 Marwadi University	Marwadi University Faculty of Engineering and Technology Department of Information and Communication Technology
Subject: .NET Technologies (01CT1518)	Name: Shashank Bagda
	Enrolment No: 92100133020

```

using System;
using System.Collections.Generic;
using System.Linq;
using System.Net.NetworkInformation;
using System.Text;
using System.Threading;
using System.Threading.Tasks;
using System.Xml.Linq;

namespace Program
{
    class Assignment_1
    {
        public static void Question_1()
        {

            Console.WriteLine("\nSolution of Question 1\n");

            //1. Write a program to get user input as below :
            //  A) Enter First Number:
            //  B) Enter Second Number:
            //  C) Choose Operation to perform(1 - Addition, 2 - Subtraction, 3 - Multiplication,
4 - Division, 5 - Modulo Division

            double one, two;

            Console.WriteLine("--- Welcome to My Calculator ---\n");


            Console.Write("\nEnter Number 1 : ");
            one = Convert.ToDouble(Console.ReadLine());

            Console.Write("Enter Number 2 : ");
            two = Convert.ToDouble(Console.ReadLine());

            Console.WriteLine("\n- Please select the Operation -\n");

            Console.WriteLine(
                "Enter 1 for Addition\n" +
                "Enter 2 for Subtraction\n" +
                "Enter 3 for Multiplication\n" +

```

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"Enter 4 for Division\n" +
"Enter 5 for Modulas\n");

```

```

Console.Write("Enter Choice : ");
int choice = Convert.ToInt32(Console.ReadLine());

```

```


switch (choice)
{
    case 1:
        Console.WriteLine("\nThe Addition of {0} + {1} is : " + (one + two) + "\n", one,
two);
        break;
    case 2:
        Console.WriteLine("\nThe Substraction of {0} - {1} is : " + (one - two) + "\n",
one, two);
        break;
    case 3:
        Console.WriteLine("\nThe Multiplication of {0} * {1} is : " + (one * two) + "\n",
one, two);
        break;
    case 4:
        try
        {
            Console.WriteLine("\nThe Division {0} / {1} is : " + Convert.ToDouble(one /
two) + "\n", one, two);
        }
        catch (DivideByZeroException e)
        {
            Console.WriteLine("\n" + e.Message + "\n");
        }
        break;
    case 5:
        Console.WriteLine("\nThe Modulo Division of {0} % {1} is : " + (one % two) +
"\n", one, two);
        break;
}
}

```

```

public static void Question_2()
{

```

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```

Console.WriteLine("\nSolution of Question 2\n");

//2. Write a program to Show different input options based on UserType
// A) If Student userType is selected then should have different options to choose
// B) If Faculty userType is selected then should have different options to choose

Console.WriteLine("Select UserType: ");
Console.WriteLine("A) Student");
Console.WriteLine("B) Faculty");


// Read user input for UserType selection
char userType = Console.ReadKey().KeyChar;
Console.WriteLine(); // Move to the next line

if (userType == 'A' || userType == 'a')
{
    // Student UserType selected
    Console.WriteLine("Options for Student:");
    Console.WriteLine("1) View Grades");
    Console.WriteLine("2) Enroll in Courses");
    Console.WriteLine("3) View Schedule");
    // Add more options for Student as needed
}
else if (userType == 'B' || userType == 'b')
{
    // Faculty UserType selected
    Console.WriteLine("Options for Faculty:");
    Console.WriteLine("1) Enter Grades");
    Console.WriteLine("2) Schedule Exams");
    Console.WriteLine("3) View Student Roster");
    // Add more options for Faculty as needed
}
else
{
    Console.WriteLine("Invalid UserType selection.");
}

}

public static void Question_3()
{

```

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```
Console.WriteLine("\nSolution of Question 3\n");
```

//3. Write a program to Generate Student mark sheet where user have to Enter subject wise marks and at the end user's inputs are completed, Show Marksheet depending upon user inputs.

```
Console.WriteLine("Welcome to the Student Mark Sheet Generator!");
Console.Write("Enter student name: ");
string studentName = Console.ReadLine();
```

```
Console.Write("Enter number of subjects: ");
int numofSubjects = int.Parse(Console.ReadLine());
```

```
Dictionary<string, int> subjectMarks = new Dictionary<string, int>();
```


```
for (int i = 0; i < numofSubjects; i++)
{
    Console.Write($"Enter marks for Subject {i + 1}: ");
    int marks = int.Parse(Console.ReadLine());
    string subject = $"Subject {i + 1}";
    subjectMarks.Add(subject, marks);
}
```

```
// Calculate total marks
int totalMarks = 0;
foreach (var mark in subjectMarks.Values)
{
    totalMarks += mark;
}
```

```
// Calculate percentage
double percentage = (double)totalMarks / (numofSubjects * 100) * 100;
```

