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COSC 3319-01

Lab 3 – Hash Lab Spring 2021

4/26/21

‘A’ Option

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Table for ‘C’ and ‘B’ Option Hashing

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Hash Function  (Lab/Mine) | Memory Location of Hashing  (Main, File) | Probe Type  (Linear/Random) | Table Load  (55% / 85%) | Calculated  Probe Statistics – 1st 30 keys  (min,max,avg) | Calculated  Probe Statistics – Last 30 keys  (min,max,avg) | Theoretical  Calculation  For E |
| Lab | Main | Linear | 55% | (1, 21, 7.87) | (1, 50, 26.03) | 1.60 |
| Lab | Main | Linear | 85% | (1, 21, 7.87) | (1, 106, 50.33) | 3.87 |
| Lab | Main | Random | 55% | (1, 17, 5.83) | (1, 42, 20.87) | 1.45 |
| Lab | Main | Random | 85% | (1, 17, 5.83) | (1, 80, 35.70) | 2.24 |
| Mine | Main | Linear | 55% | (1, 4, 1.37) | (1, 5, 1.97) | 1.60 |
| Mine | Main | Linear | 85% | (1, 4, 1.37) | (1, 28, 4.20) | 3.87 |
| Mine | Main | Random | 55% | (1, 4, 1.33) | (1, 4, 1.70) | 1.45 |
| Mine | Main | Random | 85% | (1, 4, 1.33) | (1, 11, 3.10) | 2.24 |
| Lab | File | Linear | 55% | (1, 21, 7.87) | (1, 50, 26.03) | 1.60 |
| Lab | File | Linear | 85% | (1, 21, 7.87) | (1, 106, 50.33) | 3.87 |
| Lab | File | Random | 55% | (1, 17, 5.83) | (1, 42, 20.87) | 1.45 |
| Lab | File | Random | 85% | (1, 17, 5.83) | (1, 80, 35.70) | 2.24 |
| Mine | File | Linear | 55% | (1, 4, 1.37) | (1, 5, 1.97) | 1.60 |
| Mine | File | Linear | 85% | (1, 4, 1.37) | (1, 28, 4.20) | 3.87 |
| Mine | File | Random | 55% | (1, 4, 1.33) | (1, 4, 1.70) | 1.45 |
| Mine | File | Random | 85% | (1, 4, 1.33) | (1, 11, 3.10) | 2.24 |

\*Note: Theoretical calculations for E are the same for both B and C options.\*

‘A’ Option : Results Comparison and Explanation:

Overall, the results of hashing in main memory or from the relative file resulted in the same hash table, with the same statistics for each probe method and table load respectively. The resulting file which holds the results of the hashing contains the respective keys, but the other information about each hash record is obfuscated, containing boxes or random letters or characters to represent the other fields of the record. This obfuscation happens as Ada converts the various fields of the hash record, in this case the input file ‘Words200D16.txt’ was encoded as UTF-8, to the output file which defaulted with character encoding to ANSI.

The main differences between hashing in main memory and hashing in an external file represent a classic time-space trade-off problem, and depending on the application for the hashing, either method will obviously outweigh the other due to factors such as hash table size, hash record size, and time allotment. Hashing from a relative file has the advantages of keeping data out of main memory at the cost of overhead from file read and write operations, while the converse is true for hashing in main memory.

Part A: Theoretical Calculations for E with linear probe: :

= 70/128 , E = ((1 – (71/128)) / 2) / ( 1 – (71/128)) = 1.60

The data gathered from searching for the first and last 30 keys in the hash table with a linear probe shows that the given hash function generates many collisions and results in requiring upwards of 16x the theoretical number of required probes to find a random item in the table. From the printed tables, (pg. (7)) the clustering effect of the linear probe can be seen clearly, with 1 very large primary cluster containing most of the keys, and a smaller primary cluster, with a few keys around it.

Part B: Theoretical Calculations for E with linear probe: :

= 109/128 , E = ((1 – (109/128)) / 2) / ( 1 – (109/128)) = 3.87

The data gathered from searching for the first and last 30 keys in the hast table again show that the given hash function generates many collisions and results in requiring many probes to find any random item in the table, far more than the expected theoretical number. The printed tables (pg.10-12) shows what happens as the primary clusters collide inside the hash table, as new keys are added to the table, each cluster now competes for the same space. This primary cluster collision results in astronomical numbers of probes to reach the appropriate key.

B-Option : For the linear probe method of collision handling, the results of the hash table after hashing to the relative file were the same as when hashing in main memory. It is important to note however, that for an application that wanted to hash many keys to a table, hashing to a relative file is the obvious choice due to memory constraints. Also, for an application that aims to hash many keys, a linear probe won’t be the most efficient method of handling collisions. While the linear probe is simple to implement, it will generate more collisions than the random probe, thus adding additional file read and write operations to look up and hash a key into the table, thus wasting time. As the hashing is occurring in a relative file, the space portion of the time space trade-off problem is already solved, so hashing as fast and as efficiently as possible means the linear probe is a poor choice for serious hashing applications.

Part C (a): Theoretical Calculations for E with random probe: :

= 70/128, -(1 / (70/128)) ln (1 – (70/128)) = 1.45

The data gathered shows that switching to the random probe from a linear probe, did moderately reduce the number of probes required to find a random item in the table. The given hash function still generates many collisions in its assignment into the hash table, and far exceeds the theoretical predicted number of probes to find a random item. Looking at the printed hash table (pg. 13-15) shows a more even distribution of the keys, yet the maximum number of probes required to reach an item in the tested sections is comparable to the linear probes’ maximum. Although the random probe technique is a strong method for handling collisions, this data shows a serious flaw in the hashing function itself.

Part C (b): Theoretical Calculations for E with random probe: :

= 109/128, -(1 / (109/128)) ln (1 – (109/128)) = 2.24

The data gathered shows that going to a higher load on the table with the random probe, also greatly reduces the number of probes required to find a random item in the table. The printed hash tables (pg. 16-18) shows large clusters, with intermittent spaces between them . The required number of probes to insert each key into the table with the random probe greatly outperformed the linear probe method, with a ~30% reduction in the maximum number of probes to retrieve a key from the table. This high table load shows that the random probe method of handling collisions really shows its effectiveness as the hashing table has less and less space for new keys.

B - Option: For the random probe method of handling collisions, the results of hashing to a relative file were the same as hashing in main memory. As stated above, hashing to a relative file allows a user to hash many keys without needing to store the resulting hash table in main memory, at the cost of file read write overhead. The added overhead of needing a number generator for the random offset required to implement the random probe, is a non-factor as random number generation occurs in main memory on the order of picoseconds. The time saved reducing collisions both on insertion and look up, make the random probe the clear choice for a serious hashing application that needs to hash many keys, and ideally do it in less time. The only downside to the random probe is its greater difficulty in implementation, but it’s benefits far outweigh that cost.

Part E: Hash Analysis:

Lab Function: HA = abs[ ( abs( slice(1..2) ) /3 + abs( slice(15..16) ) / 3 ) / 2048 + abs( slice(8..8) ) ]

The hash function provided in the lab has major flaws in its implementation. The use of a simple code to generate the hash address in and of itself is not the main issue with this hash function’s failings. This hash function primarily fails in how it handles the simple code it tries to use to generate the hash address. Each 2-character slice consists of 16bits, 8 bits per ASCII character.

The division by 3 of each slice is to fold the summands to avoid an integer overflow when taking the sum. Addition of these 2 folded slices will then result in an integer that can be stored as one 16-bit representation. The following division of the sum by 2048 now effectively causes the sum to lose 11 of its low-order bits, or an 11 bit shift to the right. This now results in effectively eliminating any uniqueness that was gained in taking the first two slices in the first place. The resulting very small value is added to the single character 8-bit ASCII slice. Taking the modulus of this sum by the table size, will now hash most of the keys to the exact same locations, as the sum is primarily made up of just one 8-bit ASCII character.

My Function: HA = abs(slice(1..2) + (2 \* abs(slice(15..16))), HA = HA \* 8, HA = HA / 2,

HA = HA + (3 \*abs(slice(7..8))), HA = HA \* 8, HA = HA / 4, HA mod (TS+1)

My hash function aims to overcome the deficiencies in the given hash function by adding weights to the slices which make up the simple code, adding variation to the values taken from the slices, and overall strengthens a simple code greatly. Multiplication by these weights helps to eliminate collisions resulting from patterns that are naturally occurring in words. The first two slices are added together to get a 16 bit integer, which is then manipulated by shifting both left and right to remove the high order 3 bits and the lowest order bit. This subtle shifting helps to remove some of the collisions that would be generated by words that will take spaces as the 16th character and help to distinguish words that start with the same letter. The following operation of adding the hash address to a weighted middle string will again add variation to the sum, where most words will likely have a letter in the first position or both. Finally, another round of shifting both left and right to remove the high order 3 bits and low order 2 bits, to get a sample of the middle bits which are most likely to be unique from key to key.

Comparing the results from the table, and the hash tables themselves, my hash function results in at least a 5x improvement over the provided lab hash function, with my calculated average probe numbers falling generally in line with the theoretical calculations for random key lookup. In the utilization of the linear probe, my hash function greatly reduces the occurrence of primary clusters, with a spread distribution across the whole hash table. In the utilization of the random probe, my hash function results in massive savings over the provided function, reducing the maximum number of probes by 8x (11 v 80) and the average number of probes required by 11x (3.1 v 35.7).

B Option: As the results were the same for each function, regardless of the hash table location, the main point to address for a hashing function hashing to a relative file is the speed at which the function is processed. Hashing functions that rely on simple arithmetic such as addition, subtraction, and bit-shifting saves time compared to other hash functions that rely on other methods to compute the final hash address. Considering that division is a function that takes 40-50 machine cycles to compute, while doing a bit-shift operation accounts for just 1 machine cycle, massive time saves can be gained by utilizing a hash function that uses the ‘cheaper’ arithmetic. Although my hash function contains more steps, all of them are addition, multiplication or bit-shifts, this makes my hash function able to be processed very quickly. This time save becomes much more significant as the number of hash operations increases, and table sizes reach into the millions, as each millisecond saved can add up to minutes or hours.

