**CSharp**

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# # Question 1

# # Code screenshot

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# # code

using System;

using System.Collections.Generic;

using System.Linq;

using System.Text;

using System.Threading.Tasks;

namespace Assignment2\_930321

{

internal class Assignment2

{

public static void Main(string[] args)

{

Console.WriteLine("\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*");

Console.WriteLine("Q.1 Mortgage Payment Calculator");

Console.WriteLine("\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*");

// taking inputs from user

double loanAmount = GetValidDoubleInput("Enter the loan amount: ", 100000, 10000000);

double interestRate = GetValidDoubleInput("Enter the annual interest rate: ", 0.25, 25);

int years = GetValidIntInput("Enter the loan term: ", 15, 35);

double downPayment = GetValidDoubleInput("Enter the down payment: ", 0, loanAmount);

// call the function to calculate the mortgage

double monthlyMortgagePayment = CalculateMonthlyMortgagePayment(loanAmount, interestRate, years, downPayment);

Console.WriteLine($"Your monthly mortgage payment is: {monthlyMortgagePayment:C}");

Console.WriteLine("\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*");

Console.WriteLine("Q.2 ");

Console.WriteLine("\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*");

}

public static double GetValidDoubleInput(string prompt, double min, double max)

{

double value;

bool isValid = false;

do

{

Console.Write(prompt);

string input = Console.ReadLine();

if (double.TryParse(input, out value))

{

if (value >= min && value <= max)

{

isValid = true;

}

else

{

Console.WriteLine($"Value must be between {min} and {max}.");

}

}

else

{

Console.WriteLine("Invalid input. Please enter a numeric value.");

}

} while (!isValid);

return value;

}

public static int GetValidIntInput(string prompt, int min, int max)

{

int value;

bool isValid = false;

do

{

Console.Write(prompt);

string input = Console.ReadLine();

if (int.TryParse(input, out value))

{

if (value >= min && value <= max)

{

isValid = true;

}

else

{

Console.WriteLine($"Value must be between {min} and {max}.");

}

}

else

{

Console.WriteLine("Invalid input. Please enter an integer value.");

}

} while (!isValid);

return value;

}

public static double CalculateMonthlyMortgagePayment(double loanAmount, double interestRate, int years, double downPayment)

{

double monthlyInterestRate = interestRate / 12 / 100;

double monthlyLoanTerm = years \* 12;

// double intermediate = Math.Pow((1 + interestRate), monthlyLoanTerm);

double remainingLoanAmount = loanAmount - downPayment;

double mortgageAmount = remainingLoanAmount \* (monthlyInterestRate \* Math.Pow(1 + monthlyInterestRate, monthlyLoanTerm)) /

(Math.Pow(1 + monthlyInterestRate, monthlyLoanTerm) - 1);

return mortgageAmount;

}

}

}

# # output Screenshot

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# # Question 2

# # Code screenshot

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# # Code

using System;

using System.Collections.Generic;

using System.Linq;

using System.Text;

using System.Threading.Tasks;

namespace Assignment2Q2\_930321

{

internal class Assignment2Q2

{

public static void Main(string[] args)

{

Console.WriteLine("\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*");

Console.WriteLine("Question no. 2");

Console.WriteLine("\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*");

Console.WriteLine("Welcome!");

// asking user to choose a format

Console.WriteLine("Enter 'c' for 10x15cm, anything else for 8x11in: ");

string formatChoice = Console.ReadLine().ToLower();

double costPerPicture = 0;

if (formatChoice == "c")

{

costPerPicture = 0.20;

}

else

{

costPerPicture = 0.25;

}

// Asking if it is the first time the customer orders through the company

Console.WriteLine("Is this your first time here? Type 'y' for 'yes': ");

string isFirstTimeInput = Console.ReadLine().ToLower();

bool isFirstTimeCustomer = isFirstTimeInput == "y";

// Asking for the number of copies

Console.WriteLine("Enter a number of copies: ");

int numberOfCopies = int.Parse(Console.ReadLine());

// Calculate the total cost

double totalCost = numberOfCopies \* costPerPicture;

bool hasDiscount = false;

if (numberOfCopies > 50)

{

totalCost \*= 0.9;

hasDiscount = true;

}

bool hasCoupon = false;

if (isFirstTimeCustomer && totalCost > 5)

{

totalCost -= 3;

hasCoupon = true;

}

Console.WriteLine("We cherish our new customers, so we are giving you a $3 discount! Your total is: $" + totalCost.ToString("F2"));

if (hasDiscount)

{

Console.WriteLine("You had a 10% discount!");

}

}

}

}

# #Output screenshot

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