**COMP610: Data Structures and Algorithms**

**Semester 1, 2018**

**Assignment 3-Task 1**

In this task I design a binary search tree for map, it can store a key and a list of values in to a node. All key will be unique and it can store multiple data elements in a key. It also able to get a list of value of a key, and get the height of the tree. Users are able to view Key Set, Values and Entry Set in ascending ordered.

How to use:

1. Input it to a Java IDE (Developed in Eclipse)
2. Use the Runnable
3. Follow the program input and test

Sample Output:

Choose your action

1.Input value by use Key

2.Get a value by use key

3.Print value set

4.Print key set

5.Print entry set in ascending order

6.print tree height

7.Exit

1

Please input key and value in format: key,value

123,321

Inserted!

Choose your action

1.Input value by use Key

2.Get a value by use key

3.Print value set

4.Print key set

5.Print entry set in ascending order

6.print tree height

7.Exit

1

Please input key and value in format: key,value

345,789

Inserted!

Choose your action

1.Input value by use Key

2.Get a value by use key

3.Print value set

4.Print key set

5.Print entry set in ascending order

6.print tree height

7.Exit

2

Please input key

345

Value of 345 [789]

Choose your action

1.Input value by use Key

2.Get a value by use key

3.Print value set

4.Print key set

5.Print entry set in ascending order

6.print tree height

7.Exit

2

Please input key

wrong-key

Value of wrong-key null

Choose your action

1.Input value by use Key

2.Get a value by use key

3.Print value set

4.Print key set

5.Print entry set in ascending order

6.print tree height

7.Exit

3

Value set: [321][789]

Choose your action

1.Input value by use Key

2.Get a value by use key

3.Print value set

4.Print key set

5.Print entry set in ascending order

6.print tree height

7.Exit

4

Key set: [123][345]

Choose your action

1.Input value by use Key

2.Get a value by use key

3.Print value set

4.Print key set

5.Print entry set in ascending order

6.print tree height

7.Exit

5

Print Entry set:

For Key: [123] has Value: [321]

For Key: [345] has Value: [789]

Choose your action

1.Input value by use Key

2.Get a value by use key

3.Print value set

4.Print key set

5.Print entry set in ascending order

6.print tree height

7.Exit

6

Tree height: 2

Choose your action

1.Input value by use Key

2.Get a value by use key

3.Print value set

4.Print key set

5.Print entry set in ascending order

6.print tree height

7.Exit

7