In this assignment you will create two separate programs (**avltree** and **btree**) that have a common theme: to read a file containing ASCII text of names of people. The file name should be specified on the command line as an argument. Each line should contain a name.

Billy Bob

Johnny Sue

Sarah

Each line is considered to only contain a single name (spaces and other ASCII characters are considered valid for that name). I.E. each line can be considered to be unique and no parsin is required.

1. (50 Points)

The program should build an AVL Tree from this input. The program would be run as:

avltree filename.txt

After the file is read and the tree is constructed, the program should accept user input (case insensitive):

- PRINT
  - Prints all names in tree using breadth first approach. Each name should be printed on a separate line.
- HEIGHT
  - Prints the maximum height of the tree.
- FIND
  - Finds tthe name, and prints the name followed by the balance factor of the node containing the name. The name and the balance factor should be separated by a comma. Right sub-tree heights are always positive.
    - Sarah, 1

2. (50 Points)

This program should build a B-Tree from this input. This program should also accept the order of the B-Tree as the second argument. The program whould be run as:

```
btree filename.txt 4
```

The tree would construct an order 4 B-Tree. After the file is read and the tree is constructed, the program should accept user input (case insensitive):

- PRINT
  - Prints all anmes in tree using a **depth** first approach (i.e. all the names should be printed in alphabetical order). Each name shoul dbe printed on a separate line.
- HEIGHT
  - Prints the maximum height of the tree
- FIND
  - Finds the name, and prints and names contained in the tree node. Names should be displayed on separate lines and in order.

Johnny Sue Sarah Tom