------------------ 'C' Option -------------------

------------------Linear Probe w/ Lab Function @ 55%/85% load-----------------------

1 : NULL

2 : NULL

3 : NULL

4 : NULL

5 : NULL

6 : NULL

7 : NULL

8 : NULL

9 : NULL

10 : NULL

11 : NULL

12 : NULL

13 : NULL

14 : NULL

15 : NULL

16 : NULL

17 : NULL

18 : NULL

19 : NULL

20 : NULL

21 : NULL

22 : NULL

23 : NULL

24 : NULL

25 : NULL

26 : NULL

27 : NULL

28 : NULL

29 : NULL

30 : NULL

31 : NULL

32 : NULL

33 : NULL

34 : NULL

35 : NULL

36 : NULL

37 : Carmona Original Location: 37 Probes: 1

38 : Casper Original Location: 37 Probes: 2

39 : Cook Original Location: 37 Probes: 3

40 : Daniels Original Location: 37 Probes: 4

41 : Paschal Original Location: 37 Probes: 5

42 : Red Original Location: 37 Probes: 6

43 : Acevedo Original Location: 37 Probes: 7

44 : Ajose Original Location: 37 Probes: 8

45 : Arauza Original Location: 38 Probes: 8

46 : Buck Original Location: 38 Probes: 9

47 : Clark Original Location: 37 Probes: 11

48 : Crouch Original Location: 38 Probes: 11

49 : Davies Original Location: 37 Probes: 13

50 : Dugger Original Location: 38 Probes: 13

51 : Egbe Original Location: 37 Probes: 15

52 : Farral Original Location: 37 Probes: 16

53 : Garza Original Location: 37 Probes: 17

54 : Gurung Original Location: 38 Probes: 17

55 : Joseph Original Location: 37 Probes: 19

56 : Kelly Original Location: 37 Probes: 20

57 : Corey Original Location: 37 Probes: 21

58 : Adam Original Location: 37 Probes: 22

59 : Clayton Original Location: 37 Probes: 23

60 : 1234567890123456 Original Location: 60 Probes: 1

61 : Dustin Original Location: 38 Probes: 24

62 : Robert Original Location: 37 Probes: 26

63 : Kyle Original Location: 38 Probes: 26

64 : Scott Original Location: 37 Probes: 28

65 : Octavio Original Location: 37 Probes: 29

66 : Judy Original Location: 38 Probes: 29

67 : Derek Original Location: 37 Probes: 31

68 : Jeffrey Original Location: 37 Probes: 32

69 : Jordon Original Location: 37 Probes: 33

70 : Vinnela Original Location: 37 Probes: 34

71 : Lisa Original Location: 37 Probes: 35

72 : Todd Original Location: 37 Probes: 36

73 : Matthew Original Location: 37 Probes: 37

74 : Michael Original Location: 37 Probes: 38

75 : Akhila Original Location: 37 Probes: 39

76 : John Original Location: 37 Probes: 40

77 : Charles Original Location: 37 Probes: 41

78 : James Original Location: 37 Probes: 42

79 : Chris Original Location: 37 Probes: 43

80 : Wade Original Location: 37 Probes: 44

81 : Batbold Original Location: 37 Probes: 45

82 : Joel Original Location: 37 Probes: 46

83 : Maiden Original Location: 37 Probes: 47

84 : Eye Original Location: 38 Probes: 47

85 : Yolk Original Location: 37 Probes: 49

86 : Person Original Location: 37 Probes: 50

87 : NULL

88 : NULL

89 : NULL

90 : NULL

91 : NULL

92 : NULL

93 : NULL

94 : NULL

95 : NULL

96 : NULL

97 : NULL

98 : NULL

99 : NULL

100 : NULL

101 : NULL

102 : Veronica Original Location: 102 Probes: 1

103 : NULL

104 : Constriction Original Location: 104 Probes: 1

105 : NULL

106 : Aguirrie Original Location: 106 Probes: 1

107 : NULL

108 : Nienberg Original Location: 108 Probes: 1

109 : NULL

110 : Bhandari Original Location: 110 Probes: 1

111 : Qamruddin Original Location: 110 Probes: 2

112 : Salkowski Original Location: 112 Probes: 1

113 : Misogamist Original Location: 110 Probes: 4

114 : NULL

115 : Necromancer Original Location: 115 Probes: 1

116 : Ellington Original Location: 116 Probes: 1

117 : Christopher Original Location: 117 Probes: 1

118 : Fernando Original Location: 116 Probes: 3

119 : Alcantara Original Location: 119 Probes: 1

120 : Zulfiqar Original Location: 120 Probes: 1

121 : Fabulous Original Location: 120 Probes: 2

122 : Syncopate Original Location: 122 Probes: 1

123 : Afterwards Original Location: 119 Probes: 5

124 : Northwest Original Location: 120 Probes: 5

125 : Irreversible Original Location: 121 Probes: 5

126 : Fabricate Original Location: 121 Probes: 6

127 : NULL

128 : NULL

Probe Statistics for 1st 30 keys

Minimum Num. Probes: 1

Maximum Num. Probes: 21

Average Num. Probes:

7.87

End of Probe Statistics.

Probe Statistics for last 30 keys

Minimum Num. Probes: 1

Maximum Num. Probes: 50

Average Num. Probes:

26.03

End of Probe Statistics.

----------Theoretical Probe Calculation----------

Number of Keys: 70

Table load: 0.55

Calculated value of E, expected number of probes to locate key: 1.60

--------------------

1 : ratiocination Original Location: 115 Probes: 15

2 : cauldron Original Location: 115 Probes: 16

3 : orthodontist Original Location: 116 Probes: 16

4 : rationalize Original Location: 113 Probes: 20

5 : scat Original Location: 37 Probes: 97

6 : toluene Original Location: 37 Probes: 98

7 : wet Original Location: 37 Probes: 99

8 : sparse Original Location: 38 Probes: 99

9 : quandary Original Location: 127 Probes: 11

10 : dactyl Original Location: 37 Probes: 102

11 : nosegay Original Location: 37 Probes: 103

12 : option Original Location: 38 Probes: 103

13 : forgetful Original Location: 122 Probes: 20

14 : privilege Original Location: 109 Probes: 34

15 : sponsor Original Location: 38 Probes: 106

16 : exhilarate Original Location: 103 Probes: 42

17 : NULL

18 : NULL

19 : NULL

20 : NULL

21 : NULL

22 : NULL

23 : NULL

24 : NULL

25 : NULL

26 : NULL

27 : NULL

28 : NULL

29 : NULL

30 : NULL

31 : NULL

32 : NULL

33 : NULL

34 : NULL

35 : NULL

36 : NULL

37 : Carmona Original Location: 37 Probes: 1

38 : Casper Original Location: 37 Probes: 2

39 : Cook Original Location: 37 Probes: 3

40 : Daniels Original Location: 37 Probes: 4

41 : Paschal Original Location: 37 Probes: 5

42 : Red Original Location: 37 Probes: 6

43 : Acevedo Original Location: 37 Probes: 7

44 : Ajose Original Location: 37 Probes: 8

45 : Arauza Original Location: 38 Probes: 8

46 : Buck Original Location: 38 Probes: 9

47 : Clark Original Location: 37 Probes: 11

48 : Crouch Original Location: 38 Probes: 11

49 : Davies Original Location: 37 Probes: 13

50 : Dugger Original Location: 38 Probes: 13

51 : Egbe Original Location: 37 Probes: 15

52 : Farral Original Location: 37 Probes: 16

53 : Garza Original Location: 37 Probes: 17

54 : Gurung Original Location: 38 Probes: 17

55 : Joseph Original Location: 37 Probes: 19

56 : Kelly Original Location: 37 Probes: 20

57 : Corey Original Location: 37 Probes: 21

58 : Adam Original Location: 37 Probes: 22

59 : Clayton Original Location: 37 Probes: 23

60 : 1234567890123456 Original Location: 60 Probes: 1

61 : Dustin Original Location: 38 Probes: 24

62 : Robert Original Location: 37 Probes: 26

63 : Kyle Original Location: 38 Probes: 26

64 : Scott Original Location: 37 Probes: 28

65 : Octavio Original Location: 37 Probes: 29

66 : Judy Original Location: 38 Probes: 29

67 : Derek Original Location: 37 Probes: 31

68 : Jeffrey Original Location: 37 Probes: 32

69 : Jordon Original Location: 37 Probes: 33

70 : Vinnela Original Location: 37 Probes: 34

71 : Lisa Original Location: 37 Probes: 35

72 : Todd Original Location: 37 Probes: 36

73 : Matthew Original Location: 37 Probes: 37

74 : Michael Original Location: 37 Probes: 38

75 : Akhila Original Location: 37 Probes: 39

76 : John Original Location: 37 Probes: 40

77 : Charles Original Location: 37 Probes: 41

78 : James Original Location: 37 Probes: 42

79 : Chris Original Location: 37 Probes: 43

80 : Wade Original Location: 37 Probes: 44

81 : Batbold Original Location: 37 Probes: 45

82 : Joel Original Location: 37 Probes: 46

83 : Maiden Original Location: 37 Probes: 47

84 : Eye Original Location: 38 Probes: 47

85 : Yolk Original Location: 37 Probes: 49

86 : Person Original Location: 37 Probes: 50

87 : Honor Original Location: 37 Probes: 51

88 : Staple Original Location: 38 Probes: 51

89 : Under Original Location: 37 Probes: 53

90 : Jutty Original Location: 38 Probes: 53

91 : Finagle Original Location: 37 Probes: 55

92 : Cook Original Location: 37 Probes: 56

93 : Rush Original Location: 38 Probes: 56

94 : Wine Original Location: 37 Probes: 58

95 : Screen Original Location: 37 Probes: 59

96 : Perfect Original Location: 37 Probes: 60

97 : mole Original Location: 37 Probes: 61

98 : poison Original Location: 37 Probes: 62

99 : cap Original Location: 37 Probes: 63

100 : wince Original Location: 37 Probes: 64

101 : live Original Location: 37 Probes: 65

102 : Veronica Original Location: 102 Probes: 1

103 : inlet Original Location: 37 Probes: 67

104 : Constriction Original Location: 104 Probes: 1

105 : magnetic Original Location: 104 Probes: 2

106 : Aguirrie Original Location: 106 Probes: 1

107 : prepossess Original Location: 107 Probes: 1

108 : Nienberg Original Location: 108 Probes: 1

109 : marsupial Original Location: 102 Probes: 8

110 : Bhandari Original Location: 110 Probes: 1

111 : Qamruddin Original Location: 110 Probes: 2

112 : Salkowski Original Location: 112 Probes: 1

113 : Misogamist Original Location: 110 Probes: 4

114 : constrain Original Location: 110 Probes: 5

115 : Necromancer Original Location: 115 Probes: 1

116 : Ellington Original Location: 116 Probes: 1

117 : Christopher Original Location: 117 Probes: 1

118 : Fernando Original Location: 116 Probes: 3

119 : Alcantara Original Location: 119 Probes: 1

120 : Zulfiqar Original Location: 120 Probes: 1

121 : Fabulous Original Location: 120 Probes: 2

122 : Syncopate Original Location: 122 Probes: 1

123 : Afterwards Original Location: 119 Probes: 5

124 : Northwest Original Location: 120 Probes: 5

125 : Irreversible Original Location: 121 Probes: 5

126 : Fabricate Original Location: 121 Probes: 6

127 : parasympathetic Original Location: 117 Probes: 11

128 : brutalize Original Location: 128 Probes: 1

Probe Statistics for 1st 30 keys

Minimum Num. Probes: 1

Maximum Num. Probes: 21

Average Num. Probes:

7.87

End of Probe Statistics.

