

TÜRKİYE CUMHURİYETİ
YILDIZ TEKNİK ÜNİVERSİTESİ
BİLGİSAYAR MÜHENDİSLİĞİ BÖLÜMÜ



VERİ YAPILARI VE ALGORİTMALAR
PROJE ÖDEVİ RAPORU

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Ders/Grup: BLM2512 / Grup 2

Ders Yürütücüsü
Doç. Dr. Mehmet Amaç GÜVENSAN
Mart, 2022

Programın Çalışmasına Dair Ekran Görüntüleri

1-)[0 1 2 3 4 5 6 7 8 9] ilk değerleri ile veri yapısını oluşturunuz. 7, 3, 5, 10 değerlerini arayınız.

```
C:\Users\mehme\Desktop\20 mart 2022\29 mart\main.exe
NOTE: You need to either enter the numbers of the list or randomly generate the list first. Then you need to press 5 to build all levels of list.

How many upper levels do you want your list to have?: 5

1- Add Node      2- Randomly Generate Nodes      3- Delete Node      4- Print List
5- Build         6- Print List With All Levels      7- Search           8- Exit
1

Number you want to add: 0
0

1- Add Node      2- Randomly Generate Nodes      3- Delete Node      4- Print List
5- Build         6- Print List With All Levels      7- Search           8- Exit
1

Number you want to add: 1
0 1

1- Add Node      2- Randomly Generate Nodes      3- Delete Node      4- Print List
5- Build         6- Print List With All Levels      7- Search           8- Exit
1

Number you want to add: 2
0 1 2

1- Add Node      2- Randomly Generate Nodes      3- Delete Node      4- Print List
5- Build         6- Print List With All Levels      7- Search           8- Exit
1

Number you want to add: 3
0 1 2 3

1- Add Node      2- Randomly Generate Nodes      3- Delete Node      4- Print List
5- Build         6- Print List With All Levels      7- Search           8- Exit
1
```

C:\Users\mehme\Desktop\20 mart 2022\29 mart\main.exe

Number you want to add: 4

0 1 2 3 4

1- Add Node	2- Randomly Generate Nodes	3- Delete Node	4- Print List
5- Build	6- Print List With All Levels	7- Search	8- Exit

1

Number you want to add: 5

0 1 2 3 4 5

1- Add Node	2- Randomly Generate Nodes	3- Delete Node	4- Print List
5- Build	6- Print List With All Levels	7- Search	8- Exit

1

Number you want to add: 6

0 1 2 3 4 5 6

1- Add Node	2- Randomly Generate Nodes	3- Delete Node	4- Print List
5- Build	6- Print List With All Levels	7- Search	8- Exit

1

Number you want to add: 7

0 1 2 3 4 5 6 7

1- Add Node	2- Randomly Generate Nodes	3- Delete Node	4- Print List
5- Build	6- Print List With All Levels	7- Search	8- Exit

1

Number you want to add: 8

0 1 2 3 4 5 6 7 8

1- Add Node	2- Randomly Generate Nodes	3- Delete Node	4- Print List
5- Build	6- Print List With All Levels	7- Search	8- Exit

