

**Gebze Technical University  
Computer Engineering**

**CSE 222 - 2018 Spring**

**HOMEWORK 6 REPORT**

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# 1 Q1

**Not : Raporun sadece bu kısmı yazıldı.** Okunaklı olması açısından *sadece bişekilde göstermek için sadece bu başlık altında anlattım*

Zamanım yetmediği için `plot_graph` ve `dijkstrasAlgorithm` ile en kısa yol bulan algoritma yazıldı

En kısa path için `dijkstrasAlgorithm` da küçük değişiklikler yaptım. Sağık şekilde çalışmıyor ama en kısa yolu bulabiliyor. `Distance` ı ise `dist[ ]` arrayinden alıyorum.

```
Graph graph = new ListGraph( numV: 6, directed: false);

graph.insert(new Edge( source: 0, dest: 1));
graph.insert(new Edge( source: 1, dest: 2));
graph.insert(new Edge( source: 2, dest: 3));
graph.insert(new Edge( source: 3, dest: 4));
graph.insert(new Edge( source: 4, dest: 5));
graph.insert(new Edge( source: 0, dest: 3));
```

Örnek input yukardaki gibi;

`CommanClass.plot_graph(graph);`

```
The Linked List Representation of the graph is:
(0) : -> [1] -> [3]
(1) : -> [0] -> [2]
(2) : -> [1] -> [3]
(3) : -> [2] -> [4] -> [0]
(4) : -> [3] -> [5]
(5) : -> [4]

0 3 4
Total Distance : 2.0
```

`CommanClass.dijkstrasAlgorithm(graph,0,pred, dist, 4);`

2. parametere source, 5.parametre destination.

Path 0 3 4 olarak baslangıc ve bitiş noktalarını da arraylist içine dahil edip yazdırdım.

2.test

```
graph.insert(new Edge( source: 0, dest: 1));
graph.insert(new Edge( source: 1, dest: 2));
graph.insert(new Edge( source: 2, dest: 3));
graph.insert(new Edge( source: 3, dest: 4));
graph.insert(new Edge( source: 4, dest: 5));
// graph.insert(new Edge(0,3));
```

Son edge silindi.

```

The Linked List Representation of the graph is:
(0) : -> [1]
(1) : -> [0] -> [2]
(2) : -> [1] -> [3]
(3) : -> [2] -> [4]
(4) : -> [3] -> [5]
(5) : -> [4]

0 1 2 3 4
Total Distance : 4.0

```

İlk teste 3 üzerinden kestirme yolu buldu burada ise **0 1 2 3 4** üzerinden gitmek zorunda kaldı.

## 1.1 Problem Solution Approach

Explain simply graph creation, how to find shortest path.  
Write roughly the changes you make.

## 1.2 Test Cases

Show that this func results ->

- plot\_graph
- is\_undirected
- is\_acyclic\_graph
- shortest\_path (use least 3 different label pair)

## 2 Q2

This part about Question2 in HW7

## 2.1 Problem Solution Approach

Explain simply graph creation, how to find shortest path.  
Write roughly the changes you make.

## 2.2 Test Cases

Show that this func results ->

- plot\_graph
- is\_undirected
- is\_acyclic\_graph
- is\_connected function (use least 3 different label pair)

## 3 Q3

This part about Question3 in HW7

### 3.1 Problem Solution Approach

Explain simply graph creation, how to find shortest path.  
Write roughly the changes you make.

### 3.2 Test Cases

Show that this func results ->

- plot\_graph
- is\_undirected
- is\_acyclic\_graph
- DepthFirstSearch (Show that spanning tree)
- BreathFirstSearch (Show that spanning tree)

## 4 Q4

If you used the handwriting, add this part 1 page pdf include answer of Q4.