Probe Statistics for last 30 keys

Minimum Num. Probes: 1

Maximum Num. Probes: 106

Average Num. Probes:

50.33

End of Probe Statistics.

----------Theoretical Probe Calculation----------

Number of Keys: 109

Table load: 0.85

Calculated value of E, expected number of probes to locate key: 3.87

--------------------

------------------Random Probe w/ Lab Function @ 55%/85% load-----------------------

1 : NULL

2 : NULL

3 : NULL

4 : NULL

5 : John Original Location: 37 Probes: 33

6 : Charles Original Location: 37 Probes: 34

7 : NULL

8 : Kelly Original Location: 37 Probes: 16

9 : NULL

10 : Garza Original Location: 37 Probes: 14

11 : James Original Location: 37 Probes: 35

12 : Lisa Original Location: 37 Probes: 28

13 : Jeffrey Original Location: 37 Probes: 25

14 : NULL

15 : Michael Original Location: 37 Probes: 31

16 : NULL

17 : NULL

18 : Batbold Original Location: 37 Probes: 38

19 : NULL

20 : NULL

21 : Corey Original Location: 37 Probes: 17

22 : Afterwards Original Location: 119 Probes: 4

23 : Northwest Original Location: 120 Probes: 4

24 : Irreversible Original Location: 121 Probes: 4

25 : NULL

26 : NULL

27 : Clayton Original Location: 37 Probes: 19

28 : NULL

29 : Ajose Original Location: 37 Probes: 9

30 : Judy Original Location: 38 Probes: 9

31 : Joseph Original Location: 37 Probes: 15

32 : Derek Original Location: 37 Probes: 24

33 : Wade Original Location: 37 Probes: 37

34 : NULL

35 : NULL

36 : Chris Original Location: 37 Probes: 36

37 : Carmona Original Location: 37 Probes: 1

38 : Casper Original Location: 37 Probes: 2

39 : Arauza Original Location: 38 Probes: 2

40 : NULL

41 : Todd Original Location: 37 Probes: 29

42 : NULL

43 : Cook Original Location: 37 Probes: 3

44 : Buck Original Location: 38 Probes: 3

45 : NULL

46 : Jordon Original Location: 37 Probes: 26

47 : NULL

48 : NULL

49 : Robert Original Location: 37 Probes: 21

50 : Red Original Location: 37 Probes: 6

51 : Gurung Original Location: 38 Probes: 6

52 : NULL

53 : NULL

54 : NULL

55 : NULL

56 : Akhila Original Location: 37 Probes: 32

57 : Farral Original Location: 37 Probes: 13

58 : Matthew Original Location: 37 Probes: 30

59 : Fabricate Original Location: 121 Probes: 7

60 : 1234567890123456 Original Location: 60 Probes: 1

61 : NULL

62 : NULL

63 : NULL

64 : NULL

65 : Paschal Original Location: 37 Probes: 5

66 : Dugger Original Location: 38 Probes: 5

67 : NULL

68 : Daniels Original Location: 37 Probes: 4

69 : Crouch Original Location: 38 Probes: 4

70 : NULL

71 : Joel Original Location: 37 Probes: 39

72 : NULL

73 : NULL

74 : NULL

75 : NULL

76 : NULL

77 : NULL

78 : NULL

79 : NULL

80 : Maiden Original Location: 37 Probes: 40

81 : NULL

82 : NULL

83 : Vinnela Original Location: 37 Probes: 27

84 : NULL

85 : NULL

86 : Adam Original Location: 37 Probes: 18

87 : Octavio Original Location: 37 Probes: 23

88 : NULL

89 : NULL

90 : NULL

91 : NULL

92 : Egbe Original Location: 37 Probes: 12

93 : NULL

94 : Person Original Location: 37 Probes: 42

95 : NULL

96 : NULL

97 : NULL

98 : Scott Original Location: 37 Probes: 22

99 : Davies Original Location: 37 Probes: 11

100 : NULL

101 : NULL

102 : Veronica Original Location: 102 Probes: 1

103 : Acevedo Original Location: 37 Probes: 7

104 : Dustin Original Location: 38 Probes: 7

105 : Constriction Original Location: 104 Probes: 2

106 : Aguirrie Original Location: 106 Probes: 1

107 : NULL

108 : Nienberg Original Location: 108 Probes: 1

109 : NULL

110 : Bhandari Original Location: 110 Probes: 1

111 : Qamruddin Original Location: 110 Probes: 2

112 : Salkowski Original Location: 112 Probes: 1

113 : Kyle Original Location: 38 Probes: 8

114 : NULL

115 : Necromancer Original Location: 115 Probes: 1

116 : Ellington Original Location: 116 Probes: 1

117 : Christopher Original Location: 117 Probes: 1

118 : NULL

119 : Alcantara Original Location: 119 Probes: 1

120 : Zulfiqar Original Location: 120 Probes: 1

121 : Fabulous Original Location: 120 Probes: 2

122 : Fernando Original Location: 116 Probes: 3

123 : Misogamist Original Location: 110 Probes: 6

124 : NULL

125 : Yolk Original Location: 37 Probes: 41

126 : Clark Original Location: 37 Probes: 10

127 : Eye Original Location: 38 Probes: 10

128 : Syncopate Original Location: 122 Probes: 3

Probe Statistics for 1st 30 keys

Minimum Num. Probes: 1

Maximum Num. Probes: 17

Average Num. Probes:

5.83

End of Probe Statistics.

Probe Statistics for last 30 keys

Minimum Num. Probes: 1

Maximum Num. Probes: 42

Average Num. Probes:

20.87

End of Probe Statistics.

