalPens = 14;  int totalStudents = 3;   //calculating pens per student and remaining pen not distributed  int pensPerStudent = totalPens / totalStudents;  int remainingPens = totalPens % totalStudents;   //printing the result  Console.WriteLine("The Pen Per Student is {0} and the remaining pen not distributed is {1}" , pensPerStudent , remainingPens);  } }** |
| --- |

**6. The University is charging the student a fee of INR 125000 for the course. The University is willing to offer a discount of 10%. Write a program to find the discounted amount and discounted price the student will pay for the course.**  
**Hint:**  
Create a variable named fee and assign 125000 to it.  
Create another variable discountPercent and assign 10 to it.  
Compute discount and assign it to the discount variable.  
Compute and print the fee you have to pay by subtracting the discount from the fee.  
**I/P => NONE**  
**O/P => The discount amount is INR \_\_\_ and final discounted fee is INR \_\_\_**



| **using System;  class Solution {  public static void Main() {  // creating variables to store course fee and discount percentage  double fee = 125000;  double discountPercent = 10;    // calculating discount amount and final fee  double discount = (discountPercent / 100) \* fee;  double finalFee = fee - discount;   //printing result  Console.WriteLine("The discount amount is INR {0} and final discounted fee is INR {1}",discount,finalFee);  } }** |
| --- |

**7. Write a Program to compute the volume of Earth in km^3 and miles^3**  
**Hint:** Volume of a Sphere is (4/3) \* pi \* r^3 and radius of earth is 6378 km  
**O/P => The volume of earth in cubic kilometers is \_\_\_\_ and cubic miles is \_\_\_\_**

| **using System;  class Solution {  public static void Main() {  // creating variables to store radius of earth in km and km to miles factor   double radiusInKm = 6378;  double kmToMilesFactor = 1.6;   // calculating volume of earth in km^3 and miles^3  double volumeKm3 = (4.0 / 3.0) \* Math.PI \* Math.Pow(radiusInKm, 3);  double volumeMiles3 = volumeKm3 / Math.Pow(kmToMilesFactor, 3);    // printing result  Console.WriteLine("The volume of earth in cubic kilometers is {0} and cubic miles is {1}" , volumeKm3 , volumeMiles3);  } }** |
| --- |

**8. Create a program to convert distance in kilometers to miles.**  
**Hint:**  
Create a variable km and assign type as double as in double km;  
Create Scanner Object to take user input from Standard Input that is the Keyboard as in Scanner input = new Scanner(System.in);  
Use Scanner Object to take user input for km as in km = input.nextInt();  
Use 1 mile = 1.6 km formulae to calculate miles and show the output  
**I/P => km**  
**O/P => The total miles is \_\_\_ mile for the given \_\_\_ km**

| **using System;  class Solution {  public static void Main() {  // Prompt user for input  Console.WriteLine("Enter the distance in kilometers:");   // Reading input and converting to double  double km = Convert.ToDouble(Console.ReadLine());   // Conversion factor  double miles = km / 1.6;   // printing the result  Console.WriteLine("The total miles is {0} miles for the given {1} kilometers" , miles , km);  } }** |
| --- |

**9. Write a new program similar to the program # 6 but take user input for Student Fee and University Discount**  
**Hint:**  
Create a variable named fee and take user input for fee.  
Create another variable discountPercent and take user input.  
Compute the discount and assign it to the discount variable.  
Compute and print the fee you have to pay by subtracting the discount from the fee.  
**I/P => fee, discountPercent**  
**O/P => The discount amount is INR \_\_\_ and final discounted fee is INR \_\_\_**

| **using System;  class Solution {  public static void Main() {  // prompt user for fee input  Console.Write("Enter the course fee (INR): ");    //reading and converting fee into double  double fee = Convert.ToDouble(Console.ReadLine());   // prompt user for discount percentage input  Console.Write("Enter the discount percentage: ");    //reading and converting discount percentage into double  double discountPercent = Convert.ToDouble(Console.ReadLine());   //calculating discount and finalFee  double discount = (discountPercent / 100) \* fee;  double finalFee = fee - discount;   // printing result  Console.WriteLine("The discount amount is INR {0} and the final discounted fee is INR {1}" , discount , finalFee);  } }** |
| --- |

**10. Write a program that takes your height in centimeters and converts it into feet and inches**  
**Hint:** 1 foot = 12 inches and 1 inch = 2.54 cm  
**I/P => height**  
**O/P => Your Height in cm is \_\_\_ while in feet is \_\_\_ and inches is \_\_\_**

| **using System;  class Solution {  public static void Main() {  // Prompt user for height (in cm) input  Console.Write("Enter your height in centimeters: ");    // Reading and converting height to double  double heightCm = Convert.ToDouble(Console.ReadLine());   // Conversion factors  double cmToInchesFactor = 2.54;  double inchesPerFoot = 12;   //Calculating height in feet and inches  double inches = heightCm / cmToInchesFactor;  double feet = (inches / inchesPerFoot);     // printing the result  Console.WriteLine("Your height in cm is {0}, in feet is {1} feet and inches is {2}", heightCm , feet , inches);  } }** |
| --- |

