Task-1

#include<iostream>

using namespace std;

class Array {

int\* arr;

static int count;

int s;

public:

Array(int size = 5) {

s = size;

arr = new int[size];

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

arr[i] = -1;

}

}

Array(const Array& copy) {

count = copy.count;

s = copy.s;

arr = new int[s];

for (int i = 0; i < this->count; i++) {

this->arr[i] = copy.arr[i];

}

}

void printList() {

if (count == 0) {

cout << "List is Empty\n";

return;

}

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

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

}

cout << endl;

}

void insertElement(int elem) {

if (count >= s)

cout << "List is Full\n";

else {

arr[count] = elem;

count++;

}

}

void insertElementAtPos(int elem, int pos) {

arr[pos] = elem;

}

int searchElement(int elem) {

int search = 0;

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

if (elem == arr[i]) {

search = i;

return search;

}

}

return -1;

}

bool deleteElement(int elem) {

int index = 0;

index = searchElement(elem);

if (index == -1)

return false;

for (int i = index; i < this->s; i++) {

swap(arr[i], arr[i + 1]);

}

this->count--;

return true;

}

bool isFull() {

if (count == s - 1)

return true;

return false;

}

int Length() {

return count;

}

bool IsEmpty() {

if (count == 0)

return false;

return true;

}

void reverseList() {

for (int i = 0, j = count-1; i < s/2; i++, j--) {

swap(arr[i], arr[j]);

}

}

void EmptyList() {

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

arr[i] = -1;

}

count = 0;

}

void copyList(int\* copy) {

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

copy[i] = arr[i];

}

}

void sort() {

int temp = 0;

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

{

for (int j = i + 1; j < count; j++)

{

if (arr[i] > arr[j])

{

temp = arr[i];

arr[i] = arr[j];

arr[j] = temp;

}

}

}

}

bool compare(Array& arr1) {

bool check = false;

if (arr1.count == this->count) {

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

if (this->arr[i] == arr1.arr[i])

check = true;

else

return false;

}

}

else

return false;

return check;

}

};

int Array::count = 0;

int main() {

Array arr(6);

arr.insertElement(4);

arr.insertElement(2);

arr.insertElement(4);

arr.insertElement(5);

arr.insertElement(1);

cout << "List Elements: ";

arr.printList();

Array copied = arr;

cout << "Copied List Elements: ";

copied.printList();

cout << "Length Of List: ";

cout<<arr.Length()<<endl;

cout << "IsFull: ";

cout<<arr.isFull()<<endl;

cout << "IsEmpty: ";

cout<<arr.IsEmpty() << endl;

arr.reverseList();

cout << "Reversed List: ";

arr.printList();

cout << "Sorted Llist: ";

arr.sort();

arr.printList();

cout<<"IsFull: "<<arr.isFull()<<endl;

cout << "Compare Lists: ";

cout<<arr.compare(copied)<<endl;

arr.EmptyList();

cout << "Empty List is empty";

}