----------Theoretical Probe Calculation----------

Number of Keys: 70

Table load: 0.55

Calculated value of E, expected number of probes to locate key: 1.45

--------------------

1 : brutalize Original Location: 128 Probes: 2

2 : constrain Original Location: 110 Probes: 13

3 : exhilarate Original Location: 103 Probes: 5

4 : wince Original Location: 37 Probes: 68

5 : John Original Location: 37 Probes: 33

6 : Charles Original Location: 37 Probes: 34

7 : magnetic Original Location: 104 Probes: 4

8 : Kelly Original Location: 37 Probes: 16

9 : Rush Original Location: 38 Probes: 16

10 : Garza Original Location: 37 Probes: 14

11 : James Original Location: 37 Probes: 35

12 : Lisa Original Location: 37 Probes: 28

13 : Jeffrey Original Location: 37 Probes: 25

14 : mole Original Location: 37 Probes: 58

15 : Michael Original Location: 37 Probes: 31

16 : rationalize Original Location: 113 Probes: 4

17 : Wine Original Location: 37 Probes: 53

18 : Batbold Original Location: 37 Probes: 38

19 : orthodontist Original Location: 116 Probes: 4

20 : NULL

21 : Corey Original Location: 37 Probes: 17

22 : Afterwards Original Location: 119 Probes: 4

23 : Northwest Original Location: 120 Probes: 4

24 : Irreversible Original Location: 121 Probes: 4

25 : Under Original Location: 37 Probes: 45

26 : poison Original Location: 37 Probes: 62

27 : Clayton Original Location: 37 Probes: 19

28 : toluene Original Location: 37 Probes: 76

29 : Ajose Original Location: 37 Probes: 9

30 : Judy Original Location: 38 Probes: 9

31 : Joseph Original Location: 37 Probes: 15

32 : Derek Original Location: 37 Probes: 24

33 : Wade Original Location: 37 Probes: 37

34 : NULL

35 : scat Original Location: 37 Probes: 75

36 : Chris Original Location: 37 Probes: 36

37 : Carmona Original Location: 37 Probes: 1

38 : Casper Original Location: 37 Probes: 2

39 : Arauza Original Location: 38 Probes: 2

40 : marsupial Original Location: 102 Probes: 7

41 : Todd Original Location: 37 Probes: 29

42 : sponsor Original Location: 38 Probes: 29

43 : Cook Original Location: 37 Probes: 3

44 : Buck Original Location: 38 Probes: 3

45 : NULL

46 : Jordon Original Location: 37 Probes: 26

47 : option Original Location: 38 Probes: 26

48 : inlet Original Location: 37 Probes: 72

49 : Robert Original Location: 37 Probes: 21

50 : Red Original Location: 37 Probes: 6

51 : Gurung Original Location: 38 Probes: 6

52 : NULL

53 : ratiocination Original Location: 115 Probes: 7

54 : Finagle Original Location: 37 Probes: 50

55 : Screen Original Location: 37 Probes: 55

56 : Akhila Original Location: 37 Probes: 32

57 : Farral Original Location: 37 Probes: 13

58 : Matthew Original Location: 37 Probes: 30

59 : Fabricate Original Location: 121 Probes: 7

60 : 1234567890123456 Original Location: 60 Probes: 1

61 : quandary Original Location: 127 Probes: 11

62 : cauldron Original Location: 115 Probes: 8

63 : NULL

64 : NULL

65 : Paschal Original Location: 37 Probes: 5

66 : Dugger Original Location: 38 Probes: 5

67 : Honor Original Location: 37 Probes: 43

68 : Daniels Original Location: 37 Probes: 4

69 : Crouch Original Location: 38 Probes: 4

70 : privilege Original Location: 109 Probes: 10

71 : Joel Original Location: 37 Probes: 39

72 : nosegay Original Location: 37 Probes: 80

73 : forgetful Original Location: 122 Probes: 20

74 : wet Original Location: 37 Probes: 78

75 : NULL

76 : NULL

77 : NULL

78 : NULL

79 : NULL

80 : Maiden Original Location: 37 Probes: 40

81 : NULL

82 : NULL

83 : Vinnela Original Location: 37 Probes: 27

84 : Cook Original Location: 37 Probes: 52

85 : NULL

86 : Adam Original Location: 37 Probes: 18

87 : Octavio Original Location: 37 Probes: 23

88 : sparse Original Location: 38 Probes: 23

89 : NULL

90 : NULL

91 : NULL

92 : Egbe Original Location: 37 Probes: 12

93 : Jutty Original Location: 38 Probes: 12

94 : Person Original Location: 37 Probes: 42

95 : dactyl Original Location: 37 Probes: 79

96 : NULL

97 : NULL

98 : Scott Original Location: 37 Probes: 22

99 : Davies Original Location: 37 Probes: 11

100 : Staple Original Location: 38 Probes: 11

101 : cap Original Location: 37 Probes: 65

102 : Veronica Original Location: 102 Probes: 1

103 : Acevedo Original Location: 37 Probes: 7

104 : Dustin Original Location: 38 Probes: 7

105 : Constriction Original Location: 104 Probes: 2

106 : Aguirrie Original Location: 106 Probes: 1

107 : prepossess Original Location: 107 Probes: 1

108 : Nienberg Original Location: 108 Probes: 1

109 : Perfect Original Location: 37 Probes: 57

110 : Bhandari Original Location: 110 Probes: 1

111 : Qamruddin Original Location: 110 Probes: 2

112 : Salkowski Original Location: 112 Probes: 1

113 : Kyle Original Location: 38 Probes: 8

114 : live Original Location: 37 Probes: 70

115 : Necromancer Original Location: 115 Probes: 1

116 : Ellington Original Location: 116 Probes: 1

117 : Christopher Original Location: 117 Probes: 1

118 : parasympathetic Original Location: 117 Probes: 2

119 : Alcantara Original Location: 119 Probes: 1

120 : Zulfiqar Original Location: 120 Probes: 1

121 : Fabulous Original Location: 120 Probes: 2

122 : Fernando Original Location: 116 Probes: 3

123 : Misogamist Original Location: 110 Probes: 6

124 : NULL

125 : Yolk Original Location: 37 Probes: 41

126 : Clark Original Location: 37 Probes: 10

127 : Eye Original Location: 38 Probes: 10

128 : Syncopate Original Location: 122 Probes: 3

Probe Statistics for 1st 30 keys

Minimum Num. Probes: 1

Maximum Num. Probes: 17

Average Num. Probes:

5.83

End of Probe Statistics.

Probe Statistics for last 30 keys

Minimum Num. Probes: 1

Maximum Num. Probes: 80

Average Num. Probes:

35.70

End of Probe Statistics.

----------Theoretical Probe Calculation----------

Number of Keys: 109

Table load: 0.85

Calculated value of E, expected number of probes to locate key: 2.24

--------------------

------------------Linear Probe w/ My Function @ 55%/85% load-----------------------

1 : NULL

2 : NULL

3 : NULL

4 : NULL

5 : NULL

6 : Lisa Original Location: 6 Probes: 1

7 : Dugger Original Location: 7 Probes: 1

8 : Dustin Original Location: 7 Probes: 2

9 : Derek Original Location: 7 Probes: 3

10 : Afterwards Original Location: 10 Probes: 1

11 : NULL

12 : NULL

13 : NULL

14 : Maiden Original Location: 14 Probes: 1

15 : Clark Original Location: 15 Probes: 1

16 : Akhila Original Location: 15 Probes: 2

17 : Yolk Original Location: 14 Probes: 4

18 : NULL

19 : NULL

20 : Matthew Original Location: 20 Probes: 1

21 : NULL

22 : 1234567890123456 Original Location: 22 Probes: 1

23 : Joseph Original Location: 23 Probes: 1

24 : Jordon Original Location: 23 Probes: 2

25 : Veronica Original Location: 25 Probes: 1

26 : John Original Location: 23 Probes: 4

27 : Joel Original Location: 23 Probes: 5

28 : NULL

29 : NULL

30 : Scott Original Location: 30 Probes: 1

31 : Ajose Original Location: 31 Probes: 1

32 : Arauza Original Location: 31 Probes: 2

33 : Gurung Original Location: 31 Probes: 3

34 : NULL

35 : NULL

36 : NULL

37 : NULL

38 : NULL

39 : NULL

40 : Salkowski Original Location: 40 Probes: 1

41 : NULL

42 : Alcantara Original Location: 42 Probes: 1

43 : Nienberg Original Location: 43 Probes: 1

44 : NULL

45 : NULL

46 : NULL

47 : Crouch Original Location: 47 Probes: 1

48 : NULL

49 : Necromancer Original Location: 49 Probes: 1

50 : NULL

51 : NULL

52 : NULL

53 : Daniels Original Location: 53 Probes: 1

54 : NULL

55 : Judy Original Location: 55 Probes: 1

56 : NULL

57 : NULL

58 : NULL

59 : NULL

60 : NULL

61 : Charles Original Location: 61 Probes: 1

62 : NULL

63 : Casper Original Location: 63 Probes: 1

64 : Kelly Original Location: 63 Probes: 2

65 : NULL

66 : Carmona Original Location: 66 Probes: 1

67 : NULL

68 : Bhandari Original Location: 68 Probes: 1

69 : NULL

70 : Aguirrie Original Location: 70 Probes: 1

71 : Davies Original Location: 71 Probes: 1

72 : NULL

73 : Jeffrey Original Location: 73 Probes: 1

74 : NULL

75 : NULL

76 : Batbold Original Location: 76 Probes: 1

77 : NULL

78 : NULL

79 : Chris Original Location: 79 Probes: 1

80 : Eye Original Location: 79 Probes: 2

81 : Syncopate Original Location: 81 Probes: 1

82 : NULL

83 : Michael Original Location: 83 Probes: 1

84 : NULL

85 : Octavio Original Location: 85 Probes: 1

86 : NULL

87 : Qamruddin Original Location: 87 Probes: 1

88 : Farral Original Location: 87 Probes: 2

89 : Robert Original Location: 87 Probes: 3

90 : Vinnela Original Location: 89 Probes: 2

91 : NULL

92 : NULL

93 : NULL

94 : Wade Original Location: 94 Probes: 1

95 : Ellington Original Location: 95 Probes: 1

96 : Cook Original Location: 96 Probes: 1

97 : Zulfiqar Original Location: 97 Probes: 1

98 : Garza Original Location: 95 Probes: 4

99 : Corey Original Location: 96 Probes: 4

100 : Clayton Original Location: 96 Probes: 5

101 : Irreversible Original Location: 99 Probes: 3

102 : Acevedo Original Location: 102 Probes: 1

103 : Todd Original Location: 103 Probes: 1

104 : Christopher Original Location: 102 Probes: 3

105 : Person Original Location: 103 Probes: 3

106 : Fabricate Original Location: 106 Probes: 1

107 : Paschal Original Location: 107 Probes: 1

108 : NULL

109 : Fabulous Original Location: 109 Probes: 1

110 : Misogamist Original Location: 109 Probes: 2

111 : Constriction Original Location: 110 Probes: 2

112 : Egbe Original Location: 112 Probes: 1

113 : Northwest Original Location: 110 Probes: 4

114 : NULL

115 : NULL

116 : NULL

117 : NULL

118 : NULL

119 : Red Original Location: 119 Probes: 1

120 : Buck Original Location: 120 Probes: 1

121 : James Original Location: 119 Probes: 3

122 : Fernando Original Location: 120 Probes: 3

123 : NULL

124 : NULL

125 : NULL

126 : NULL

127 : Kyle Original Location: 127 Probes: 1

128 : Adam Original Location: 128 Probes: 1

Probe Statistics for 1st 30 keys

Minimum Num. Probes: 1

Maximum Num. Probes: 4

Average Num. Probes:

1.37

End of Probe Statistics.

Probe Statistics for last 30 keys

Minimum Num. Probes: 1

Maximum Num. Probes: 5

Average Num. Probes:

1.97

End of Probe Statistics.

