College of Computer Studies
Laboratory Activity Form

Course Number	CSIT 221
Course Title	Data Structures
Topics Covered:	Linked List
Objective:	Implement programmer defined-data types with linked lists.

Description

A set of integers may be implemented using a linked list.

Implement the following functions given the definition:

```
typedef struct node* nodeptr;

typedef struct node{
        int data;
        nodeptr next;
}Node;

typedef Node* Set;
```

Set initialize();
- simply initialize to NULL

void display(Set s);
- display on the screen all valid elements of the list

Set add(Set s, elem);
- simply store elem in the list

int contains(Set s, int elem);
- search the array elements for the value elem

Set getUnion(Set result, Set s1, Set s2);
- store in the set result the set resulting from the union of s1 and s2
- x is an element of s1 union s2 if x is an element of s1 or x is an element of s2

Set intersection(Set result, Set s1, Set s2);
- store in the set result the set resulting from the intersection of s1 and s2
- x is an element of s1 intersection s2 if x is an element of s1 and x is an element of s2

Set difference(Set result, Set s1, Set s2);
- store in the set result the set resulting from the difference of s1 and s2
- x is an element of s1 - s2 if x is an element of s1 and x is not an element of s2

Set symmetricdifference(Set result, Set s1, Set s2);

- store in the set result the set resulting from the symmetric difference of s1 and s2
- x is an element of s1 - s2 if x is an element of s1 and x is not an element of s2 and vice versa

int subset(Set s1, Set s2);

- s1 is a subset of s2 if all elements of s1 are in s2

int disjoint(Set s1, Set s2);

- two sets are disjoint if the intersection is empty

int equal(Set s1, Set s2);

- two sets are equal if they have exactly the same elements

Remarks

Project name: SetList

Make sure that the functions are tested in your main function.

In case you can not implement all functions, ensure that there are no compile time errors and that there are no run-time errors for the completed functions.