

## CSE310 Project01 Test Cases

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### 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.