----------Theoretical Probe Calculation----------

Number of Keys: 70

Table load: 0.55

Calculated value of E, expected number of probes to locate key: 1.60

--------------------

1 : Under Original Location: 127 Probes: 3

2 : toluene Original Location: 128 Probes: 3

3 : NULL

4 : live Original Location: 4 Probes: 1

5 : NULL

6 : Lisa Original Location: 6 Probes: 1

7 : Dugger Original Location: 7 Probes: 1

8 : Dustin Original Location: 7 Probes: 2

9 : Derek Original Location: 7 Probes: 3

10 : Afterwards Original Location: 10 Probes: 1

11 : Honor Original Location: 7 Probes: 5

12 : NULL

13 : NULL

14 : Maiden Original Location: 14 Probes: 1

15 : Clark Original Location: 15 Probes: 1

16 : Akhila Original Location: 15 Probes: 2

17 : Yolk Original Location: 14 Probes: 4

18 : Staple Original Location: 14 Probes: 5

19 : NULL

20 : Matthew Original Location: 20 Probes: 1

21 : NULL

22 : 1234567890123456 Original Location: 22 Probes: 1

23 : Joseph Original Location: 23 Probes: 1

24 : Jordon Original Location: 23 Probes: 2

25 : Veronica Original Location: 25 Probes: 1

26 : John Original Location: 23 Probes: 4

27 : Joel Original Location: 23 Probes: 5

28 : magnetic Original Location: 27 Probes: 2

29 : inlet Original Location: 29 Probes: 1

30 : Scott Original Location: 30 Probes: 1

31 : Ajose Original Location: 31 Probes: 1

32 : Arauza Original Location: 31 Probes: 2

33 : Gurung Original Location: 31 Probes: 3

34 : Screen Original Location: 30 Probes: 5

35 : brutalize Original Location: 32 Probes: 4

36 : scat Original Location: 28 Probes: 9

37 : wet Original Location: 28 Probes: 10

38 : forgetful Original Location: 26 Probes: 13

39 : rationalize Original Location: 39 Probes: 1

40 : Salkowski Original Location: 40 Probes: 1

41 : quandary Original Location: 40 Probes: 2

42 : Alcantara Original Location: 42 Probes: 1

43 : Nienberg Original Location: 43 Probes: 1

44 : option Original Location: 44 Probes: 1

45 : mole Original Location: 45 Probes: 1

46 : NULL

47 : Crouch Original Location: 47 Probes: 1

48 : NULL

49 : Necromancer Original Location: 49 Probes: 1

50 : NULL

51 : marsupial Original Location: 51 Probes: 1

52 : sponsor Original Location: 52 Probes: 1

53 : Daniels Original Location: 53 Probes: 1

54 : NULL

55 : Judy Original Location: 55 Probes: 1

56 : Jutty Original Location: 55 Probes: 2

57 : exhilarate Original Location: 57 Probes: 1

58 : NULL

59 : orthodontist Original Location: 59 Probes: 1

60 : NULL

61 : Charles Original Location: 61 Probes: 1

62 : cap Original Location: 61 Probes: 2

63 : Casper Original Location: 63 Probes: 1

64 : Kelly Original Location: 63 Probes: 2

65 : ratiocination Original Location: 63 Probes: 3

66 : Carmona Original Location: 66 Probes: 1

67 : NULL

68 : Bhandari Original Location: 68 Probes: 1

69 : poison Original Location: 69 Probes: 1

70 : Aguirrie Original Location: 70 Probes: 1

71 : Davies Original Location: 71 Probes: 1

72 : prepossess Original Location: 71 Probes: 2

73 : Jeffrey Original Location: 73 Probes: 1

74 : dactyl Original Location: 69 Probes: 6

75 : nosegay Original Location: 70 Probes: 6

76 : Batbold Original Location: 76 Probes: 1

77 : sparse Original Location: 76 Probes: 2

78 : NULL

79 : Chris Original Location: 79 Probes: 1

80 : Eye Original Location: 79 Probes: 2

81 : Syncopate Original Location: 81 Probes: 1

82 : NULL

83 : Michael Original Location: 83 Probes: 1

84 : NULL

85 : Octavio Original Location: 85 Probes: 1

86 : NULL

87 : Qamruddin Original Location: 87 Probes: 1

88 : Farral Original Location: 87 Probes: 2

89 : Robert Original Location: 87 Probes: 3

90 : Vinnela Original Location: 89 Probes: 2

91 : Perfect Original Location: 91 Probes: 1

92 : parasympathetic Original Location: 87 Probes: 6

93 : wince Original Location: 92 Probes: 2

94 : Wade Original Location: 94 Probes: 1

95 : Ellington Original Location: 95 Probes: 1

96 : Cook Original Location: 96 Probes: 1

97 : Zulfiqar Original Location: 97 Probes: 1

98 : Garza Original Location: 95 Probes: 4

99 : Corey Original Location: 96 Probes: 4

100 : Clayton Original Location: 96 Probes: 5

101 : Irreversible Original Location: 99 Probes: 3

102 : Acevedo Original Location: 102 Probes: 1

103 : Todd Original Location: 103 Probes: 1

104 : Christopher Original Location: 102 Probes: 3

105 : Person Original Location: 103 Probes: 3

106 : Fabricate Original Location: 106 Probes: 1

107 : Paschal Original Location: 107 Probes: 1

108 : Cook Original Location: 96 Probes: 13

109 : Fabulous Original Location: 109 Probes: 1

110 : Misogamist Original Location: 109 Probes: 2

111 : Constriction Original Location: 110 Probes: 2

112 : Egbe Original Location: 112 Probes: 1

113 : Northwest Original Location: 110 Probes: 4

114 : Finagle Original Location: 114 Probes: 1

115 : Wine Original Location: 94 Probes: 22

116 : cauldron Original Location: 108 Probes: 9

117 : constrain Original Location: 117 Probes: 1

118 : privilege Original Location: 91 Probes: 28

119 : Red Original Location: 119 Probes: 1

120 : Buck Original Location: 120 Probes: 1

121 : James Original Location: 119 Probes: 3

122 : Fernando Original Location: 120 Probes: 3

123 : Rush Original Location: 119 Probes: 5

124 : NULL

125 : NULL

126 : NULL

127 : Kyle Original Location: 127 Probes: 1

128 : Adam Original Location: 128 Probes: 1

Probe Statistics for 1st 30 keys

Minimum Num. Probes: 1

Maximum Num. Probes: 4

Average Num. Probes:

1.37

End of Probe Statistics.

Probe Statistics for last 30 keys

Minimum Num. Probes: 1

Maximum Num. Probes: 28

Average Num. Probes:

4.20

End of Probe Statistics.

----------Theoretical Probe Calculation----------

Number of Keys: 109

Table load: 0.85

Calculated value of E, expected number of probes to locate key: 3.87

--------------------

------------------Random Probe w/ My Function @ 55%/85% load-----------------------

1 : NULL

2 : NULL

3 : NULL

4 : NULL

5 : Kyle Original Location: 127 Probes: 3

6 : Lisa Original Location: 6 Probes: 1

7 : Dugger Original Location: 7 Probes: 1

8 : Dustin Original Location: 7 Probes: 2

9 : NULL

10 : Afterwards Original Location: 10 Probes: 1

11 : NULL

12 : NULL

13 : Derek Original Location: 7 Probes: 3

14 : Maiden Original Location: 14 Probes: 1

15 : Clark Original Location: 15 Probes: 1

16 : Akhila Original Location: 15 Probes: 2

17 : NULL

18 : NULL

19 : NULL

20 : Matthew Original Location: 20 Probes: 1

21 : NULL

22 : 1234567890123456 Original Location: 22 Probes: 1

23 : Joseph Original Location: 23 Probes: 1

24 : Jordon Original Location: 23 Probes: 2

25 : Veronica Original Location: 25 Probes: 1

26 : NULL

27 : NULL

28 : NULL

29 : John Original Location: 23 Probes: 3

30 : Scott Original Location: 30 Probes: 1

31 : Ajose Original Location: 31 Probes: 1

32 : Arauza Original Location: 31 Probes: 2

33 : NULL

34 : NULL

35 : NULL

36 : NULL

37 : Gurung Original Location: 31 Probes: 3

38 : NULL

39 : NULL

40 : Salkowski Original Location: 40 Probes: 1

41 : NULL

42 : Alcantara Original Location: 42 Probes: 1

43 : Nienberg Original Location: 43 Probes: 1

44 : NULL

45 : Yolk Original Location: 14 Probes: 4

46 : NULL

47 : Crouch Original Location: 47 Probes: 1

48 : NULL

49 : Necromancer Original Location: 49 Probes: 1

50 : NULL

51 : NULL

52 : NULL

53 : Daniels Original Location: 53 Probes: 1

54 : Joel Original Location: 23 Probes: 4

55 : Judy Original Location: 55 Probes: 1

56 : NULL

57 : NULL

58 : NULL

59 : NULL

60 : NULL

61 : Charles Original Location: 61 Probes: 1

62 : NULL

63 : Casper Original Location: 63 Probes: 1

64 : Kelly Original Location: 63 Probes: 2

65 : NULL

66 : Carmona Original Location: 66 Probes: 1

67 : NULL

68 : Bhandari Original Location: 68 Probes: 1

69 : NULL

70 : Aguirrie Original Location: 70 Probes: 1

71 : Davies Original Location: 71 Probes: 1

72 : NULL

73 : Jeffrey Original Location: 73 Probes: 1

74 : NULL

75 : NULL

76 : Batbold Original Location: 76 Probes: 1

77 : NULL

78 : NULL

79 : Chris Original Location: 79 Probes: 1

80 : Eye Original Location: 79 Probes: 2

81 : Syncopate Original Location: 81 Probes: 1

82 : NULL

83 : Michael Original Location: 83 Probes: 1

84 : NULL

85 : Octavio Original Location: 85 Probes: 1

86 : NULL

87 : Qamruddin Original Location: 87 Probes: 1

88 : Farral Original Location: 87 Probes: 2

89 : Vinnela Original Location: 89 Probes: 1

90 : NULL

91 : NULL

92 : NULL

93 : Robert Original Location: 87 Probes: 3

94 : Wade Original Location: 94 Probes: 1

95 : Ellington Original Location: 95 Probes: 1

96 : Cook Original Location: 96 Probes: 1

97 : Zulfiqar Original Location: 97 Probes: 1

98 : NULL

99 : Irreversible Original Location: 99 Probes: 1

100 : NULL

101 : Garza Original Location: 95 Probes: 3

102 : Acevedo Original Location: 102 Probes: 1

103 : Todd Original Location: 103 Probes: 1

104 : Person Original Location: 103 Probes: 2

105 : NULL

106 : Fabricate Original Location: 106 Probes: 1

107 : Paschal Original Location: 107 Probes: 1

108 : Christopher Original Location: 102 Probes: 3

109 : Fabulous Original Location: 109 Probes: 1

110 : Misogamist Original Location: 109 Probes: 2

111 : Constriction Original Location: 110 Probes: 2

112 : Egbe Original Location: 112 Probes: 1

113 : NULL

114 : NULL

115 : NULL

116 : Northwest Original Location: 110 Probes: 3

117 : NULL

118 : NULL

119 : Red Original Location: 119 Probes: 1

120 : Buck Original Location: 120 Probes: 1

121 : Fernando Original Location: 120 Probes: 2

122 : NULL

123 : NULL

124 : Clayton Original Location: 96 Probes: 5

125 : James Original Location: 119 Probes: 3

126 : NULL

127 : Corey Original Location: 96 Probes: 4

128 : Adam Original Location: 128 Probes: 1

Probe Statistics for 1st 30 keys

Minimum Num. Probes: 1

Maximum Num. Probes: 4

Average Num. Probes:

1.33

End of Probe Statistics.

Probe Statistics for last 30 keys

Minimum Num. Probes: 1

Maximum Num. Probes: 4

Average Num. Probes:

1.70

End of Probe Statistics.

