

CSE 202 Bütünleme

Olcay Taner YILDIZ

I. QUESTION (SORTING) (15 POINTS)

Write a function that sorts a doubly linked list using bubble sort.

```
void bubbleSort()
```

II. QUESTION (TREES) (20 POINTS)

Write a non-recursive function that computes the sum of all keys in a binary search tree.

```
int sumOfTree()
```

III. QUESTION (QUEUE) (15 POINTS)

A dequeue is a double-ended queue, which is a data structure that supports insertions and deletions from both ends (front and rear). Using doubly linked lists, implement dequeue data structure with its methods.

IV. QUESTION (HEAP) (15 POINTS)

A d -heap is a heap, which is exactly like a binary heap except that all nodes have d children. Implement d -heap data structure with the methods insert and deleteMax.

V. QUESTION (LINK LIST) (20 POINTS)

You are given two link lists L and P, containing integers sorted in ascending order. Write the method

```
void printLots(LinkList L, LinkList P)
```

which will print the elements in L that are in positions specified by P. For instance, if $P = 1, 3, 4, 6$, the first, third, fourth, and sixth elements in L are printed.

VI. QUESTION (GRAPH) (15 POINTS)

A bipartite graph is a graph such that vertices of the graph can be partitioned into two subsets such that no edge has both its vertices in the same subset. Write the function

```
boolean isBipartite()
```

which checks if the corresponding graph is bipartite or not.