Exercise 7: Financial Forecasting  
  
using System;

using System.Collections.Generic;

using System.Linq;

namespace FinancialForecasting

{

class Program

{

static void Main(string[] args)

{

// Historical data: Month numbers (1 to 6) and revenues

List<int> months = new List<int> { 1, 2, 3, 4, 5, 6 };

List<double> revenues = new List<double> { 1000, 1200, 1300, 1500, 1700, 1800 };

Console.WriteLine("Historical Revenue Data:");

for (int i = 0; i < months.Count; i++)

{

Console.WriteLine($"Month {months[i]}: ${revenues[i]}");

}

// Forecast revenue for the next 3 months using simple linear regression

Console.WriteLine("\nForecasted Revenue:");

for (int i = 7; i <= 9; i++)

{

double forecast = ForecastRevenue(months, revenues, i);

Console.WriteLine($"Month {i}: ${Math.Round(forecast, 2)}");

}

}

static double ForecastRevenue(List<int> months, List<double> revenues, int futureMonth)

{

int n = months.Count;

double sumX = months.Sum();

double sumY = revenues.Sum();

double sumXY = months.Zip(revenues, (x, y) => x \* y).Sum();

double sumX2 = months.Sum(x => x \* x);

double slope = (n \* sumXY - sumX \* sumY) / (n \* sumX2 - sumX \* sumX);

double intercept = (sumY - slope \* sumX) / n;

return slope \* futureMonth + intercept;

}

}

}  
  
  
  
Output:  
