//------------------------------------------------------------------

// File name: Exercise\_1\_to\_5.cpp

// Assign ID:

// Due Date: 30/07/24 at 11pm

//

// Purpose: Array

//

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//------------------------------------------------------------------

Exercise\_1

#include <iostream>

using namespace std;

int main()

{

const int SIZE = 10;

int arr[SIZE];

cout << "Array elements: ";

for (int i = 0; i < SIZE; i++)

{

arr[i] = rand() % 100;

cout << arr[i] << " ";

}

cout << endl;

int min = arr[0];

int max = arr[0];

for (int i = 1; i < SIZE; i++)

{

if (arr[i] < min)

{

min = arr[i];

}

if (arr[i] > max)

{

max = arr[i];

}

}

cout << "Minimun element in array is: " << min << endl;

cout << "Maximun element in array is: " << max << endl;

return 0;

}

Exercise\_2

#include <iostream>

using namespace std;

int main()

{

const int MONTHS = 12;

double profits[MONTHS];

int start, end;

cout << "Enter profits each month:" << endl;

for (int i = 0; i < MONTHS; ++i)

{

cout << "Month " << i + 1 << ": ";

cin >> profits[i];

}

cout << "Enter the range (start and end month numbers, 1-12): ";

cin >> start >> end;

start--;

end--;

if (start < 0 || end >= MONTHS || start > end)

{

cout << "Invalid range!" << endl;

return 1;

}

double minProfit = profits[start];

double maxProfit = profits[start];

int minMonth = start;

int maxMonth = start;

for (int i = start + 1; i <= end; ++i)

{

if (profits[i] < minProfit)

{

minProfit = profits[i];

minMonth = i;

}

if (profits[i] > maxProfit)

{

maxProfit = profits[i];

maxMonth = i;

}

}

cout << "Min profit: " << minProfit << " in month " << minMonth + 1 << endl;

cout << "Max profit: " << maxProfit << " in month " << maxMonth + 1 << endl;

return 0;

}

Exercise\_3

#include <iostream>

using namespace std;

int main()

{

double sumNegatives = 0;

double productBetweenMinMax = 1;

double productEvenIndexed = 1;

double sumBetweenFirstAndLastNegatives = 0;

int firstNegativeIndex = -1;

int lastNegativeIndex = -1;

int N;

cout << "Enter the number of elements: ";

cin >> N;

double \*arr = new double[N];

cout << "Enter the elements of the array:" << endl;

for (int i = 0; i < N; ++i)

{

cin >> arr[i];

}

double minElement = arr[0];

double maxElement = arr[0];

int minIndex = 0;

int maxIndex = 0;

for (int i = 0; i < N; ++i)

{

if (arr[i] < 0)

{

sumNegatives += arr[i];

if (firstNegativeIndex == -1)

firstNegativeIndex = i;

lastNegativeIndex = i;

}

if (arr[i] < minElement)

{

minElement = arr[i];

minIndex = i;

}

if (arr[i] > maxElement)

{

maxElement = arr[i];

maxIndex = i;

}

}

for (int i = min(minIndex, maxIndex) + 1; i < max(minIndex, maxIndex); ++i)

{

productBetweenMinMax \*= arr[i];

}

for (int i = 0; i < N; i += 2)

{

productEvenIndexed \*= arr[i];

}

if (firstNegativeIndex != -1 && lastNegativeIndex != -1 && firstNegativeIndex != lastNegativeIndex)

{

for (int i = firstNegativeIndex + 1; i < lastNegativeIndex; ++i)

{

sumBetweenFirstAndLastNegatives += arr[i];

}

}

// Output

cout << "Sum of negative elements: " << sumNegatives << endl;

cout << "Product of elements between min and max elements: " << productBetweenMinMax << endl;

cout << "Product of even-indexed elements: " << productEvenIndexed << endl;

cout << "Sum of elements between the first and last negative elements: " << sumBetweenFirstAndLastNegatives << endl;

return 0;

}

Exercise\_4

#include <iostream>

using namespace std;

int main() {

const int size = 10;

int original[size] = {0, 1, -1, 3, 4, 4, 3, 2, 8, 9};

int part1[size / 2], part2[size / 2];

for (int i = 0; i < size / 2; ++i) {

part1[i] = original[i];

part2[i] = original[i + size / 2];

}

cout << "First part: ";

for (int i = 0; i < size / 2; ++i) {

cout << part1[i] << " ";

}

cout << endl;

cout << "Second part: ";

for (int i = 0; i < size / 2; ++i) {

cout << part2[i] << " ";

}

cout << endl;

return 0;

}

Exercise\_5

#include <iostream>

using namespace std;

int main() {

const int SIZE = 5;

int arr1[SIZE], arr2[SIZE], sumArr[SIZE];

cout << "First array:" << endl;

for (int i = 0; i < SIZE; ++i) {

cin >> arr1[i];

}

cout << "Second array:" << endl;

for (int i = 0; i < SIZE; ++i) {

cin >> arr2[i];

}

for (int i = 0; i < SIZE; ++i) {

sumArr[i] = arr1[i] + arr2[i];

}

cout << "Sum of elements: ";

for (int i = 0; i < SIZE; ++i) {

cout << sumArr[i] << " ";

}

cout << endl;

return 0;

}