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// This program will read in a group of test scores (positive integers from 1 to 100)
// from the keyboard and then calculate and output the average score
// as well as the highest and lowest score. There will be a maximum of 100 scores.

// Michael Steele

#include <iostream>
using namespace std;

typedef int GradeType[100];          // declares a new data type:
                                     // an integer array of 100 elements

float findAverage(const GradeType, int);    // finds average of all grades
int  findHighest(const GradeType, int);     // finds highest of all grades
int  findLowest(const GradeType, int);     // finds lowest of all grades

int main()
{
    GradeType grades;    // the array holding the grades.
    int numberOfGrades; // the number of grades read.
    int pos;             // index to the array.
    float avgOfGrades;   // contains the average of the grades.
    int highestGrade;    // contains the highest grade.
    int lowestGrade;     // contains the lowest grade.

    // Read in the values into the array
    pos = 0;
    cout << "Please input a grade from 1 to 100, (or -99 to stop)" << endl;
    cin >> grades[pos];

    while (grades[pos] != -99)
    {
        // Fill in the code to read the grades
        pos++;
        cin >> grades[pos];
    }

    numberOfGrades = pos;    // Fill blank with appropriate identifier
    // call to the function to find average
    avgOfGrades = findAverage(grades, numberOfGrades);

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        cout << endl << "The average of all the grades is " << avgOfGrades << endl;

        // Fill in the call to the function that calculates highest grade
        highestGrade = findHighest(grades, numberOfGrades);
        cout << endl << "The highest grade is " << highestGrade << endl;

        // Fill in the call to the function that calculates lowest grade
        // Fill in code to write the lowest to the screen
        lowestGrade = findLowest(grades, numberOfGrades);
        cout << endl << "The Lowest grade is " << lowestGrade << endl;

        return 0;
}

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//*****
// findAverage
//
// task:    This function receives an array of integers and its size.
//          It finds and returns the average of the numbers in the array
// data in:    array of floating point numbers
// data returned: average of the numbers in the array
//
//*****

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float findAverage(const GradeType array, int size)
{
    float sum = 0;           // holds the sum of all the numbers

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

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

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//*****
// findHighest
//
// task:    This function receives an array of integers and its size.
//          It finds and returns the highest value of the numbers in
//          the array
// data in:    array of floating point numbers
// data returned: highest value of the numbers in the array
//

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//*****

int    findHighest(const GradeType array, int size)
{
    int highest = 0;

    for(int i = 0; i < size; i++)
    {
        if (array[i] > highest)
        {
            highest = array[i];
        }
    }
    return highest;
}

//*****
// findLowest
//
// task:    This function receives an array of integers and its size.
//           It finds and returns the lowest value of the numbers in
//           the array
// data in:    array of floating point numbers
// data returned: lowest value of the numbers in the array
//
//*****

int    findLowest(const GradeType array, int size)
{
    // Fill in the code for this function
    int lowest=100;

    for(int i = 0; i < size; i++)
    {
        if (array[i] < lowest)
        {
            lowest = array[i];
        }
    }
    return lowest;
}

```

