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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.

// PLACE YOUR NAME HERE

#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)
    {
        // breaks if the grade entered is -99
        cin >> grades[pos];
        if (grades[pos] == -99)
            break;
        pos++;
    }

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

    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, pos);

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    cout << endl << "The highest grade is " << highestGrade << endl;

    // Fill in the call to the function that calculates lowest grade
    lowestGrade = findLowest(grades, pos);

    // Fill in code to write the lowest to the screen
    cout << endl << "The lowest grade is " << lowestGrade << endl;

    return 0;
}

//*****
***
// 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
//
//*****
***

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
}

//*****
// 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
//
//*****

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

    for (int i = 1; i < size; i++)
    {
        if (array[i] > highest)

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        highest = array[i];
    }

    return highest; // returning the highest number in the array
}

//*****
// 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

    double lowest = array[0];

    for (int i = 1; i < size; i++)
    {
        if (array[i] < lowest)
            lowest = array[i];
    }

    return lowest;
}

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