DS LAB 4

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Q1;

#include <iostream>

using namespace std;

class ListADT

{

private:

int \*list;

int \*list2;

public:

ListADT()

{

int \*list;

list = new int[10];

int \*list2;

list2 = new int[10];

for (int i = 0; i < 9; i++)

{

list[i] = 0;

}

for (int i = 0; i < 9; i++)

{

list2[i] = 0;

}

};

ListADT(int a, int b)

{

int \*list;

list = new int[a];

int \*list2;

list2 = new int[b];

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

{

list[i] = 0;

}

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

{

list2[i] = 0;

}

};

/\*ListADT(ListADT & obj)

{

};\*/

~ListADT()

{};

void PrintList()

{

cout << "take input for the list" << endl;

for (int i = 0; i < 9; i++)

{

cout << "Enter element in list" << endl;

cin >> list[i];

}

cout << "Printing first list" << endl;

for (int i = 0; i < 9; i++)

{

cout << list[i] << " " << endl;

}

/\*cout << "Printing second list" << endl;

for (int i = 0; i < 9; i++)

{

cout << list2[i] << " " << endl;

}\*/

};

int searchElement(int x)

{

cout << "Enter number to search within the list" << endl;

cin >> x;

for (int i = 0; i < 9; i++)

{

if (x == list[i])

{

cout << "Number found" << endl;

}

else

{

cout << "number not found" << endl;

}

}

return x;

};

void insertElement(int x)

{

for (int i = 0; i < 9; i++)

{

cout << "Enter any number to insert in LIST 1" << endl;

cin >> x;

list[i] = x;

}

/\*for (int i = 0; i < 9; i++)

{

cout << "Enter any number to insert in list 2" << endl;

cin >> x;

list2[i] = x;

}\*/

};

void insertElementAt(int x, int pos)

{

cout << "Enter any number to insert at specific index of list 1" << endl;

cin >> x;

cout << "Enter index position for list 1" << endl;

cin >> pos;

list[pos] = x;

/\*cout << "Enter any number to insert at specific index of list 2" << endl;

cin >> x;

cout << "Enter index position for list 2" << endl;

cin >> pos;

list2[pos] = x;\*/

};

bool boolDeleteElement(int x)

{

bool deleted = false;

for (int i = 0; i < 9; i++)

{

cout << "Enter a number to be deleted from the list 1;" << endl;

if (list[i] == x)

{

list[i] = 0;

deleted = true;

}

else

{

cout << "number not found in the list to be deleted" << endl;

deleted = false;

}

}

return deleted;

};

bool isFull()

{

bool full = false;

int counter = 0;

for (int i = 0; i < 9; i++)

{

if (list[i] > 0)

{

counter += 1;

}

if (counter == 10)

{

cout << "Array is full" << endl;

full = true;

}

}

return full;

};

bool isEmpty()

{

bool empty = false;

int counter0 = 0;

for (int i = 0; i < 9; i++)

{

if (list[i] == 0)

{

counter0 += 1;

}

if (counter0 == 10)

{

cout << "Array is empty" << endl;

empty = true;

}

else

{

cout << "array is not empty" << endl;

}

}

return empty;

};

int length()

{

int count = 0;

for (int i = 0; i < 9; i++)

{

if (list[i] > 0)

{

count += 1;

}

}

cout << "Length of array is " << count << endl;

}

};

int main()

{

ListADT list;

list.ListADT();

list.ListADT(9, 7);

while (cin)

{

int choice;

cout << "1. Print list" << endl;

cout << "2. Search element in list" << endl;

cout << "3. Insert element in list" << endl;

cout << "4. Insert element at specific index in list" << endl;

cout << "5. Bool delete element from a list" << endl;

cout << "6. Bool list is full " << endl;

cout << "7. Bool list is Empty" << endl;

cout << "8. Length of list" << endl;

cout << "Enter a string or keyword to exit." << endl;

cin >> choice;

if (choice == 1)

{

list.PrintList();

}

else if (choice == 2)

{

list.searchElement(3);

}

else if (choice == 3)

{

list.insertElement(9);

}

else if (choice == 4)

{

list.insertElementAt(9, 4);

}

else if (choice == 5)

{

list.boolDeleteElement(4);

}

else if (choice == 6)

{

list.isFull();

}

else if (choice == 7)

{

list.isEmpty();

}

else if(choice == 8)

{

list.length();

}

else

{

cout << "Enter correct number from menu" << endl;

}

}

system("pause");

return 0;

}