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COP2360 C# Programming I

**Module 5 - TUTORIAL 7-4: Completing the Test Score List Application**

SCREENSHOT:

Graphical user interface, text, application

Description automatically generated

CODE:

using System;

using System.Collections.Generic;

using System.ComponentModel;

using System.Data;

using System.Drawing;

using System.Linq;

using System.Text;

using System.Windows.Forms;

using System.IO;

namespace Test\_Score\_List

{

public partial class Form1 : Form

{

public Form1()

{

InitializeComponent();

}

private void exitButton\_Click(object sender, EventArgs e)

{

this.Close();

}

private void getScoresButton\_Click(object sender, EventArgs e)

{

double averageScore; // To hold the average score

int numAboveAverage; // Number of above average scores

int numBelowAverage; // Number of below average scores

// Create a List to hold the scores.

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

// Read the scores from the file into the List.

ReadScores(scoresList);

// Display the scores.

DisplayScores(scoresList);

// Display the average score.

averageScore = Average(scoresList);

AverageLabel.Text = averageScore.ToString("n1");

// Display the number of above average scores.

numAboveAverage = AboveAverage(scoresList);

aboveAverageLabel.Text = numAboveAverage.ToString();

// Display the number of below average scores.

numBelowAverage = BelowAverage(scoresList);

belowAverageLabel.Text = numBelowAverage.ToString();

}

// The ReadScores method reads the scores from the TestScores.txt file into the scoresList parameter.

private void ReadScores(List<int> scoresList)

{

try

{

// Open the TestScores.txt file

StreamReader inputFile = File.OpenText("TestScores.txt");

while (!inputFile.EndOfStream)

{

//read scores into list

scoresList.Add(int.Parse(inputFile.ReadLine()));

}

//close file

inputFile.Close();

}

catch (Exception ex)

{

//dispay error message

MessageBox.Show(ex.Message);

}

}

// The DisplayScores method displays the contents of the scoresList parameter in the ListBox control.

private void DisplayScores(List<int> scoresList)

{

foreach (int score in scoresList)

{

testScoresListBox.Items.Add(score);

}

}

// the average method returns the average of the list values

private double Average(List<int> scoresList)

{

//initializes total of values accumulator

int total = 0;

// holds average

double average;

//calcs the total of the scores

foreach (int score in scoresList)

{

total += score;

}

//calc the avg of the scores

average = (double)total / scoresList.Count;

//return the results

return average;

}

// The AboveAverage method returns the number of above average scores in scoresList.

private int AboveAverage(List<int> scoresList)

{

int numAbove = 0; // Accumulator

// Get the average score.

double avg = Average(scoresList);

// Count the number of above average scores.

foreach (int score in scoresList)

{

if (score > avg)

{

numAbove++;

}

}

return numAbove;

}

// The BelowAverage method returns the number of below average scores in scoresList.

private int BelowAverage(List<int> scoresList)

{

int numBelow = 0; // Accumulator

// Get the average score.

double avg = Average(scoresList);

// Count the number of below average scores.

foreach (int score in scoresList)

{

if (score < avg)

{

numBelow++;

}

}

// Return the number of below average scores.

return numBelow;

}

}

}

//Collaboration Statement: I worked alone.