



TALLINNA TEHNIKAÜLIKOOL
TALLINN UNIVERSITY OF TECHNOLOGY

Programmeerimise süvendatud algkursus ITI0140

2015

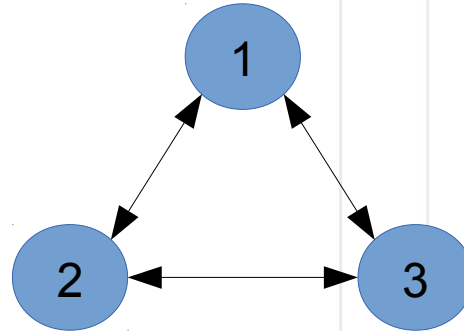
Teemad



- Graafi esitus (andmestruktuur)
- Laiuti otsing (Breadth-First search)



Graafi esitus (sõnastik-hulk)



Hariliku graafi puhul (ilma kaaludeta servad) võib võtme-väärtuspaari väärtus olla määratud huljana (set).

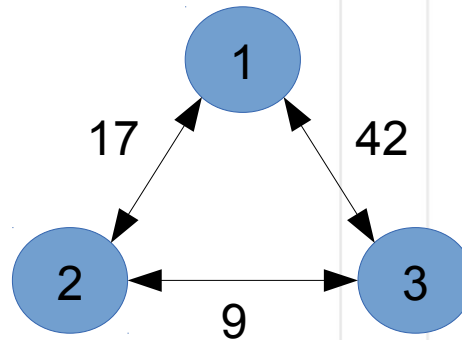
Näide:

```
unweighted = {1: set([2, 3]), 2: set([1, 3]), 3:  
set([2, 1])}  
print(unweighted)
```

```
>> {1: {2, 3}, 2: {1, 3}, 3: {1, 2}}
```



Graafi esitus (sõnastik-sõnastik)



Kaalutud graafi puhul on otstarbekas defineerida naabrid omakorda sõnastikuna, mille väärtused on kaalud.

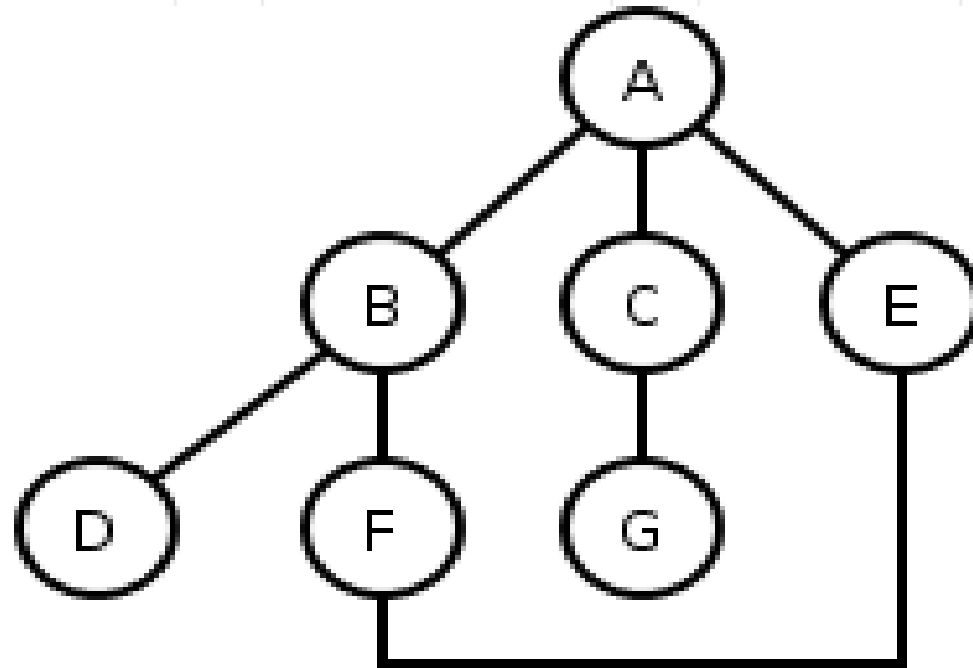
Näide:

```
weighted = {1: {2: 17, 3: 42}, 2: {1: 17, 3: 9}, 3: {1: 42, 2: 9}}
```

```
print(weighted)
```

```
>> {1: {2: 17, 3: 42}, 2: {1: 17, 3: 9}, 3: {1: 42, 2: 9}}
```

