CSE310 Project01 Test Cases

Test case 1:

There is no file named HEAPinput.txt
Commands are:
C 20
R
Output:
C 20
COMMAND: C 20.
R
COMMAND: R.
There was a problem opening file HEAPinput.txt for reading.

Test case 2:

Content of HEAPinput.txt
4
4
3
2
1
Commands are:
R
Output:
R
COMMAND: R.
Sorry!!! It cannot be done. Please initialize the heap first.

Test case 3:

Content of HEAPinput.txt
4
4
3
2
1
Commands are:
W
Output:
W
COMMAND: W.
Sorry!!! It cannot be done. Please initialize the heap first.

Test case 4:

Content of HEAPinput.txt
4
4
3
2
1
Commands are:
D 2
Output:

D 2
COMMAND: D 2.
Sorry!!! It cannot be done. Please initialize the heap first and put the elements into it.

Test case 5:
Content of HEAPinput.txt
4
4
3
2
1
Commands are:
I 1 1
K 2 3 -1
Output:
I 1 1
COMMAND: I 1 1.
Sorry!!! It cannot be done. Please initialize the heap first.
K 2 3 -1
COMMAND: K 2 3 -1.
Sorry!!! It cannot be done. Please initialize the heap first and put the elements into it.

Test case 6:
Content of HEAPinput.txt
4
4
3
2
1
Commands are:
C 20
C 5
W
C 10
W
Output:
C 20
COMMAND: C 20.
C 5
COMMAND: C 5.
W
COMMAND: W.
The capacity is 5.
Size is 0.
C 10
COMMAND: C 10.
W
COMMAND: W.
The capacity is 10.
Size is 0.

Test case 7:
Content of HEAPinput.txt
4
4
3
2
1
Commands are:
C 4
R
W
I 2 -1
Output:
C4
COMMAND: C 4.
R
COMMAND: R.
W
COMMAND: W.
The capacity is 4.
Size is 4.
1 3 2 4
I 2 -1
COMMAND: I 2 -1.
The capacity is 4.
Size is 4.
1 3 2 4
The capacity is 8.
Size is 5.
-1 1 2 4 3

Test case 8:
Content of HEAPinput.txt
4
4
3
2
1
Commands are:
C 20
I 1 2
I 1 1
I 1 4
W
K 2 4 3
Output:
C 20
COMMAND: C 20.
I 1 2

COMMAND: I 1 2.
I 1 1
COMMAND: I 1 1.
I 1 4
COMMAND: I 1 4.
W
COMMAND: W.
The capacity is 20.
Size is 3.
1 2 4
K 2 4 3
COMMAND: K 2 4 3.
There are only 3 elements in the heap. Hence this operation cannot be completed.

Test case 9:
Content of HEAPinput.txt
4
4
3
2
1
10
Commands are:
C 20
R
W
Output:
C 20
COMMAND: C 20.
R
COMMAND: R.
W
COMMAND: W.
The capacity is 20.
Size is 4.
1 3 2 4

Test case 10:
Content of HEAPinput.txt
4
4
3
2
1
Commands are:
C 20
R
D 1
D 1
D 1

D 1
W
D 1
Output:
C 20
COMMAND: C 20.
R
COMMAND: R.
D 1
COMMAND: D 1.
1
D 1
COMMAND: D 1.
2
D 1
COMMAND: D 1.
3
D 1
COMMAND: D 1.
4
W
COMMAND: W.
The capacity is 20.
Size is 0.
D 0
COMMAND: D 0.
There are no elements in heap to delete.

Test case 11:
Content of HEAPinput.txt
4
4
3
2
1
Commands are:
C 2
R
Output:
C 2
COMMAND: C 2.
R
COMMAND: R.
Sorry!!! It cannot be done. Please increase the capacity of heap first.

Test case 12:
Content of HEAPinput.txt
4
4
3

2
Commands are:
C 5
R
W
Output:
C 5
COMMAND: C 5.
R
COMMAND: R.
Sorry!!! It cannot be done. The number of elements in file is less than as specified in the beginning of file.
W
COMMAND: W.
The capacity is 5.
Size is 0.

