```
// This program will input an undetermined number of student names
// and a number of grades for each student. The number of grades is
// given by the user. The grades are stored in an array.
// Two functions are called for each student.
// One function will give the numeric average of their grades.
// The other function will give a letter grade to that average.
// Grades are assigned on a 10 point spread.
// 90-100 A      80-89 B          70-79 C          60-69 D          Below 60 F

// PLACE YOUR NAME HERE

#include <iostream>
#include <iomanip>
using namespace std;

const  int MAXGRADE = 25;// maximum number of grades per student
const  int MAXCHAR = 30;   // maximum characters used in a name

typedef char StringType30[MAXCHAR + 1];          // character array data type for names
                                                                                    // having 30
characters or less.

typedef         float GradeType[MAXGRADE];              // one dimensional integer array data
type

float findGradeAvg(GradeType, int);          // finds grade average by taking array of
                                                                                    // grades and number
of grades as parameters

char findLetterGrade(float);                    // finds letter grade from average given
                                                                                    // to it as a parameter
int main()
{
        StringType30 firstname, lastname;    // two arrays of characters defined
        int numOfGrades;                                    // holds the number of grades
        GradeType grades;                                   // grades defined as a one
dimensional array
        float average;                                      // holds the average of a student's
grade
        char moreInput;                                             // determines if there is more
input

        cout << setprecision(2) << fixed << showpoint;
```

```
        // Input the number of grades for each student
        cout << "Please input the number of grades each student will receive." << endl
             << "This must be a number between 1 and " << MAXGRADE << " inclusive"
             << endl;
        cin >> numOfGrades;

        while (numOfGrades > MAXGRADE || numOfGrades < 1)
        {
                cout << "Please input the number of grades for each student." << endl
                << "This must be a number between 1 and " << MAXGRADE
                << " inclusive\n";
                cin >> numOfGrades;
        }

        // Input names and grades for each student
        cout << "Please input a y if you want to input more students"
            << " any other character will stop the input" << endl;
        cin >> moreInput;

        while (moreInput == 'y' || moreInput == 'Y')
        {
                cout << "Please input the first name of the student" << endl;
                cin >> firstname;

                cout << endl << "Please input the last name of the student" << endl;
                cin >> lastname;

                for (int count = 0; count < numOfGrades; count++)
                {
                        cout << endl << "Please input a grade" << endl;
        int newGrade = 0;
                        // Fill in the input statement to place grade in the array
                        cin >> grades[count];

                }

                cout << firstname << " " << lastname << " has an average of " <<
findGradeAvg(grades,numOfGrades);

                // Fill in code to get and print average of student to screen

                // Fill in call to get and print letter grade of student to screen
```

```
            float letterVal = findGradeAvg(grades,numOfGrades);

            cout << " and and letter value of " << findLetterGrade(letterVal) << endl;

            cout << endl << endl << endl;

            cout << "Please input a y if you want to input more students"
                 << " any other character will stop the input" << endl;
            cin >> moreInput;
        }

        return 0;
}

//*********************************************************************
// findGradeAvg
//
// task:       This function finds the average of the
//             numbers stored in an array.
//
// data in:            an array of integer numbers
// data returned: the average of all numbers in the array
//
//*********************************************************************

float findGradeAvg(GradeType array, int numGrades)
{
   float sum = 0;                       // holds the sum of all the numbers

        for (int pos = 0; pos < numGrades; pos++)
            sum = sum + array[pos];

        return (sum / numGrades);    // returns the average
}

//*********************************************************************
// findLetterGrade
//
// task:       This function finds the letter grade for the number
//             passed to it by the calling function
//
// data in:            a floating point number
```

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// data returned: the grade (based on a 10 point spread) based on the
//                number passed to the function
//
//*************************************************************************

char findLetterGrade(float numGrade)
{
          if (numGrade <= 100 && numGrade >= 90)
       return 'A';
    else if (numGrade < 90 && numGrade >= 80)
       return 'B';
    else if (numGrade < 80 && numGrade >= 70)
       return 'C';
    else if (numGrade < 70 && numGrade >= 60)
       return 'D';
    else
       return 'F';
}
```