How To Run My Program

```
$ cd assignment2
$ javac HuffmanCompression.java
$ javac HuffmanDecompression.java
$ java HuffmanCompression input.txt dictionary.txt compressed.txt
$ java dictionary.txt compressed.txt output.txt
$ cmp input.txt output.txt
```

Important Declarations

In My Program, please use US-ASCII code to write the input String.

DO NOT USE other coding style, otherwise the program will crashed with **ArrayIndexOutOfBoundsException: 65533**

Data Structure I Have Used

- HashMap (used to store the relationship between weight of each letter and lette name)
- Arraylist (used to store all the root array)
- Tree (used lined list to create a tree)

Basic Logic of My Progam

For Compressed part

- First scan the string list and create a hashmap the store the weight and its letter name
- then scan the hashmap and create a hufftree
- traverse the hufftree to get the binary number, then create a dictionary
- use the dictionary to compressed the input string
- output

For Decompressed Part

- Create a hash map to store the dictionary letter and its binary code
- scan the input compressed code and match the dictionary
- output

Demo Output

```
s119010108@ds02:~/assignment2$ javac HuffmanCompression.java
s119010108@ds02:~/assignment2$ javac HuffmanDecompression.java
s119010108@ds02:~/assignment2$ java HuffmanCompression input.txt dictionary.txt compressed.txt
s119010108@ds02:~/assignment2$ java HuffmanDecompression compressed.txt dictionary.txt output.txt
s119010108@ds02:~/assignment2$ cmp input.txt output.txt
s119010108@ds02:~/assignment2$
```

assignment2 > output.txt

```
1  SUSIE SAYS IT IS EASY
2
```