Test case 13:
Content of HEAPinput.txt
12
9
10
11
12
2
4
6
5
3
1
7
8
Commands are:
C 100
W
R
W
I 1 -3
W
K 1 8 6
K 1 8 4
W
D 1
W
S
Output:
C 100
COMMAND: C 100.
W

COMMAND: W.
The capacity is 100.
Size is 0.
R
COMMAND: R.
W
COMMAND: W.
The capacity is 100.
Size is 12.
1 2 4 3 7 8 6 5 12 10 9 11
I 1 -3
COMMAND: I 1 -3.
W
COMMAND: W.
The capacity is 100.
Size is 13.
-3 2 1 3 7 4 6 5 12 10 9 11 8
K 1 8 6
COMMAND: K 1 8 6.
6 cannot be larger than the current value in the heap at index 8. Hence this operation cannot be completed.
K 1 8 4
COMMAND: K 1 8 4.
W
COMMAND: W.
The capacity is 100.
Size is 13.
-3 2 1 3 7 4 6 4 12 10 9 11 8
D 1
COMMAND: D 1.
-3
W
COMMAND: W.
The capacity is 100.
Size is 12.
1 2 4 3 7 8 6 4 12 10 9 11
S
COMMAND: S.
The program is going to be terminated.

Test case 14:
Content of HEAPinput.txt
12
9
10
11
12
2
4

6
5
3
1
7
8
Commands are:
C 50
R
W
K 1 5 2
W
I -4 1
I 1 -4
W
D 1
W
S
Output:
C 50
COMMAND: C 50.
R
COMMAND: R.
W
COMMAND: W.
The capacity is 50.
Size is 12.
1 2 4 3 7 8 6 5 12 10 9 11
K 1 5 2
COMMAND: K 1 5 2.
W
COMMAND: W.
The capacity is 50.
Size is 12.
1 2 4 3 2 8 6 5 12 10 9 11
I -4 1
COMMAND: I -4 1.
This is not a valid flag value. This operation cannot be completed.
I 1 -4
COMMAND: I 1 -4.
W
COMMAND: W.
The capacity is 50.
Size is 13.
-4 2 1 3 2 4 6 5 12 10 9 11 8
D 1
COMMAND: D 1.
-4

W
COMMAND: W.
The capacity is 50.
Size is 12.
1 2 4 3 2 8 6 5 12 10 9 11
S
COMMAND: S.
The program is going to be terminated.

Test case 15:
Content of HEAPinput.txt
20
16
15
18
19
1
2
3
4
5
6
7
8
9
10
12
14
11
13
17
-5
Commands are:
C 20
R
W
D 2
I 1 20
I 2 -3
D 1
W
S
Output:
C 20
COMMAND: C 20.
R
COMMAND: R.
W
COMMAND: W.

The capacity is 20.
Size is 20.
-5 1 2 4 6 8 3 11 5 15 7 18 9 10 12 14 19 13 17 16
D 2
COMMAND: D 2.
The capacity is 20.
Size is 20.
-5 1 2 4 6 8 3 11 5 15 7 18 9 10 12 14 19 13 17 16
The capacity is 20.
Size is 19.
1 4 2 5 6 8 3 11 13 15 7 18 9 10 12 14 19 16 17
-5
I 1 20
COMMAND: I 1 20.
I 2 -3
COMMAND: I 2 -3.
The capacity is 20.
Size is 20.
1 4 2 5 6 8 3 11 13 15 7 18 9 10 12 14 19 16 17 20
The capacity is 32.
Size is 21.
-3 1 2 5 4 8 3 11 13 6 7 18 9 10 12 14 19 16 17 20 15
D 1
COMMAND: D 1.
-3
W
COMMAND: W.
The capacity is 32.
Size is 20.
1 4 2 5 6 8 3 11 13 15 7 18 9 10 12 14 19 16 17 20
S
COMMAND: S.
The program is going to be terminated.