1

Number you want to add: 9

0 1 2 3 4 5 6 7 8 9

```
C:\Users\mehme\Desktop\20 mart 2022\29 mart\main.exe
1- Add Node      2- Randomly Generate Nodes      3- Delete Node  4- Print List
5- Build         6- Print List With All Levels      7- Search       8- Exit
5
0
0
0
0
0 4 5 6
0 1 2 3 4 5 6 7 8 9

1- Add Node      2- Randomly Generate Nodes      3- Delete Node  4- Print List
5- Build         6- Print List With All Levels      7- Search       8- Exit
7

Which number do you want to search?: 7

Iteration #1#: Data found: 0
Iteration #2#: Data found: 0
Iteration #3#: Data found: 0
Iteration #4#: Data found: 0
Iteration #5#: Data found: 4
Iteration #6#: Data found: 5
Iteration #7#: Data found: 6
Iteration #8#: Data found: 6
Iteration #9#: Data found: 7

Searched data found at 9 iterations and level 0

1- Add Node      2- Randomly Generate Nodes      3- Delete Node  4- Print List
5- Build         6- Print List With All Levels      7- Search       8- Exit
7

Which number do you want to search?: 3

Iteration #1#: Data found: 0
Iteration #2#: Data found: 0
Iteration #3#: Data found: 0
Iteration #4#: Data found: 0
Iteration #5#: Data found: 4
Iteration #6#: Data found: 0
Iteration #7#: Data found: 1
```

```
C:\Users\mehme\Desktop\20 mart 2022\29 mart\main.exe

Iteration #7#: Data found: 1
Iteration #8#: Data found: 2
Iteration #9#: Data found: 3

Searched data found at 9 iterations and level 0

1- Add Node      2- Randomly Generate Nodes      3- Delete Node  4- Print List
5- Build         6- Print List With All Levels      7- Search       8- Exit
7

Which number do you want to search?: 5

Iteration #1#: Data found: 0
Iteration #2#: Data found: 0
Iteration #3#: Data found: 0
Iteration #4#: Data found: 0
Iteration #5#: Data found: 4
Iteration #6#: Data found: 5

Searched data found at 6 iterations and level 1

1- Add Node      2- Randomly Generate Nodes      3- Delete Node  4- Print List
5- Build         6- Print List With All Levels      7- Search       8- Exit
7

Which number do you want to search?: 10

Iteration #1#: Data found: 0
Iteration #2#: Data found: 0
Iteration #3#: Data found: 0
Iteration #4#: Data found: 0
Iteration #5#: Data found: 4
Iteration #6#: Data found: 5
Iteration #7#: Data found: 6
Iteration #8#: Data found: 6
Iteration #9#: Data found: 7
Iteration #10#: Data found: 8

Searched data could not be found.

1- Add Node      2- Randomly Generate Nodes      3- Delete Node  4- Print List
5- Build         6- Print List With All Levels      7- Search       8- Exit
```

2-)[0 3 5 8 14] ilk deęerleri ile veri yapısını oluřturunuz. 1 deęerini ekleyiniz. 8 deęerini ekleyiniz. 20 deęerini ekleyiniz.

```
C:\Users\mehme\Desktop\20 mart 2022\29 mart\main.exe
NOTE: You need to either enter the numbers of the list or randomly generate the list first. Then you need
to press 5 to build all levels of list.

How many upper levels do you want your list to have?: 5

1- Add Node      2- Randomly Generate Nodes      3- Delete Node      4- Print List
5- Build         6- Print List With All Levels      7- Search          8- Exit
1

Number you want to add: 0
0

1- Add Node      2- Randomly Generate Nodes      3- Delete Node      4- Print List
5- Build         6- Print List With All Levels      7- Search          8- Exit
1

Number you want to add: 3
0 3

1- Add Node      2- Randomly Generate Nodes      3- Delete Node      4- Print List
5- Build         6- Print List With All Levels      7- Search          8- Exit
1

Number you want to add: 5
0 3 5

1- Add Node      2- Randomly Generate Nodes      3- Delete Node      4- Print List
5- Build         6- Print List With All Levels      7- Search          8- Exit
1

Number you want to add: 8
0 3 5 8

1- Add Node      2- Randomly Generate Nodes      3- Delete Node      4- Print List
5- Build         6- Print List With All Levels      7- Search          8- Exit
1
```

```
1- Add Node      2- Randomly Generate Nodes    3- Delete Node  4- Print List
5- Build         6- Print List With All Levels 7- Search       8- Exit
1
```

```
Number you want to add: 14
0 3 5 8 14
```

```
1- Add Node      2- Randomly Generate Nodes    3- Delete Node  4- Print List
5- Build         6- Print List With All Levels 7- Search       8- Exit
```

```
5
0
0
0 3
0 3 5
0 3 5 8
0 3 5 8 14
```

```
1- Add Node      2- Randomly Generate Nodes    3- Delete Node  4- Print List
5- Build         6- Print List With All Levels 7- Search       8- Exit
1
```

```
Number you want to add: 1
0 1 3 5 8 14
```

```
1- Add Node      2- Randomly Generate Nodes    3- Delete Node  4- Print List
5- Build         6- Print List With All Levels 7- Search       8- Exit
```

```
5
0
0
0
0 1
0 1 5
0 1 3 5 8 14
```

```
1- Add Node      2- Randomly Generate Nodes    3- Delete Node  4- Print List
5- Build         6- Print List With All Levels 7- Search       8- Exit
1
```

