**Explanation**

The following combination of hash table and hash base added the maximum amount of words to the dictionary from their various files:

B = 250726/ TS = 1000081

B = 250726/ TS = 402221

B = 27183/ TS = 1000081

B = 27183/ TS = 402221

B = 27183/ TS = 250727

The following below produces the least amount of words:

B = 250726/ TS = 250727

B = 1/ TS = 250727

B = 1/ TS = 402221

B = 1/ TS = 1000081

**Figure 1: comparison of hash bases and table sizes versus words**

From the below chart (Figure 2), B = 27183/ TS = 1000081 and B = 250726/ TS = 1000081 combination

produces the least number of probes after hashing.

and the following combination produces the highest number of probes:

B = 250726/ TS = 250727

B = 1/ TS = 1000081

B = 1/ TS = 402221

B = 1/ TS = 250727

**Figure 2: comparison of hash bases and table sizes versus their probes**

From the chart below (Figure 3), the first three hash and base combination has the lowest number of collisions, this is because of the less amount of words been read from file into the dictionary.

B = 250726/ TS = 1000081 produces slightly less collisions than B = 27183/ TS = 1000081.

B = 27183/ TS = 250727 produces the greatest number of collisions.

Figure 3

Summary

B = 250726/ TS = 1000081 has been chosen as the best combination. why?

B = 27183/ TS = 250727 produces the greatest number of collisions.

All the table sizes used in this study are primes, and all the hash bases are not prime.

Among the hash bases, 25,0726 and 27,183 reduces the chances of collision far much than 1 as 1 is a common factor that wouldn't change the state of hash function. Among, 250,726 and 27,183,

base 250,726 has less factors than base 27,183. Due to the less factor of base 250,726, it has the high chances of producing less collision when combine with another prime. This also confirm that to minimize collisions, it is important to reduce the number of common factors of the hash base and table size.

The hash count was zero in all runs because the table sizes used are larger than the desired table size.