Topic: Linked List

Activity Guidelines

Group Size: 3

Method of Assigning Students: Count the number of students in the class, divide by 3, count off from 1 to the quotient, and group identical numbers.

Materials:

- ✓ Handout (one copy per group) with questions to be answered at the end of the session

Roles:

Coordinator/Leader: Clarifies goals and objectives, allocates roles for each team member and divides the tasks within the group.

Monitor/Evaluator: Person designed to evaluate the different ideas to approach the problem and make an accurate judgment of the most beneficial option.

Implementer: Person in charge to transform discussions and ideas into a technical solution for the given problem.

Individual Accountability: Every member of the team is expected to be actively involved in the problem-solving activity and collaborate according to his or her assigned role.

Activity Summary

1) Every team is required to implement 3 different methods to:

- **a.** Print a given linked list.
- **b.** Search for an element inside the linked list.
- **c.** Insert an element into a given position in the linked list.

CNS#1042341

ELEMENTARY DATA STRUCTURES

PEER SESSION

Linked List

```
public class Node {
       int data;
       Node link;

       Node() {
          data = 0;
          link = null;
       }

       Node(int data, Node link) {
          this.data = data;
          this.link = link;
       }
}
```

1. Write a Java Method to print a linked list.

```
public void print() {
       Node current = head;
       while(current!=null){
              System.out.println(current.data + " ");
              current = current.link;
       }
}
```

2. Write a java method to search a linked list to find a given element.
   Method header: search(Node head, int toFind)

```
public boolean search(int toFind) {
       Node current = head;
       while(current!=null) {
              if(toFind==current.data)
                     return true;
              current = current.link;
       }
       return false;
}
```

3. Write a java method to insert an element into a given position in a linked list.
Method header: insert(Node head, int value, int position)

```
public Node insertNode(int data,int after){

        if (isEmpty()) {
                return head;
        }

        int count = 1;
        Node current = head;
```

```
/*You want your while loop to reach the position before your desire insert position,
for your .link to be the actual position you want, and not the one after your position. */
```

```
        while(current!= null && count != after-1){
                        current = current.link;
                        count++;
        }
        current.link = new Node(data, current.link);
        return head;
}


public boolean isEmpty() {
        if (head == null) {
                return true;
        }
        return false;
}
```