----------Theoretical Probe Calculation----------

Number of Keys: 70

Table load: 0.55

Calculated value of E, expected number of probes to locate key: 1.45

--------------------

1 : ratiocination Original Location: 63 Probes: 7

2 : NULL

3 : NULL

4 : live Original Location: 4 Probes: 1

5 : Kyle Original Location: 127 Probes: 3

6 : Lisa Original Location: 6 Probes: 1

7 : Dugger Original Location: 7 Probes: 1

8 : Dustin Original Location: 7 Probes: 2

9 : NULL

10 : Afterwards Original Location: 10 Probes: 1

11 : cauldron Original Location: 108 Probes: 4

12 : Under Original Location: 127 Probes: 6

13 : Derek Original Location: 7 Probes: 3

14 : Maiden Original Location: 14 Probes: 1

15 : Clark Original Location: 15 Probes: 1

16 : Akhila Original Location: 15 Probes: 2

17 : NULL

18 : NULL

19 : Rush Original Location: 119 Probes: 5

20 : Matthew Original Location: 20 Probes: 1

21 : NULL

22 : 1234567890123456 Original Location: 22 Probes: 1

23 : Joseph Original Location: 23 Probes: 1

24 : Jordon Original Location: 23 Probes: 2

25 : Veronica Original Location: 25 Probes: 1

26 : forgetful Original Location: 26 Probes: 1

27 : Staple Original Location: 14 Probes: 6

28 : magnetic Original Location: 27 Probes: 2

29 : John Original Location: 23 Probes: 3

30 : Scott Original Location: 30 Probes: 1

31 : Ajose Original Location: 31 Probes: 1

32 : Arauza Original Location: 31 Probes: 2

33 : brutalize Original Location: 32 Probes: 2

34 : Cook Original Location: 96 Probes: 7

35 : inlet Original Location: 29 Probes: 3

36 : Screen Original Location: 30 Probes: 3

37 : Gurung Original Location: 31 Probes: 3

38 : Honor Original Location: 7 Probes: 4

39 : rationalize Original Location: 39 Probes: 1

40 : Salkowski Original Location: 40 Probes: 1

41 : scat Original Location: 28 Probes: 6

42 : Alcantara Original Location: 42 Probes: 1

43 : Nienberg Original Location: 43 Probes: 1

44 : option Original Location: 44 Probes: 1

45 : Yolk Original Location: 14 Probes: 4

46 : mole Original Location: 45 Probes: 2

47 : Crouch Original Location: 47 Probes: 1

48 : NULL

49 : Necromancer Original Location: 49 Probes: 1

50 : NULL

51 : marsupial Original Location: 51 Probes: 1

52 : sponsor Original Location: 52 Probes: 1

53 : Daniels Original Location: 53 Probes: 1

54 : Joel Original Location: 23 Probes: 4

55 : Judy Original Location: 55 Probes: 1

56 : Jutty Original Location: 55 Probes: 2

57 : exhilarate Original Location: 57 Probes: 1

58 : NULL

59 : orthodontist Original Location: 59 Probes: 1

60 : NULL

61 : Charles Original Location: 61 Probes: 1

62 : cap Original Location: 61 Probes: 2

63 : Casper Original Location: 63 Probes: 1

64 : Kelly Original Location: 63 Probes: 2

65 : NULL

66 : Carmona Original Location: 66 Probes: 1

67 : NULL

68 : Bhandari Original Location: 68 Probes: 1

69 : poison Original Location: 69 Probes: 1

70 : Aguirrie Original Location: 70 Probes: 1

71 : Davies Original Location: 71 Probes: 1

72 : prepossess Original Location: 71 Probes: 2

73 : Jeffrey Original Location: 73 Probes: 1

74 : NULL

75 : toluene Original Location: 128 Probes: 8

76 : Batbold Original Location: 76 Probes: 1

77 : sparse Original Location: 76 Probes: 2

78 : NULL

79 : Chris Original Location: 79 Probes: 1

80 : Eye Original Location: 79 Probes: 2

81 : Syncopate Original Location: 81 Probes: 1

82 : dactyl Original Location: 69 Probes: 6

83 : Michael Original Location: 83 Probes: 1

84 : NULL

85 : Octavio Original Location: 85 Probes: 1

86 : NULL

87 : Qamruddin Original Location: 87 Probes: 1

88 : Farral Original Location: 87 Probes: 2

89 : Vinnela Original Location: 89 Probes: 1

90 : wet Original Location: 28 Probes: 11

91 : Perfect Original Location: 91 Probes: 1

92 : wince Original Location: 92 Probes: 1

93 : Robert Original Location: 87 Probes: 3

94 : Wade Original Location: 94 Probes: 1

95 : Ellington Original Location: 95 Probes: 1

96 : Cook Original Location: 96 Probes: 1

97 : Zulfiqar Original Location: 97 Probes: 1

98 : nosegay Original Location: 70 Probes: 5

99 : Irreversible Original Location: 99 Probes: 1

100 : Wine Original Location: 94 Probes: 3

101 : Garza Original Location: 95 Probes: 3

102 : Acevedo Original Location: 102 Probes: 1

103 : Todd Original Location: 103 Probes: 1

104 : Person Original Location: 103 Probes: 2

105 : NULL

106 : Fabricate Original Location: 106 Probes: 1

107 : Paschal Original Location: 107 Probes: 1

108 : Christopher Original Location: 102 Probes: 3

109 : Fabulous Original Location: 109 Probes: 1

110 : Misogamist Original Location: 109 Probes: 2

111 : Constriction Original Location: 110 Probes: 2

112 : Egbe Original Location: 112 Probes: 1

113 : NULL

114 : Finagle Original Location: 114 Probes: 1

115 : quandary Original Location: 40 Probes: 8

116 : Northwest Original Location: 110 Probes: 3

117 : constrain Original Location: 117 Probes: 1

118 : parasympathetic Original Location: 87 Probes: 4

119 : Red Original Location: 119 Probes: 1

120 : Buck Original Location: 120 Probes: 1

121 : Fernando Original Location: 120 Probes: 2

122 : privilege Original Location: 91 Probes: 4

123 : NULL

124 : Clayton Original Location: 96 Probes: 5

125 : James Original Location: 119 Probes: 3

126 : NULL

127 : Corey Original Location: 96 Probes: 4

128 : Adam Original Location: 128 Probes: 1

Probe Statistics for 1st 30 keys

Minimum Num. Probes: 1

Maximum Num. Probes: 4

Average Num. Probes:

1.33

End of Probe Statistics.

Probe Statistics for last 30 keys

Minimum Num. Probes: 1

Maximum Num. Probes: 11

Average Num. Probes:

3.10

End of Probe Statistics.

----------Theoretical Probe Calculation----------

Number of Keys: 109

Table load: 0.85

Calculated value of E, expected number of probes to locate key: 2.24

--------------------

------------------ 'B' Option -------------------

------------------Linear Probe w/ Lab Function @ 55%/85% load-----------------------

1 : NULL

2 : NULL

3 : NULL

4 : NULL

5 : NULL

6 : NULL

7 : NULL

8 : NULL

9 : NULL

10 : NULL

11 : NULL

12 : NULL

13 : NULL

14 : NULL

15 : NULL

16 : NULL

17 : NULL

18 : NULL

19 : NULL

20 : NULL

21 : NULL

22 : NULL

23 : NULL

24 : NULL

25 : NULL

26 : NULL

27 : NULL

28 : NULL

29 : NULL

30 : NULL

31 : NULL

32 : NULL

33 : NULL

34 : NULL

35 : NULL

36 : NULL

37 : Carmona Original Location: 37 Probes: 1

38 : Casper Original Location: 37 Probes: 2

39 : Cook Original Location: 37 Probes: 3

40 : Daniels Original Location: 37 Probes: 4

41 : Paschal Original Location: 37 Probes: 5

42 : Red Original Location: 37 Probes: 6

43 : Acevedo Original Location: 37 Probes: 7

44 : Ajose Original Location: 37 Probes: 8

45 : Arauza Original Location: 38 Probes: 8

46 : Buck Original Location: 38 Probes: 9

47 : Clark Original Location: 37 Probes: 11

48 : Crouch Original Location: 38 Probes: 11

49 : Davies Original Location: 37 Probes: 13

50 : Dugger Original Location: 38 Probes: 13

51 : Egbe Original Location: 37 Probes: 15

52 : Farral Original Location: 37 Probes: 16

53 : Garza Original Location: 37 Probes: 17

54 : Gurung Original Location: 38 Probes: 17

55 : Joseph Original Location: 37 Probes: 19

56 : Kelly Original Location: 37 Probes: 20

57 : Corey Original Location: 37 Probes: 21

58 : Adam Original Location: 37 Probes: 22

59 : Clayton Original Location: 37 Probes: 23

60 : 1234567890123456 Original Location: 60 Probes: 1

61 : Dustin Original Location: 38 Probes: 24

62 : Robert Original Location: 37 Probes: 26

63 : Kyle Original Location: 38 Probes: 26

64 : Scott Original Location: 37 Probes: 28

65 : Octavio Original Location: 37 Probes: 29

66 : Judy Original Location: 38 Probes: 29

67 : Derek Original Location: 37 Probes: 31

68 : Jeffrey Original Location: 37 Probes: 32

69 : Jordon Original Location: 37 Probes: 33

70 : Vinnela Original Location: 37 Probes: 34

71 : Lisa Original Location: 37 Probes: 35

72 : Todd Original Location: 37 Probes: 36

73 : Matthew Original Location: 37 Probes: 37

74 : Michael Original Location: 37 Probes: 38

75 : Akhila Original Location: 37 Probes: 39

76 : John Original Location: 37 Probes: 40

77 : Charles Original Location: 37 Probes: 41

78 : James Original Location: 37 Probes: 42

79 : Chris Original Location: 37 Probes: 43

80 : Wade Original Location: 37 Probes: 44

81 : Batbold Original Location: 37 Probes: 45

82 : Joel Original Location: 37 Probes: 46

83 : Maiden Original Location: 37 Probes: 47

84 : Eye Original Location: 38 Probes: 47

85 : Yolk Original Location: 37 Probes: 49

86 : Person Original Location: 37 Probes: 50

87 : NULL

88 : NULL

89 : NULL

90 : NULL

91 : NULL

92 : NULL

93 : NULL

94 : NULL

95 : NULL

96 : NULL

97 : NULL

98 : NULL

99 : NULL

100 : NULL

101 : NULL

102 : Veronica Original Location: 102 Probes: 1

103 : NULL

104 : Constriction Original Location: 104 Probes: 1

105 : NULL

106 : Aguirrie Original Location: 106 Probes: 1

107 : NULL

108 : Nienberg Original Location: 108 Probes: 1

109 : NULL

110 : Bhandari Original Location: 110 Probes: 1

111 : Qamruddin Original Location: 110 Probes: 2

112 : Salkowski Original Location: 112 Probes: 1

113 : Misogamist Original Location: 110 Probes: 4

114 : NULL

115 : Necromancer Original Location: 115 Probes: 1

116 : Ellington Original Location: 116 Probes: 1

117 : Christopher Original Location: 117 Probes: 1

118 : Fernando Original Location: 116 Probes: 3

119 : Alcantara Original Location: 119 Probes: 1

120 : Zulfiqar Original Location: 120 Probes: 1

121 : Fabulous Original Location: 120 Probes: 2

122 : Syncopate Original Location: 122 Probes: 1

123 : Afterwards Original Location: 119 Probes: 5

124 : Northwest Original Location: 120 Probes: 5

125 : Irreversible Original Location: 121 Probes: 5

126 : Fabricate Original Location: 121 Probes: 6

127 : NULL

128 : NULL

Probe Statistics for 1st 30 keys

Minimum Num. Probes: 1

Maximum Num. Probes: 21

Average Num. Probes:

7.87

End of Probe Statistics.