```
// Display mark sheet
Console.Clear();
Console.WriteLine("***** Student Mark Sheet *****");
Console.WriteLine($"Student Name: {studentName}");
Console.WriteLine("Subject-wise Marks:");
foreach (var entry in subjectMarks)
{

```

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```


        Console.WriteLine($"{entry.Key}: {entry.Value}");
    }
    Console.WriteLine($"Total Marks: {totalMarks}");
    Console.WriteLine($"Percentage: {percentage}%");

    // Check grade
    string grade = GetGrade(percentage);
    Console.WriteLine($"Grade: {grade}");

    Console.WriteLine("*****");
    Console.WriteLine("Thank you for using Mark Sheet Generator!");
    Console.WriteLine("Press any key to exit...");
    Console.ReadKey();
}

static string GetGrade(double percentage)
{
    if (percentage >= 90)
    {
        return "A+";
    }
    else if (percentage >= 80)
    {
        return "A";
    }
    else if (percentage >= 70)
    {
        return "B";
    }
    else if (percentage >= 60)
    {
        return "C";
    }
    else if (percentage >= 50)
    {
        return "D";
    }
    else
    {
        return "F";
    }
}

```

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```

}

public static void Question_4()
{
    Console.WriteLine("\nSolution of Question 4\n");

    //4. Write a program to get user loan amount and print Emi details with
    //Principal and Loan amount segregation for each month EMI.

    Console.WriteLine("Welcome to EMI Calculator!");

    Console.Write("Enter Loan Amount: ");
    double loanAmount = double.Parse(Console.ReadLine());

    Console.Write("Enter Annual Interest Rate (%): ");
    double annualInterestRate = double.Parse(Console.ReadLine());

    Console.Write("Enter Loan Term (in years): ");
    int loanTermInYears = int.Parse(Console.ReadLine());

    // Monthly interest rate
    double monthlyInterestRate = annualInterestRate / 100 / 12;


    // Total number of payments
    int totalPayments = loanTermInYears * 12;

    // Calculate EMI
    double emi = (loanAmount * monthlyInterestRate) / (1 - Math.Pow(1 +
monthlyInterestRate, -totalPayments));

    // Print EMI details with colors
    Console.Clear();
    Console.ForegroundColor = ConsoleColor.Green;
    Console.WriteLine("***** EMI Details *****");
    Console.ResetColor();
    Console.WriteLine($"Loan Amount: {loanAmount:C}");
    Console.WriteLine($"Annual Interest Rate: {annualInterestRate}%");
    Console.WriteLine($"Loan Term: {loanTermInYears} years");
    Console.WriteLine($"Monthly EMI: {emi:C}");

    Console.ForegroundColor = ConsoleColor.Cyan;

```

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```

Console.WriteLine("\nEMI Breakdown for Each Month:");
Console.ResetColor();

double remainingLoanAmount = loanAmount;
for (int month = 1; month <= totalPayments; month++)
{
    double interestForMonth = remainingLoanAmount * monthlyInterestRate;
    double principalForMonth = emi - interestForMonth;
    remainingLoanAmount -= principalForMonth;

    Console.WriteLine($"Month {month}: Principal: {principalForMonth:C}, Interest:
{interestForMonth:C}, Remaining Loan Amount: {remainingLoanAmount:C}");
}


Console.ForegroundColor = ConsoleColor.Green;
Console.WriteLine("\nEMI Calculation Completed!");
Console.ResetColor();
}

//5. Write programs to create below patterns
public static void Question_5A()
{
    Console.WriteLine("\nSolution of Question 5-A\n");

    //A)
    // *
    // * #
    // * # *
    // * # * #
    // * # * # *

    for (int i = 1; i < 6; i++)
    {
        for (int j = 0; j < i; j++)
        {
            if (j % 2 != 0)
            {
                Console.Write("#");
            }
            else
            {

```

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```

        Console.Write("*");
    }
}
Console.WriteLine();
}
}

public static void Question_5B()
{

    Console.WriteLine("\nSolution of Question 5-B\n");
    //B)
    // 1
    // # #
    // 4 5 6
    // * * * *
    // 11 12 13 14 15
    int num = 1;
    for (int i = 1; i < 6; i++)
    {
        for (int j = 0; j < i; j++)
        {
            if (i % 2 != 0)
            {
                Console.Write(num + " ");
            }
            else
            {
                if(i == 2)
                {
                    Console.Write("# ");
                }
                else
                {
                    Console.Write("* ");
                }
            }
            //Console.Write("*");
        }
        num ++;
    }
    Console.WriteLine();
}

```


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```

    }

}


public static void Question_5C()
{
    Console.WriteLine("\nSolution of Question 5-C\n");
    // C)
    // 1
    // 2 1
    // 3 2 1
    // 4 3 2 1
    // 5 4 3 2 1

    for (int i = 1; i < 6; i++)
    {
        for (int j = 0; j < i; j++)
        {
            Console.Write(-(j-i) + " ");
        }
        Console.WriteLine();
    }
}

public static void Question_5D()
{
    Console.WriteLine("\nSolution of Question 5-D\n");
    //D)
    // * # * # *
    // $ ! $ !
    // * # *
    // $ !
    // *

    for (int i = 1; i < 6; i++)
    {
        for (int j = 6; j > i; j--)
        {
            if (i % 2 != 0)
            {

```

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```

        if (j % 2 != 0)
        {
            Console.Write("#");
        }
        else
        {
            Console.Write("*");
        }
    }
    else
    {
        if (j % 2 != 0)
        {
            Console.Write("!");
        }
        else
        {
            Console.Write("$");
        }
    }
}
Console.WriteLine();
}
}
static void Main(string[] args)
{
    //Question_1();
    //Question_2();
    //Question_3();
    //Question_4();
    //Question_5A();
    //Question_5B();
    //Question_5C();
    //Question_5D();
}
}
}

```