#include <iostream>

using namespace std;

// Pointers

// Task 1

// 1. Pointerdən istifadə edərək , İki ədədnin böyük olanını tapan program

// yazın.

int greaterNumber(int\* ptr1, int\* ptr2)

{

if (\*ptr1 > \*ptr2)

return \*ptr1;

else

return \*ptr2;

}

// Task 2

//Pointerdən istifadə edərək, İstiadəçinin daxil etdiyi rəqəmin işarəsini

//tapan program yazın.

void operatorIs(int\* ptr) {

if (\*ptr > 0)

cout << "\n Operator of the number is : +" << endl;

else if (\*ptr == 0)

cout << "\n Zero is neither positive nor negative. It does not have any operator." << endl;

else

cout << "\n Operator of the number is : -" << endl;

}

// Task 3

// 3. Pointerdən istifadə edərək, iki dəyişənin yerini dəyişən program

// yazın.

void replaceVariables(int\* ptr1, int\* ptr2)

{

int temp = \*ptr1;

\*ptr1 = \*ptr2;

\*ptr2 = temp;

cout << "\n Variables replaced successfully!" << endl;

}

// Task 4

// 4. Ancaq pointerdən istifadə edərək, primitiv kalkulyator yazın.

void calculator(int\* ptr1, int\* ptr2, char op)

{

if (op == '+')

cout << \*ptr1 + \*ptr2 << endl;

else if (op == '-')

cout << \*ptr1 - \*ptr2 << endl;

else if (op == '\*')

cout << \*ptr1 \* \*ptr2 << endl;

else if (op == '/')

{

if (\*ptr2 == 0)

{

cout << "\n Zero Division Error!" << endl;

}

else

cout << \*ptr1 / \*ptr2 << endl;

}

else

cout << "\n There is no such an operator in this calculator." << endl;

}

// Task 5

// 5. Tam ədədlərdən ibarət massivin elementlərini toplayan program

// yazın.

int sumNumbers(int\* arrPointer, int size)

{

int sum = 0;

for (int x = 0; x < size; x++)

{

sum += \*(arrPointer + x);

}

return sum;

}

// Task 6

// 6. İki pointerdən istifadə edərək, bir massivdəki elementləri digərinə

// kopyalayn program yazın.

void printArray(int\* arr, int size) {

for (int x = 0; x < size; x++)

{

cout << \*(arr + x) << ", ";

}

cout << "\b\b." << endl;

}

void copyArray(int\* arrPointer,int\* copyArrPointer, int size)

{

for (int x = 0; x < size; x++)

{

\*(copyArrPointer + x) = \*(arrPointer + x);

}

}

// Task 7

// 7. Pointerlərdən istifadə edərək, ölçüsü 10 olan massivdə elementlərin

// sırasını tərsinə çevirən program yazın.

void reverseArray(int\* arrPointer, int size)

{

for (int x = 0; x < size / 2 + 1; x++)

{

int temp = \*(arrPointer + x);

\*(arrPointer + x) = \*(arrPointer + size - (x + 1));

\*(arrPointer + size - (x + 1)) = temp;

}

}

// Task 8

// 8. İki pointerdən elə istifadə edin ki, birinci massivdən ikinci massivə

// ədədləri tərsinə kopyalayan program yazın.

void copyArray(int\* arrPointer, int\* copyArrPointer, int size);

void reverseArray(int\* arrPointer, int size);

// Task 9

// 9. Pointerlərdən istifadə edərək, massivin maximal və minimal

// elementlərini tapan program yazın.

void minimum(int\* arr, int size)

{

int minimum = \*arr;

for (int x = 0; x < size; x++)

{

if (\*(arr + x) < minimum)

minimum = \*(arr + x);

}

cout << "\n Minimum element in the array is : " << minimum << "." << endl;

}

void maximum(int\* arr, int size)

{

int maximum = \*arr;

for (int x = 0; x < size; x++)

{

if (\*(arr + x) > maximum)

maximum = \*(arr + x);

}

cout << "\n Maximum element in the array is : " << maximum << "." << endl;

}

// Task 10

// 10. Pointerlərdən istiadə edərək massivi dövrü sürüşdürən program

// yazın. (bu tapışırıq dövrlərdə iki dəfə yazmısınız, alqoritmini ordan

// götürə bilərsiniz)

void slideArray(int\* arr, int\* newArr, int size, int slidingIndex)

{

int index = 0;

for (int x = size - (slidingIndex % size); x < size; x++)

{

newArr[index] = \*(arr + x);

index++;

}

for (int y = 0; y < size - (slidingIndex % size); y++)

{

newArr[index] = \*(arr + y);

index++;

}

}

////////////////////////////////////////////////////////////////////////////////////////////////////////////////////////////////////////////////////////////////////////////////////////////////////////////////////////////////////////////

void line()

{

cout << "\n\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*" << endl;

}

void cn()

{

int space = 0;

cout << "\n TO GO ANOTHER TASK, PRESS 1 . . . ";

cin >> space;

if (space == 1)

system("cls");