Probe Statistics for last 30 keys

Minimum Num. Probes: 1

Maximum Num. Probes: 50

Average Num. Probes:

26.03

End of Probe Statistics.

----------Theoretical Probe Calculation----------

Number of Keys: 70

Table load: 0.55

Calculated value of E, expected number of probes to locate key: 1.60

--------------------

1 : ratiocination Original Location: 115 Probes: 15

2 : cauldron Original Location: 115 Probes: 16

3 : orthodontist Original Location: 116 Probes: 16

4 : rationalize Original Location: 113 Probes: 20

5 : scat Original Location: 37 Probes: 97

6 : toluene Original Location: 37 Probes: 98

7 : wet Original Location: 37 Probes: 99

8 : sparse Original Location: 38 Probes: 99

9 : quandary Original Location: 127 Probes: 11

10 : dactyl Original Location: 37 Probes: 102

11 : nosegay Original Location: 37 Probes: 103

12 : option Original Location: 38 Probes: 103

13 : forgetful Original Location: 122 Probes: 20

14 : privilege Original Location: 109 Probes: 34

15 : sponsor Original Location: 38 Probes: 106

16 : exhilarate Original Location: 103 Probes: 42

17 : NULL

18 : NULL

19 : NULL

20 : NULL

21 : NULL

22 : NULL

23 : NULL

24 : NULL

25 : NULL

26 : NULL

27 : NULL

28 : NULL

29 : NULL

30 : NULL

31 : NULL

32 : NULL

33 : NULL

34 : NULL

35 : NULL

36 : NULL

37 : Carmona Original Location: 37 Probes: 1

38 : Casper Original Location: 37 Probes: 2

39 : Cook Original Location: 37 Probes: 3

40 : Daniels Original Location: 37 Probes: 4

41 : Paschal Original Location: 37 Probes: 5

42 : Red Original Location: 37 Probes: 6

43 : Acevedo Original Location: 37 Probes: 7

44 : Ajose Original Location: 37 Probes: 8

45 : Arauza Original Location: 38 Probes: 8

46 : Buck Original Location: 38 Probes: 9

47 : Clark Original Location: 37 Probes: 11

48 : Crouch Original Location: 38 Probes: 11

49 : Davies Original Location: 37 Probes: 13

50 : Dugger Original Location: 38 Probes: 13

51 : Egbe Original Location: 37 Probes: 15

52 : Farral Original Location: 37 Probes: 16

53 : Garza Original Location: 37 Probes: 17

54 : Gurung Original Location: 38 Probes: 17

55 : Joseph Original Location: 37 Probes: 19

56 : Kelly Original Location: 37 Probes: 20

57 : Corey Original Location: 37 Probes: 21

58 : Adam Original Location: 37 Probes: 22

59 : Clayton Original Location: 37 Probes: 23

60 : 1234567890123456 Original Location: 60 Probes: 1

61 : Dustin Original Location: 38 Probes: 24

62 : Robert Original Location: 37 Probes: 26

63 : Kyle Original Location: 38 Probes: 26

64 : Scott Original Location: 37 Probes: 28

65 : Octavio Original Location: 37 Probes: 29

66 : Judy Original Location: 38 Probes: 29

67 : Derek Original Location: 37 Probes: 31

68 : Jeffrey Original Location: 37 Probes: 32

69 : Jordon Original Location: 37 Probes: 33

70 : Vinnela Original Location: 37 Probes: 34

71 : Lisa Original Location: 37 Probes: 35

72 : Todd Original Location: 37 Probes: 36

73 : Matthew Original Location: 37 Probes: 37

74 : Michael Original Location: 37 Probes: 38

75 : Akhila Original Location: 37 Probes: 39

76 : John Original Location: 37 Probes: 40

77 : Charles Original Location: 37 Probes: 41

78 : James Original Location: 37 Probes: 42

79 : Chris Original Location: 37 Probes: 43

80 : Wade Original Location: 37 Probes: 44

81 : Batbold Original Location: 37 Probes: 45

82 : Joel Original Location: 37 Probes: 46

83 : Maiden Original Location: 37 Probes: 47

84 : Eye Original Location: 38 Probes: 47

85 : Yolk Original Location: 37 Probes: 49

86 : Person Original Location: 37 Probes: 50

87 : Honor Original Location: 37 Probes: 51

88 : Staple Original Location: 38 Probes: 51

89 : Under Original Location: 37 Probes: 53

90 : Jutty Original Location: 38 Probes: 53

91 : Finagle Original Location: 37 Probes: 55

92 : Cook Original Location: 37 Probes: 56

93 : Rush Original Location: 38 Probes: 56

94 : Wine Original Location: 37 Probes: 58

95 : Screen Original Location: 37 Probes: 59

96 : Perfect Original Location: 37 Probes: 60

97 : mole Original Location: 37 Probes: 61

98 : poison Original Location: 37 Probes: 62

99 : cap Original Location: 37 Probes: 63

100 : wince Original Location: 37 Probes: 64

101 : live Original Location: 37 Probes: 65

102 : Veronica Original Location: 102 Probes: 1

103 : inlet Original Location: 37 Probes: 67

104 : Constriction Original Location: 104 Probes: 1

105 : magnetic Original Location: 104 Probes: 2

106 : Aguirrie Original Location: 106 Probes: 1

107 : prepossess Original Location: 107 Probes: 1

108 : Nienberg Original Location: 108 Probes: 1

109 : marsupial Original Location: 102 Probes: 8

110 : Bhandari Original Location: 110 Probes: 1

111 : Qamruddin Original Location: 110 Probes: 2

112 : Salkowski Original Location: 112 Probes: 1

113 : Misogamist Original Location: 110 Probes: 4

114 : constrain Original Location: 110 Probes: 5

115 : Necromancer Original Location: 115 Probes: 1

116 : Ellington Original Location: 116 Probes: 1

117 : Christopher Original Location: 117 Probes: 1

118 : Fernando Original Location: 116 Probes: 3

119 : Alcantara Original Location: 119 Probes: 1

120 : Zulfiqar Original Location: 120 Probes: 1

121 : Fabulous Original Location: 120 Probes: 2

122 : Syncopate Original Location: 122 Probes: 1

123 : Afterwards Original Location: 119 Probes: 5

124 : Northwest Original Location: 120 Probes: 5

125 : Irreversible Original Location: 121 Probes: 5

126 : Fabricate Original Location: 121 Probes: 6

127 : parasympathetic Original Location: 117 Probes: 11

128 : brutalize Original Location: 128 Probes: 1

Probe Statistics for 1st 30 keys

Minimum Num. Probes: 1

Maximum Num. Probes: 21

Average Num. Probes:

7.87

End of Probe Statistics.

Probe Statistics for last 30 keys

Minimum Num. Probes: 1

Maximum Num. Probes: 106

Average Num. Probes:

50.33

End of Probe Statistics.

----------Theoretical Probe Calculation----------

Number of Keys: 109

Table load: 0.85

Calculated value of E, expected number of probes to locate key: 3.87

--------------------

------------------Random Probe w/ Lab Function @ 55%/85% load-----------------------