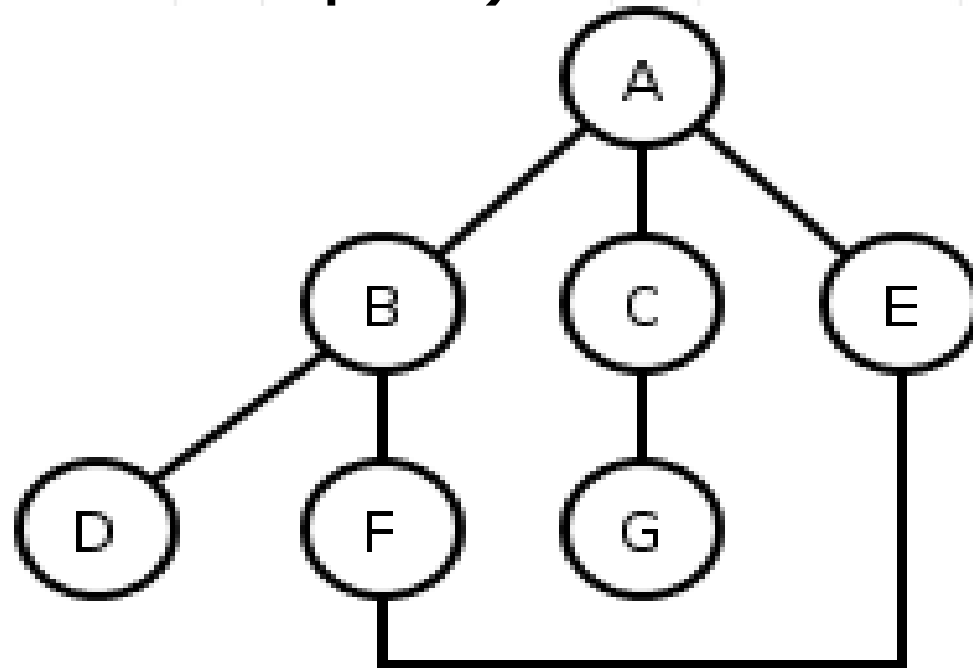
Laiuti otsing (ilma mäluta)



Kontrollitavate tippude järjekord samm-sammult:

- 1) A: [B, C, E]
- 2) B: [C, E, A, D, F]
- 3) C: [E, A, D, F, A, G]
- 4) E: [A, D, F, A, G, A, F]
- 5) A: ...

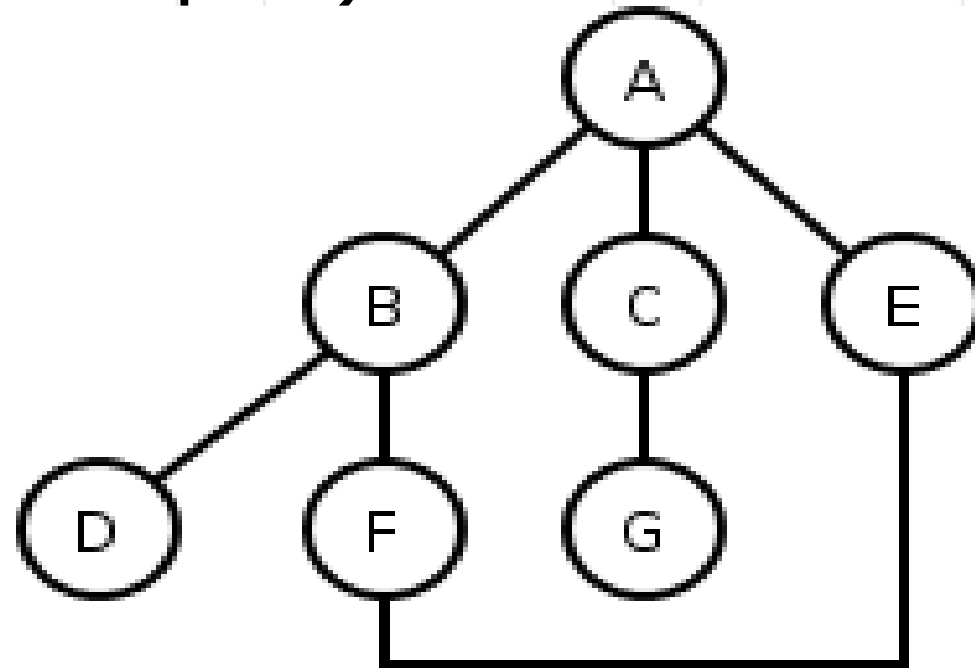
Laiuti otsing (mäluga, külastatud tipud)



Kontrollitavate tippude järjekord samm-sammult:

- 1) A: [B, C, E] visited = [A]
- 2) B: [C, E, D, F] visited = [A, B]
- 3) C: [E, D, F, G] visited = [A, B, C]
- 4) E: [D, F, G, F] visited = [A, B, C, E]
- 5) D: ...

Laiuti otsing (mäluga, nähtud tipud)



Kontrollitavate tippude järjekord samm-sammult:

0) seen = [A]

1) A: [B, C, E] seen = [A, B, C, E]

2) B: [C, E, D, F] seen = [A, B, C, E, D, F]

3) C: [E, D, F, G] seen = [A, B, C, E, D, F, G]

4) E: [D, F, G] seen = [A, B, C, E, D, F, G]

5) D: ...



BFS

http://en.wikipedia.org/wiki/Breadth-first_search

Ülesanne



Ülesanne on nähtaval

- <https://ained.ttu.ee>
- <https://courses.cs.ttu.ee/pages/ITI0140>