**11. Write a program to create a basic calculator that can perform addition, subtraction, multiplication, and division. The program should ask for two numbers (floating point) and perform all the operations**  
**Hint:**  
Create a variable number1 and number 2 and take user inputs.  
Perform Arithmetic Operations of addition, subtraction, multiplication, and division and assign the result to a variable and finally print the result  
**I/P => number1, number2**  
**O/P => The addition, subtraction, multiplication and division value of 2 numbers \_\_\_ and \_\_\_ is \_\_\_, \_\_\_\_, \_\_\_\_, and \_\_\_**

| **using System;  class Solution {  public static void Main() {  // Prompt user for number 1 input  Console.Write("Enter the first number: ");**  **// Reading and converting number1 to double  double number1 = Convert.ToDouble(Console.ReadLine());**  **// Prompt user for number 2 input  Console.Write("Enter the second number: ");**  **// Reading and converting number2 to double  double number2 = Convert.ToDouble(Console.ReadLine());   // Performing arithmetic operations  double addition = number1 + number2;  double subtraction = number1 - number2;  double multiplication = number1 \* number2;  double division = number1 / number2;   // printing results   Console.WriteLine("The addition, subtraction, multiplication and division values of 2 numbers {0} and {1} are {2}, {3}, {4}, and {5}",  number1, number2, addition, subtraction, multiplication, division);  } }** |
| --- |

**12. Write a program that takes the base and height to find the area of a triangle in square inches and square centimeters**  
**Hint:** Area of a Triangle is ½ \* base \* height  
**I/P => base, height**  
**O/P => Your Height in cm is \_\_\_ while in feet is \_\_\_ and inches is \_\_\_**

| **using System;  class Solution {  public static void Main() {    // Prompt user for base inputs  Console.WriteLine("Enter the base of the triangle in cm: ");    //reading and converting base to double  double baseCm = Convert.ToDouble(Console.ReadLine());   // Prompt user for height inputs  Console.WriteLine("Enter the height of the triangle in cm: ");    //reading and converting height to double  double heightCm = Convert.ToDouble(Console.ReadLine());   //conversion factor  double cm2ToIn2 = 6.4516;    // Calculating area in cm2 and inches2  double areaCm2 = 0.5 \* baseCm \* heightCm;  double areaIn2 = areaCm2 / cm2ToIn2;    // printing results  Console.WriteLine("The area of the triangle is {0} square cm and {1} square inches", areaCm2 , areaIn2);  } }** |
| --- |

**13. Write a program to find the side of the square whose perimeter you read from user**  
**Hint:** Perimeter of Square is 4 times side  
**I/P => perimeter**  
**O/P => The length of the side is \_\_\_ whose perimeter is \_\_\_\_**

| **using System;  class Solution {  public static void Main() {  // Prompt user for perimeter input  Console.Write("Enter the perimeter of the square: ");    // reading and converting perimeter to double  double perimeter = Convert.ToDouble(Console.ReadLine());   // Calculating side  double side = perimeter / 4;   // printing result  Console.WriteLine("The length of the side is {0} units whose perimeter is {1} units" , side , perimeter);  } }** |
| --- |

**14. Write a program to find the distance in yards and miles for the distance provided by the user in feet**  
**Hint:** 1 mile = 1760 yards and 1 yard is 3 feet  
**I/P => distanceInFeet**  
**O/P => Your Height in cm is \_\_\_ while in feet is \_\_\_ and inches is \_\_\_**

| **using System;  class Solution {  public static void Main() {  // Prompt user for distance in feet  Console.Write("Enter the distance in feet: ");    //reding and converting distance to double  double distanceInFeet = Convert.ToDouble(Console.ReadLine());   // Convert to yards and miles  double yards = distanceInFeet / 3;  double miles = yards / 1760;   // printing results  Console.WriteLine("The distance is {0} feet, which is {1} yards and {2} miles" , distanceInFeet , yards , miles);  } }** |
| --- |

**15. Write a program to input the unit price of an item and the quantity to be bought. Then, calculate the total price.**  
**Hint:** NA  
**I/P => unitPrice, quantity**  
**O/P => The total purchase price is INR \_\_\_ if the quantity \_\_\_ and unit price is INR \_\_\_**

| **using System;  class Solution {  public static void Main() {  // Prompt user for unit price  Console.Write("Enter the unit price (INR): ");  double unitPrice = Convert.ToDouble(Console.ReadLine());   // Prompt user for quantity  Console.Write("Enter the quantity: ");  int quantity = Convert.ToInt32(Console.ReadLine());   // Calculating total price  double totalPrice = unitPrice \* quantity;   // printing result  Console.WriteLine("The total purchase price is INR {0} if the quantity is {1} and the unit price is INR {2}" , totalPrice , quantity , unitPrice);  } }** |
| --- |

**16. Create a program to find the maximum number of handshakes among N number of students.**  
**Hint:**  
Get integer input for numberOfStudents variable.  
Use the combination = (n \* (n - 1)) / 2 formula to calculate the maximum number of possible handshakes.  
Display the number of possible handshakes.

| using System;  class Solution {  public static void Main() {  // Prompt user for number of students  Console.WriteLine("Enter the number of students: ");  int numberOfStudents = Convert.ToInt32(Console.ReadLine());   // Calculating maximum number of handshakes  int handshakes = (numberOfStudents \* (numberOfStudents - 1)) / 2;   // printing result  Console.WriteLine("The number of handshakes among {0} students is {1}" , numberOfStudents , handshakes);  } } |
| --- |