

## (Regular binary search tree)

- 1) Elements added and deleted to BinarySearchTree(10000 Element).

```
*****Time-Seconds*****
```

```
11.368
```

```
*****
```

```
*****Time-Seconds*****
```

```
10.807
```

```
*****
```

```
*****Time-Seconds*****
```

```
11.323
```

```
*****
```

```
*****Time-Seconds*****
```

```
10.964
```

```
*****
```

```
*****Time-Seconds*****
```

```
10.981
```

```
*****
```

```
*****Time-Seconds*****
```

```
11.068
```

```
*****
```

```
*****Time-Seconds*****
```

```
11.147
```

```
*****
```

```
*****Time-Seconds*****
```

```
11.131
```

```
*****
```

->Similar results were obtained in other running programs.

2) Elements added and deleted to BinarySearchTree(20000 Element).

```
*****Time-Seconds*****
52.362
*****
*****Delete*****
*****Time-Seconds*****
0.0
*****

*****Time-Seconds*****
54.025
*****
*****Delete*****
*****Time-Seconds*****
0.0
*****

*****Time-Seconds*****
52.629
*****
*****Delete*****
*****Time-Seconds*****
0.0
*****
```

->Similar results were obtained in other running programs.

3) Elements added and deleted to BinarySearchTree(40000 Element).

```
*****Time-Seconds*****
206.572
*****
*****Delete*****
*****Time-Seconds*****
0.0
*****

*****Time-Seconds*****
195.553
*****
*****Delete*****
*****Time-Seconds*****
0.0
*****
```

->Similar results were obtained in other running programs.

4) Elements added and deleted to BinarySearchTree(80000 Element).

```
*****Time-Seconds*****  
955.932  
*****  
*****Delete*****  
*****Time-Seconds*****  
0.0  
*****
```

->Similar results were obtained in other running programs.

## (Red-Black tree implementation in the book)

1) Elements added and deleted to RedBlackTree(10000).

```
*****Time-Seconds*****  
12.598  
*****  
*****Delete*****  
*****Time-Seconds*****  
0.0  
*****
```

->Similar results were obtained in other running programs.

2) Elements added and deleted to RedBlackTree(20000).

```
*****Time-Seconds*****  
88.6  
*****  
*****Delete*****  
*****Time-Seconds*****  
0.0  
*****
```

->Similar results were obtained in other running programs.

3) Elements added and deleted to RedBlackTree(40000).

```
*****Time-Seconds*****
328.295
*****
*****Delete*****
*****Time-Seconds*****
0.0
*****
```

->Similar results were obtained in other running programs.

5) Elements added and deleted to RedBlackTree(80000).

```
*****Time-Seconds*****
1411.74
*****
*****Delete*****
*****Time-Seconds*****
0.0
*****
```

->Similar results were obtained in other running programs.

## ( Red Black tree implementation in java)

1) Elements added and deleted to RedBlackTree in Java(10000).

```
*****Time-Seconds*****
24.218
*****
*****Delete*****
*****Time-Seconds*****
0.0
*****
```

->Similar results were obtained in other running programs.

2) Elements added and deleted to RedBlackTree in Java(20000).

```
*****Time-Seconds*****
86.439
*****
*****Delete*****
*****Time-Seconds*****
0.0
*****
```

->Similar results were obtained in other running programs.

### 3) Elements added and deleted to RedBlackTree in Java(40000).

```
*****Time-Seconds*****  
356.497  
*****  
*****Delete*****  
*****Time-Seconds*****  
0.0  
*****
```

->Similar results were obtained in other running programs.

### 4) Elements added and deleted to RedBlackTree in Java(80000).

```
*****Time-Seconds*****  
1294.546  
*****  
*****Delete*****  
*****Time-Seconds*****  
0.0  
*****
```

->Similar results were obtained in other running programs.

## (Skip list implementation in the book)

### 1) Elements added and deleted to SkipList(10000).

```
*****Time-Seconds*****  
20.693  
*****  
*****Delete*****  
*****Time-Seconds*****  
0.0  
*****
```

->Similar results were obtained in other running programs.

### 2) Elements added and deleted to SkipList(20000).

```
*****Time-Seconds*****  
95.403  
*****  
*****Delete*****  
*****Time-Seconds*****  
0.0  
*****
```

->Similar results were obtained in other running programs.

### 3) Elements added and deleted to SkipList(40000).

```
*****Time-Seconds*****  
244.207  
*****  
*****Delete*****  
*****Time-Seconds*****  
0.0  
*****
```

### 4) Elements added and deleted to SkipList(80000).

```
*****Time-Seconds*****  
1294.374  
*****  
*****Delete*****  
*****Time-Seconds*****  
0.0  
*****
```

->Similar results were obtained in other running programs.

## (Skip list implementation in java)

### 1) Elements added and deleted to SkipList in Java(10000).

```
*****Time-Seconds*****  
13.192  
*****  
*****Delete*****  
*****Time-Seconds*****  
0.0  
*****
```

->Similar results were obtained in other running programs.

### 2) Elements added and deleted to SkipList in Java(20000).

```
*****Time-Seconds*****  
95.403  
*****  
*****Delete*****  
*****Time-Seconds*****  
0.0  
*****
```

->Similar results were obtained in other running programs.

3) Elements added and deleted to SkipList in Java(40000).

```
*****Time-Seconds*****
355.004
*****
*****Delete*****
*****Time-Seconds*****
0.0
*****
```

4) Elements added and deleted to SkipList in Java(80000).

```
*****Time-Seconds*****
3668.357
*****
*****Delete*****
*****Time-Seconds*****
0.001
*****
```

->Similar results were obtained in other running programs.

## (B-tree implementation in the book)

1) Elements added to B-Tree(10000).

```
*****Time-Seconds*****
11.446
*****
```

2) Elements added to B-Tree(20000).

```
*****Time-Seconds*****
53.215
*****
```

3) Elements added to B-Tree(40000).

```
*****Time-Seconds*****
212.901
*****
```

4) Elements added to B-Tree(80000).

\*\*\*\*\*Time-Seconds\*\*\*\*\*

808.552

\*\*\*\*\*