}

void main()

{

// Task 1

line();

cout << "\n TASK 1" << endl;

cout << "\n Finding Greater Number." << endl;

cout << " -----------------------" << endl;

int n1 = 10;

int\* ptr1T1 = &n1;

int n2 = 20;

int\* ptr2T1 = &n2;

cout << "\n Greater number is : ";

cout << greaterNumber(ptr1T1,ptr2T1) << endl;

line();

cn();

// Task2

line();

cout << "\n TASK 2" << endl;

cout << "\n Finding The Symbol (+,-) Of A Number." << endl;

cout << " -------------------------------------" << endl;

int number = 0;

cout << "\n Enter a number : ";

cin >> number;

int\* ptrT2 = &number;

operatorIs(ptrT2);

line();

cn();

// Task 3

line();

cout << "\n TASK 3" << endl;

cout << "\n Replacing Variables With Each Other." << endl;

cout << " ------------------------------------" << endl;

int var1 = 12;

int\* ptr1T3 = &var1;

int var2 = 23;

int\* ptr2T3 = &var2;

cout << "\n Variable 1 : " << \*ptr1T3 << endl;

cout << " Variable 2 : " << \*ptr2T3 << endl;

replaceVariables(ptr1T3, ptr2T3);

cout << "\n Variable 1 : " << \*ptr1T3 << endl;

cout << " Variable 2 : " << \*ptr2T3 << endl;

line();

cn();

// Task 4

line();

cout << "\n TASK 4" << endl;

cout << "\n Calculator." << endl;

cout << " -----------" << endl;

int number1 = 0;

cout << "\n Enter the first number : ";

cin >> number1;

int\* ptr1T4 = &number1;

char op = ' ';

cout << "\n Enter the operator : ";

cin >> op;

int number2 = 0;

cout << "\n Enter the second number : ";

cin >> number2;

int\* ptr2T4 = &number2;

cout << "\n Result : ";

calculator(ptr1T4, ptr2T4, op);

line();

cn();

// Task 5

line();

cout << "\n TASK 5" << endl;

cout << "\n Calculating Sum Of The Integers In An Array." << endl;

cout << " --------------------------------------------" << endl;

const int size = 10;

int arr[size] = { 1,2,3,4,5,6,7,8,9,10 };

int\* ptrT5 = arr;

cout << "\n Sum of the numbers in the array is : " << sumNumbers(ptrT5, size) << endl;

line();

cn();

// Task 6

line();

cout << "\n TASK 6" << endl;

cout << "\n Copying An Array To Another One." << endl;

cout << " --------------------------------" << endl;

int arr2[size] = {2,4,6,8,10,12,14,16,18,20};

int newArr[size] = {};

cout << "\n My Array : ";

printArray(arr2, size);

int\* ptr1T6 = arr2;

int\* ptr2T6 = newArr;

copyArray(ptr1T6, ptr2T6, size);

cout << "\n My Copied Array : ";

printArray(newArr, size);

line();

cn();

// Task 7

line();

cout << "\n TASK 7" << endl;

cout << "\n Reversing An Array." << endl;

cout << " -------------------" << endl;

int arr3[size] = { 1,3,5,7,9,11,13,15,17,19 };

cout << "\n My Array : ";

printArray(arr3, size);

int\* ptrT7 = arr3;

reverseArray(ptrT7, size);

cout << "\n My Reversed Array : ";

printArray(arr3, size);

line();

cn();

// Task 8

line();

cout << "\n TASK 8" << endl;

cout << "\n Reverse Copying Of An Array." << endl;

cout << " ----------------------------" << endl;

int arr4[size] = { 2,4,6,8,10,12,14,16,18,20 };

int newArr2[size] = {};

cout << "\n My Array : ";

printArray(arr4, size);

int\* ptr1T8 = arr4;

int\* ptr2T8 = newArr2;

copyArray(ptr1T8, ptr2T8, size);

reverseArray(ptr2T8, size);

cout << "\n My Copied and Reversed Array : ";

printArray(ptr2T8, size);

line();

cn();

// Task 9

line();

cout << "\n TASK 9" << endl;

cout << "\n Finding Maximum And Minumum Elements In An Array." << endl;

cout << " -------------------------------------------------" << endl;

int arr5[size] = { 54,9,49,99,66,82,51,89,96,24 };

minimum(arr5, size);

maximum(arr5, size);

line();

cn();

// Task 10

line();

cout << "\n TASK 10" << endl;

cout << "\n Sliding An Array." << endl;

cout << " -----------------" << endl;

int arr6[size] = { 12,45,87,34,5,72,28,16,52,43 };

int newArr3[size] = {};

int\* ptr1T9 = arr6;

int\* ptr2T9 = newArr3;

slideArray(ptr1T9, ptr2T9, size, 6);

cout << "\n My Array : ";

printArray(ptr1T9, size);

cout << "\n My Slided Array : ";

printArray(ptr2T9, size);

line();

cn();

line();

cout << "\n Tasks Finished." << endl;

line();

}