Number you want to add: 8

```
0 1 3 5 8 8 14
```

```
1- Add Node      2- Randomly Generate Nodes    3- Delete Node  4- Print List
5- Build         6- Print List With All Levels 7- Search       8- Exit
```

```
5
```

```
0
```

```
0
```

```
0 1
```

```
0 1 8
```

```
0 1 5 8 8
```

```
0 1 3 5 8 8 14
```

```
1- Add Node      2- Randomly Generate Nodes    3- Delete Node  4- Print List
5- Build         6- Print List With All Levels 7- Search       8- Exit
```

```
1- Add Node      2- Randomly Generate Nodes    3- Delete Node  4- Print List
5- Build         6- Print List With All Levels 7- Search       8- Exit
```

```
1
```

Number you want to add: 20

```
0 1 3 5 8 8 14 20
```

```
1- Add Node      2- Randomly Generate Nodes    3- Delete Node  4- Print List
5- Build         6- Print List With All Levels 7- Search       8- Exit
```

```
5
```

```
0
```

```
0
```

```
0
```

```
0 1
```

```
0 1 3
```

```
0 1 3 5 8 8 14 20
```

```
1- Add Node      2- Randomly Generate Nodes    3- Delete Node  4- Print List
5- Build         6- Print List With All Levels 7- Search       8- Exit
```

```
1- Add Node      2- Randomly Generate Nodes    3- Delete Node  4- Print List
5- Build         6- Print List With All Levels 7- Search       8- Exit
```

```
8
```

```
-----
```

Process exited after 100.2 seconds with return value 0

Press any key to continue . . .

3-)[0 2 4 6 8 10] ilk değerleri ile veri yapısını oluşturunuz. 4 değerini siliniz. 6 değerini siliniz. 20 değerini siliniz.

```
C:\Users\mehme\Desktop\20 mart 2022\29 mart\main.exe
NOTE: You need to either enter the numbers of the list or randomly generate the list first. The
n you need to press 5 to build all levels of list.

How many upper levels do you want your list to have?: 5

1- Add Node      2- Randomly Generate Nodes      3- Delete Node  4- Print List
5- Build         6- Print List With All Levels    7- Search      8- Exit
1

Number you want to add:  0
0

1- Add Node      2- Randomly Generate Nodes      3- Delete Node  4- Print List
5- Build         6- Print List With All Levels    7- Search      8- Exit
1

Number you want to add:  2
0 2

1- Add Node      2- Randomly Generate Nodes      3- Delete Node  4- Print List
5- Build         6- Print List With All Levels    7- Search      8- Exit
1

Number you want to add:  4
0 2 4

1- Add Node      2- Randomly Generate Nodes      3- Delete Node  4- Print List
5- Build         6- Print List With All Levels    7- Search      8- Exit
1

Number you want to add:  6
0 2 4 6

1- Add Node      2- Randomly Generate Nodes      3- Delete Node  4- Print List
5- Build         6- Print List With All Levels    7- Search      8- Exit
1

Number you want to add:  8
0 2 4 6 8

1- Add Node      2- Randomly Generate Nodes      3- Delete Node  4- Print List
5- Build         6- Print List With All Levels    7- Search      8- Exit
1
```

Number you want to add: 10

0 2 4 6 8 10

1- Add Node	2- Randomly Generate Nodes	3- Delete Node	4- Print List
5- Build	6- Print List With All Levels	7- Search	8- Exit

5

0

0

0

0 6

0 4 6 8

0 2 4 6 8 10

1- Add Node	2- Randomly Generate Nodes	3- Delete Node	4- Print List
5- Build	6- Print List With All Levels	7- Search	8- Exit

3

Which data do you want to delete?: 4

0

0

0

0 2

0 2 6

0 2 6 8 10

1- Add Node	2- Randomly Generate Nodes	3- Delete Node	4- Print List
5- Build	6- Print List With All Levels	7- Search	8- Exit

3

Which data do you want to delete?: 6

0

0

0

0 2

0 2 8

0 2 8 10

1- Add Node	2- Randomly Generate Nodes	3- Delete Node	4- Print List
5- Build	6- Print List With All Levels	7- Search	8- Exit

3

Which data do you want to delete?: 20

Searched data could not be found in the list.

0 2 8 10

0

0

0

0

0

0 2 8 10

```
1- Add Node      2- Randomly Generate Nodes    3- Delete Node  4- Print List
5- Build         6- Print List With All Levels  7- Search      8- Exit
8
```

```
-----
Process exited after 27.45 seconds with return value 0
Press any key to continue . . . ■
```