COMP 2231

Output Capture of Assignment 5 - Heaps and Priority Queues, Graphs, & Hashing

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Question 1 :

```
BEFORE: [45, 13, 27, 18, 2, 7, 0]
AFTER: [0, 2, 7, 13, 18, 27, 45]

BEFORE: [45, 42, 40, 35, 3, 1, 0]
AFTER: [0, 1, 3, 35, 40, 42, 45]

BEFORE: [D, E, F, B, C, A]
AFTER: [A, B, C, D, E, F]

BEFORE: [A, B, C, D, E, F]
AFTER: [A, B, C, D, E, F]
```

Question 2 :-

```
Adjacency Matrix
----------------
index   0 1 2 3 4

0       0 0 0 0 0
1       0 0 0 0 0
2       0 0 0 0 0
3       0 0 0 0 0
4       0 0 0 0 0


Vertex Values
-------------
index   value

0       A
1       B
2       C
3       D
4       E

connected ? false
empty? false
size? 5
```

continue

```
Adjacency Matrix
----------------
index    0 1 2 3 4

0        0 1 1 1 0
1        1 0 1 1 0
2        1 1 0 1 0
3        1 1 1 0 0
4        0 0 0 0 0


Vertex Values
-------------
index    value

0         A
1         B
2         C
3         D
4         E

connected ? false
empty? false
size? 5
```

Continue

```
Adjacency Matrix
-----------------
index    0 1 2 3 4

0        0 1 1 0 0
1        1 0 1 0 0
2        1 1 0 0 0
3        0 0 0 0 0
4        0 0 0 0 0


Vertex Values
-------------
index    value

0        A
1        B
2        C
3        D
4        E

connected ? false
empty? false
size? 5
```

Continue

```
connected ? false
empty? false
size? 5

Adjacency Matrix
----------------
index    0 1 2 3

0        0 1 1 0
1        1 0 1 0
2        1 1 0 0
3        0 0 0 0


Vertex Values
-------------
index    value

0        A
1        B
2        C
3        E

connected ? false
empty? false
size? 4
```

Continue

```
Adjacency Matrix
----------------
index    0 1 2

0        0 1 0
1        1 0 0
2        0 0 0


Vertex Values
-------------
index    value

0        B
1        C
2        E

connected ? false
empty? false
size? 3
```

Continue

```
Adjacency Matrix
----------------
index    0 1 2 3 4 5

0        0 1 1 0 0 0
1        1 0 1 0 0 0
2        1 1 0 0 1 1
3        0 0 0 0 0 0
4        0 0 1 0 0 0
5        0 0 1 0 0 0


Vertex Values
--------------
index    value

0        B
1        C
2        E
3        E
4        F
5        G

connected ? false
empty? false
size? 6
```

Continue

```
6
7

false
false
true

[B, C, E, E, F, G, null, null, null, null]
```

QUESTION 3

```
Index: 0          Key: 0-65-293399-9              Value: Book 3
Index: 1          Key: 0-65-544332-0              Value: Book 5
Index: 2          Key: 0-65-632343-0              Value: Book 6
Index: 3          Key: 0-65-325300-0              Value: Book 7
Index: 4          Key: 0-65-743300-0              Value: Book 8
Index: 7          Key: 0-65-493346-9              Value: Book 4
Index: 9          Key: 6-24-193399-9              Value: Book 1
Index: 10         Key: 0-23-193399-9              Value: Book 2

current size ? 11
contain items ? 8
cell marked with deleted ? 0
current size in table? 8

Index: 0          Key: 0-65-325300-0              Value: Book 7
Index: 1          Key: 0-65-743300-0              Value: Book 8
Index: 2          Key: 0-65-982400-0              Value: Book 9
Index: 9          Key: 0-65-493346-9              Value: Book 4
Index: 10         Key: 0-65-293399-9              Value: Book 3
Index: 11         Key: 6-24-193399-9              Value: Book 1
Index: 12         Key: 0-23-193399-9              Value: Book 2
Index: 16         Key: 0-65-632343-0              Value: Book 6
Index: 17         Key: 0-65-341343-0              Value: Book 10
Index: 21         Key: 0-65-544332-0              Value: Book 5

current size ? 23
contain items ? 10
cell marked with deleted ? 0
current size in table? 10
```

Continue 1

```
Index: 0          Key: 0-65-982400-0          Value: Book 9
Index: 1          Key: 0-65-325300-0          Value: Book 7
Index: 2          Key: 0-65-743300-0          Value: Book 8
Index: 9          Key: 0-65-493346-9          Value: Book 4
Index: 10         Key: 6-24-193399-9          Value: Book 1
Index: 11         Key: 0-23-193399-9          Value: Book 2
Index: 12         Key: 0-65-293399-9          Value: Book 3
Index: 16         Key: 0-65-341343-0          Value: Book 10
Index: 17         Key: 0-65-632343-0          Value: Book 6
Index: 21         Key: 0-65-544332-0          Value: Book 5

current size ? 23
contain items ? 10
cell marked with deleted ? 0
current size in table? 10

true
false
true
false
Book 5
```

Continue 2

```
Index: 1        Key: 0-65-325300-0            Value: Book 7
Index: 9        Key: 0-65-493346-9            Value: Book 4
Index: 10       Key: 6-24-193399-9            Value: Book 1
Index: 11       Key: 0-23-193399-9            Value: Book 2
Index: 12       Key: 0-65-293399-9            Value: Book 3
Index: 17       Key: 0-65-632343-0            Value: Book 6
Index: 21       Key: 0-65-544332-0            Value: Book 5

current size ? 23
contain items ? 7
cell marked with deleted ? 3
current size in table? 10

Index: 1        Key: 0-65-325300-0            Value: Book 7
Index: 9        Key: 0-65-493346-9            Value: Book 4
Index: 12       Key: 0-65-293399-9            Value: Book 3
Index: 17       Key: 0-65-632343-0            Value: Book 6
Index: 21       Key: 0-65-544332-0            Value: Book 5

current size ? 23
contain items ? 5
cell marked with deleted ? 5
current size in table? 10
```

// end