# Array Problems

#include <iostream>

#include <string>

#include <cstdlib>

#include <ctime>

1. **Write a program that prompts the user to enter five test grades. Store each test grade in an array. After the grades are entered, use a for loop to compute the sum and then compute the average grade from the sum.**

int grade;

int Grades[5];

int sum = 0;

double average = 0.0;

for (unsigned i = 0; i < 5; ++i)

{

cout << "Enter a number: ";

cin >> Grades[i];

}

cout << endl;

for (unsigned j = 0; j < 5; ++j)

{

cout << Grades[j] << " ";

sum = sum + Grades[j];

}

cout << "\n" << "Sum: " << sum << endl;

average = sum / 5;

cout << "Average: " << average << endl << endl;

1. **Modify problem 1 so that you also have a second array of strings that stores the student's names. This array should parallel the grade array so that the first student's name is in position 0 of the names array and their test score is in position 0 of the grades array, and continue this for the rest of the students. Write a for loop that displays each student's name along with their grade.**

string Names[5];

int Grades[5];

int sum = 0;

double average = 0.0;

for (unsigned i = 0; i < 5; ++i)

{

cout << "Enter a name: ";

cin >> Names[i];

cout << "Enter a grade: ";

cin >> Grades[i];

}

cout << endl;

for (unsigned j = 0; j < 5; ++j)

{

cout << Names[j] << ":" << Grades[j] << " ";

sum = sum + Grades[j];

}

cout <<endl;

cout << "\n" << "Sum: " << sum << endl;

average = sum / 5;

cout << "Average: " << average << endl << endl;

1. **Write a program that takes the grades entered in Problem 1 and displays the grades in reverse order.**

cout << "Grades Reversed: ";

for (int r = 4; r >= 0; --r)

{

cout << Grades[r] << " ";

}

cout << endl;

1. **Using random number generation, write a program that stores 100 values from 1 to 100 in an array. Display the array to the user. Prompt the user to enter a value that occurs in the array and then have the program count the number of times the value is found in the array. Display the final count.**

srand(0);

int num;

int arraySize = 100;

int Numbers[arraySize];

int count = 0;

for (unsigned i = 0; i <= arraySize; ++i)

{

Numbers[i] = rand() % 100 + 1;

cout << Numbers[i] << " ";

}

cout << "\n\n" << "Enter a number to search for: ";

cin >> num;

for (unsigned j = 0; j <=arraySize; ++j)

{

if (Numbers[j] == num)

{

count++;

}

else

{

count;

}

}

cout << num << " was found " << count << " times.";