Name: **Mahmood Al-Zubaidi**

Student Number: 8743838

Subject: **Windows And Mobile Programming, Assignment 2 report**

Table of Contents

Adding ten million words

Adding ten million words to list took 3800 milliseconds.

Adding ten million words to HashTable took 2500 milliseconds.

Adding ten million words to Dictionary took 900 milliseconds.

Thus, we see that when it comes to adding a big amount of data, Hash Table is faster than list, since adding to the hash table is based on the hash value, which is much faster than searching a list and adding.

Storing large data in dictionary is faster than hash table, since the elements of hash table are objects and because of that boxing/unboxing happens.

Adding seven thousand words

Adding seven thousand words to list took 1517 milliseconds.

Adding seven thousand words to hash table took 1152 milliseconds.

Adding seven thousand words to dictionary took 1050 milliseconds.

The strange thing that I've encountered in this, is that when I added the lines to the list from the file using stream reader the result was close to even more than the time that it took to add million lines, so I used `ReadAllLines` method instead and the results became more accurate as the time is way less than adding millions of lines.

There is a very tiny slight difference between dictionary and hash table that is almost unnoticeable. But adding to list took a reasonable amount of more time.

Retrieving From Millions of words

Retrieving a specific word from unsorted list that has ten million words took 11321 milliseconds

Retrieving a specific word from sorted list that has ten million words took 3324 milliseconds.

Retrieving a specific word from HashTable that has ten million words took 2198 milliseconds.

Retrieving a specific word from Dictionary that has ten million words took 743 milliseconds.

Thus, we see that retrieving from a sorted list is much faster that unsorted list, and that's because the retrieval of information in sorted list is in an alphabetic order, so we don't have to cycle through each item such as the case in unsorted list.

Retrieving from a HashTable is the faster than list, since the words are sorted in linked lists in buckets based on their hash value, and searching in many short linked lists with all the buckets are filled in is faster.
Retrieving from Dictionary is faster than Hash Table, since Dictionary has no boxing/unboxing.

Retrieving From Thousands of words

Time it took to retrieve a specific word from unsorted list of seven thousand words is 534 milliseconds.

Time it took to retrieve a specific word from sorted list of seven thousand words 556 milliseconds.

Time it took to retrieve a specific word from Hash Table of seven thousand words is 535 milliseconds.

Time it took to retrieve a specific word from dictionary of seven thousand words is 731 milliseconds.

On average There is a very little difference between all of them.