**Testing document for Assignment 2 – Part 1**

Few passwords tested:

The following passwords were considered as invalid and user was prompted for a new password:

(Space)
(Enter)
(up arrow)
(space)LIHG34$ed
(up arrow)(space)LIHG34$ed
(space)(Enter)
(tab)
(tab)1234
(tab)Hrt45$hju
(Ctrl-C) → exits the program stating that the program is interrupted.

Accepted passwords include:
Hello
Password
password
He45$gh
Password1
1234567
[]{}\|;

I based my test inputs on the requirements of the program,

- Space/tab is not to be considered – if password contains space, prompt the user.
- If just Enter is typed, prompt the user.
- File is to be assumed to be always present.
- For the 4 conditions – different combinations of passwords were used to test if all conditions would work separately as well as together.
- To make the program more robust, I added the user input prompt within try-except block, so that keyboard interruptions will make the program exit gracefully as opposed to the printing of the whole error stack.
- A method was added to check for any other non-valid characters outside the ASCII value range 33 to 126, in this case the user was prompted for a new input.

**Testing document for Assignment 2 – Part 2**

The relationship between the number of comparisons and the length of the list for the binary search algorithm was found to be log N. Here N is 10,000 and the value of log N is about 14, this is the worst case scenario for binary search.

This relationship for recursive binary search was found to be similar, worst case of 14 or O(log N).

Few passwords tested:

Hello
Password
password
He45$gh
Password1
1234567
Hrt45$hju
1234
[]{}\|;
{}23Edf3
****
&amp
gameofthrones
galileo
gagged
leeds
paddle
statclassisfun

- A list of inputs from the common.txt was tested.
- A list of passwords which were not present in the file was also tested.
- Same passwords were tested for both binary search and binary search recursive to calculate the number of comparisons for both the algorithms and they match.
- The worst case Big O was found to be 14 which is log N.