# Program 1

using System;

using System.Collections.Generic;

namespace EmployeeDB

{

class Employee

{

// class instance variables

string first\_Name;

string last\_Name;

decimal monthly\_Salary;

// Class Constructor

public Employee(string \_firstName, string \_lastName, decimal \_monthlySalary)

{

first\_Name = \_firstName;

last\_Name = \_lastName;

monthly\_Salary = \_monthlySalary;

}

// properties

public string FirstName

{

get => first\_Name;

set => first\_Name = value;

}

public string LastName

{

get => last\_Name;

set => last\_Name = value;

}

public decimal MonthlySalary

{

get => monthly\_Salary;

set

{

if (value < 0)

throw new ArgumentOutOfRangeException(

$"{nameof(value)} must not be less than zero");

monthly\_Salary = value;

}

}

public override string ToString()

{

return $"Employee: {FirstName} {LastName} annual salary is US${MonthlySalary \* 12}";

}

}

class Program

{

static void Main(string[] args)

{

Employee emp1 = new Employee("Nikhil", "Patil", 200000);

Employee emp2 = new Employee("Karim", "Khan", 220000);

Employee emp3 = new Employee("Denis", "Brown", 185000);

List <Employee> EmployeeData = new List<Employee>();

EmployeeData.Add(emp1);

EmployeeData.Add(emp2);

EmployeeData.Add(emp3);

foreach (var employee in EmployeeData)

{

Console.WriteLine(employee);

}

foreach (var employee in EmployeeData)

{

employee.MonthlySalary = getNewRaisedSalary(10, employee);

}

Console.WriteLine();

foreach (var employee in EmployeeData)

{

Console.WriteLine(employee);

}

Console.ReadKey();

}

public static decimal getNewRaisedSalary(decimal raise, Employee emp)

{

decimal newMonthlySalary = (1 + raise / 100) \* emp.MonthlySalary;

return newMonthlySalary;

}

}

}

# Program 2

using System;

using System.Collections.Generic;

namespace BarChart

{

class Program

{

static void Main(string[] args)

{

Console.WriteLine("The application anticipates user data and prints\nthe horizontal barcharts. Here is an example");

var testData = new List<int> { 3, 5, 8, 13, 21 };

displayBarChart(testData);

Console.WriteLine();

// Accept the user input

var numbers = getUserData();

// print the charts

displayBarChart(numbers);

Console.ReadKey();

}

public static List<int> getUserData()

{

List<int> data = new List<int>();

Console.WriteLine("Enter 3 numbers between 1 and 30");

for (int i = 0; i < 3; i++)

{

int \_value = 0;

int.TryParse(Console.ReadLine(), out \_value);

data.Add(\_value);

}

return data;

}

public static void displayBarChart(List<int> data)

{

foreach (var \_value in data)

{

for (int i = 0; i < \_value; i++)

{

Console.Write("\*");

}

Console.WriteLine();

}

}

}

}

# Program 3

using System;

namespace GuessTheNumber

{

class Program

{

static void Main(string[] args)

{

do

{

Random randNumber = new Random();

int guessAnswer = randNumber.Next(1, 1000);

int playerGuess = 0;

Console.WriteLine("Guess a number between 1 and 1000");

while (true)

{

playerGuess = getPlayerGuess();

if (playerGuess > guessAnswer)

{

Console.WriteLine("Too high. Try again");

}

else if (playerGuess < guessAnswer)

{

Console.WriteLine("Too low. Try again");

}

else

{

Console.WriteLine("Congratulations you guessed the number");

break;

}

}

Console.WriteLine("Do you want to continue playing? Y or N");

} while (Console.ReadLine().ToLower() == "y");

}

public static int getPlayerGuess()

{

int playerGuess = 0;

try

{

int.TryParse(Console.ReadLine(), out playerGuess);

}

catch (Exception e)

{

Console.WriteLine("Please enter an integer between 1 and 1000");

Console.WriteLine($"Error: {e.Message}");

playerGuess = getPlayerGuess();

}

return playerGuess;

}

}

}

# Program 4

using System;

namespace AITeacher

{

class Program

{

static void Main(string[] args)

{

generateQuiz();

}

static void generateQuiz()

{

Random number = new Random();

int prod\_one = Convert.ToInt32(number.Next(0, 9));

int prod\_two = Convert.ToInt32(number.Next(0, 9));

Console.WriteLine($"How much is {prod\_one} times {prod\_two}");

int product = prod\_one \* prod\_two;

int studentResponse = 0;

do

{

int.TryParse(Console.ReadLine(), out studentResponse);

if (studentResponse == product)

{

Console.WriteLine("Very Good");

generateQuiz();

}

else if (studentResponse != product)

{

Console.WriteLine("No. Please Try Again");

}

} while (studentResponse != product);

}

}

}