1 : NULL

2 : NULL

3 : NULL

4 : NULL

5 : John Original Location: 37 Probes: 33

6 : Charles Original Location: 37 Probes: 34

7 : NULL

8 : Kelly Original Location: 37 Probes: 16

9 : NULL

10 : Garza Original Location: 37 Probes: 14

11 : James Original Location: 37 Probes: 35

12 : Lisa Original Location: 37 Probes: 28

13 : Jeffrey Original Location: 37 Probes: 25

14 : NULL

15 : Michael Original Location: 37 Probes: 31

16 : NULL

17 : NULL

18 : Batbold Original Location: 37 Probes: 38

19 : NULL

20 : NULL

21 : Corey Original Location: 37 Probes: 17

22 : Afterwards Original Location: 119 Probes: 4

23 : Northwest Original Location: 120 Probes: 4

24 : Irreversible Original Location: 121 Probes: 4

25 : NULL

26 : NULL

27 : Clayton Original Location: 37 Probes: 19

28 : NULL

29 : Ajose Original Location: 37 Probes: 9

30 : Judy Original Location: 38 Probes: 9

31 : Joseph Original Location: 37 Probes: 15

32 : Derek Original Location: 37 Probes: 24

33 : Wade Original Location: 37 Probes: 37

34 : NULL

35 : NULL

36 : Chris Original Location: 37 Probes: 36

37 : Carmona Original Location: 37 Probes: 1

38 : Casper Original Location: 37 Probes: 2

39 : Arauza Original Location: 38 Probes: 2

40 : NULL

41 : Todd Original Location: 37 Probes: 29

42 : NULL

43 : Cook Original Location: 37 Probes: 3

44 : Buck Original Location: 38 Probes: 3

45 : NULL

46 : Jordon Original Location: 37 Probes: 26

47 : NULL

48 : NULL

49 : Robert Original Location: 37 Probes: 21

50 : Red Original Location: 37 Probes: 6

51 : Gurung Original Location: 38 Probes: 6

52 : NULL

53 : NULL

54 : NULL

55 : NULL

56 : Akhila Original Location: 37 Probes: 32

57 : Farral Original Location: 37 Probes: 13

58 : Matthew Original Location: 37 Probes: 30

59 : Fabricate Original Location: 121 Probes: 7

60 : 1234567890123456 Original Location: 60 Probes: 1

61 : NULL

62 : NULL

63 : NULL

64 : NULL

65 : Paschal Original Location: 37 Probes: 5

66 : Dugger Original Location: 38 Probes: 5

67 : NULL

68 : Daniels Original Location: 37 Probes: 4

69 : Crouch Original Location: 38 Probes: 4

70 : NULL

71 : Joel Original Location: 37 Probes: 39

72 : NULL

73 : NULL

74 : NULL

75 : NULL

76 : NULL

77 : NULL

78 : NULL

79 : NULL

80 : Maiden Original Location: 37 Probes: 40

81 : NULL

82 : NULL

83 : Vinnela Original Location: 37 Probes: 27

84 : NULL

85 : NULL

86 : Adam Original Location: 37 Probes: 18

87 : Octavio Original Location: 37 Probes: 23

88 : NULL

89 : NULL

90 : NULL

91 : NULL

92 : Egbe Original Location: 37 Probes: 12

93 : NULL

94 : Person Original Location: 37 Probes: 42

95 : NULL

96 : NULL

97 : NULL

98 : Scott Original Location: 37 Probes: 22

99 : Davies Original Location: 37 Probes: 11

100 : NULL

101 : NULL

102 : Veronica Original Location: 102 Probes: 1

103 : Acevedo Original Location: 37 Probes: 7

104 : Dustin Original Location: 38 Probes: 7

105 : Constriction Original Location: 104 Probes: 2

106 : Aguirrie Original Location: 106 Probes: 1

107 : NULL

108 : Nienberg Original Location: 108 Probes: 1

109 : NULL

110 : Bhandari Original Location: 110 Probes: 1

111 : Qamruddin Original Location: 110 Probes: 2

112 : Salkowski Original Location: 112 Probes: 1

113 : Kyle Original Location: 38 Probes: 8

114 : NULL

115 : Necromancer Original Location: 115 Probes: 1

116 : Ellington Original Location: 116 Probes: 1

117 : Christopher Original Location: 117 Probes: 1

118 : NULL

119 : Alcantara Original Location: 119 Probes: 1

120 : Zulfiqar Original Location: 120 Probes: 1

121 : Fabulous Original Location: 120 Probes: 2

122 : Fernando Original Location: 116 Probes: 3

123 : Misogamist Original Location: 110 Probes: 6

124 : NULL

125 : Yolk Original Location: 37 Probes: 41

126 : Clark Original Location: 37 Probes: 10

127 : Eye Original Location: 38 Probes: 10

128 : Syncopate Original Location: 122 Probes: 3

Probe Statistics for 1st 30 keys

Minimum Num. Probes: 1

Maximum Num. Probes: 17

Average Num. Probes:

5.83

End of Probe Statistics.

Probe Statistics for last 30 keys

Minimum Num. Probes: 1

Maximum Num. Probes: 42

Average Num. Probes:

20.87

End of Probe Statistics.

----------Theoretical Probe Calculation----------

Number of Keys: 70

Table load: 0.55

Calculated value of E, expected number of probes to locate key: 1.45

--------------------

1 : brutalize Original Location: 128 Probes: 2

2 : constrain Original Location: 110 Probes: 13

3 : exhilarate Original Location: 103 Probes: 5

4 : wince Original Location: 37 Probes: 68

5 : John Original Location: 37 Probes: 33

6 : Charles Original Location: 37 Probes: 34

7 : magnetic Original Location: 104 Probes: 4

8 : Kelly Original Location: 37 Probes: 16

9 : Rush Original Location: 38 Probes: 16

10 : Garza Original Location: 37 Probes: 14

11 : James Original Location: 37 Probes: 35

12 : Lisa Original Location: 37 Probes: 28

13 : Jeffrey Original Location: 37 Probes: 25

14 : mole Original Location: 37 Probes: 58

15 : Michael Original Location: 37 Probes: 31

16 : rationalize Original Location: 113 Probes: 4

17 : Wine Original Location: 37 Probes: 53

18 : Batbold Original Location: 37 Probes: 38

19 : orthodontist Original Location: 116 Probes: 4

20 : NULL

21 : Corey Original Location: 37 Probes: 17

22 : Afterwards Original Location: 119 Probes: 4

23 : Northwest Original Location: 120 Probes: 4

24 : Irreversible Original Location: 121 Probes: 4

25 : Under Original Location: 37 Probes: 45

26 : poison Original Location: 37 Probes: 62

27 : Clayton Original Location: 37 Probes: 19

28 : toluene Original Location: 37 Probes: 76

29 : Ajose Original Location: 37 Probes: 9

30 : Judy Original Location: 38 Probes: 9

31 : Joseph Original Location: 37 Probes: 15

32 : Derek Original Location: 37 Probes: 24

33 : Wade Original Location: 37 Probes: 37

34 : NULL

35 : scat Original Location: 37 Probes: 75

36 : Chris Original Location: 37 Probes: 36

37 : Carmona Original Location: 37 Probes: 1

38 : Casper Original Location: 37 Probes: 2

39 : Arauza Original Location: 38 Probes: 2

40 : marsupial Original Location: 102 Probes: 7

41 : Todd Original Location: 37 Probes: 29

42 : sponsor Original Location: 38 Probes: 29

43 : Cook Original Location: 37 Probes: 3

44 : Buck Original Location: 38 Probes: 3

45 : NULL

46 : Jordon Original Location: 37 Probes: 26

47 : option Original Location: 38 Probes: 26

48 : inlet Original Location: 37 Probes: 72

49 : Robert Original Location: 37 Probes: 21

50 : Red Original Location: 37 Probes: 6

51 : Gurung Original Location: 38 Probes: 6

52 : NULL

53 : ratiocination Original Location: 115 Probes: 7

54 : Finagle Original Location: 37 Probes: 50

55 : Screen Original Location: 37 Probes: 55

56 : Akhila Original Location: 37 Probes: 32

57 : Farral Original Location: 37 Probes: 13

58 : Matthew Original Location: 37 Probes: 30

59 : Fabricate Original Location: 121 Probes: 7

60 : 1234567890123456 Original Location: 60 Probes: 1

61 : quandary Original Location: 127 Probes: 11

62 : cauldron Original Location: 115 Probes: 8

63 : NULL

64 : NULL

65 : Paschal Original Location: 37 Probes: 5

66 : Dugger Original Location: 38 Probes: 5

67 : Honor Original Location: 37 Probes: 43

68 : Daniels Original Location: 37 Probes: 4

69 : Crouch Original Location: 38 Probes: 4

70 : privilege Original Location: 109 Probes: 10

71 : Joel Original Location: 37 Probes: 39

72 : nosegay Original Location: 37 Probes: 80

73 : forgetful Original Location: 122 Probes: 20

74 : wet Original Location: 37 Probes: 78

75 : NULL

76 : NULL

77 : NULL

78 : NULL

79 : NULL

80 : Maiden Original Location: 37 Probes: 40

81 : NULL

82 : NULL

83 : Vinnela Original Location: 37 Probes: 27

84 : Cook Original Location: 37 Probes: 52

85 : NULL

86 : Adam Original Location: 37 Probes: 18

87 : Octavio Original Location: 37 Probes: 23

88 : sparse Original Location: 38 Probes: 23

89 : NULL

90 : NULL

91 : NULL

92 : Egbe Original Location: 37 Probes: 12

93 : Jutty Original Location: 38 Probes: 12

94 : Person Original Location: 37 Probes: 42

95 : dactyl Original Location: 37 Probes: 79

96 : NULL

97 : NULL

98 : Scott Original Location: 37 Probes: 22

99 : Davies Original Location: 37 Probes: 11

100 : Staple Original Location: 38 Probes: 11

101 : cap Original Location: 37 Probes: 65

102 : Veronica Original Location: 102 Probes: 1

103 : Acevedo Original Location: 37 Probes: 7

104 : Dustin Original Location: 38 Probes: 7

105 : Constriction Original Location: 104 Probes: 2

106 : Aguirrie Original Location: 106 Probes: 1

107 : prepossess Original Location: 107 Probes: 1

108 : Nienberg Original Location: 108 Probes: 1

109 : Perfect Original Location: 37 Probes: 57

110 : Bhandari Original Location: 110 Probes: 1

111 : Qamruddin Original Location: 110 Probes: 2

112 : Salkowski Original Location: 112 Probes: 1

113 : Kyle Original Location: 38 Probes: 8

114 : live Original Location: 37 Probes: 70

115 : Necromancer Original Location: 115 Probes: 1

116 : Ellington Original Location: 116 Probes: 1

117 : Christopher Original Location: 117 Probes: 1

118 : parasympathetic Original Location: 117 Probes: 2

119 : Alcantara Original Location: 119 Probes: 1

120 : Zulfiqar Original Location: 120 Probes: 1

121 : Fabulous Original Location: 120 Probes: 2

122 : Fernando Original Location: 116 Probes: 3

123 : Misogamist Original Location: 110 Probes: 6

124 : NULL

125 : Yolk Original Location: 37 Probes: 41

126 : Clark Original Location: 37 Probes: 10

127 : Eye Original Location: 38 Probes: 10

128 : Syncopate Original Location: 122 Probes: 3

Probe Statistics for 1st 30 keys

Minimum Num. Probes: 1

Maximum Num. Probes: 17

Average Num. Probes:

5.83

End of Probe Statistics.

Probe Statistics for last 30 keys

Minimum Num. Probes: 1

Maximum Num. Probes: 80

Average Num. Probes:

35.70

End of Probe Statistics.

----------Theoretical Probe Calculation----------

Number of Keys: 109

Table load: 0.85

Calculated value of E, expected number of probes to locate key: 2.24

--------------------

------------------Linear Probe w/ My Function @ 55%/85% load-----------------------

1 : NULL

2 : NULL

3 : NULL

4 : NULL

5 : NULL

6 : Lisa Original Location: 6 Probes: 1

7 : Dugger Original Location: 7 Probes: 1

8 : Dustin Original Location: 7 Probes: 2

9 : Derek Original Location: 7 Probes: 3

10 : Afterwards Original Location: 10 Probes: 1

11 : NULL

12 : NULL

13 : NULL

14 : Maiden Original Location: 14 Probes: 1

15 : Clark Original Location: 15 Probes: 1

16 : Akhila Original Location: 15 Probes: 2

17 : Yolk Original Location: 14 Probes: 4

18 : NULL

19 : NULL

20 : Matthew Original Location: 20 Probes: 1

21 : NULL

22 : 1234567890123456 Original Location: 22 Probes: 1

23 : Joseph Original Location: 23 Probes: 1

24 : Jordon Original Location: 23 Probes: 2

25 : Veronica Original Location: 25 Probes: 1

26 : John Original Location: 23 Probes: 4

27 : Joel Original Location: 23 Probes: 5

28 : NULL

29 : NULL

30 : Scott Original Location: 30 Probes: 1

31 : Ajose Original Location: 31 Probes: 1

32 : Arauza Original Location: 31 Probes: 2

33 : Gurung Original Location: 31 Probes: 3

34 : NULL

35 : NULL

36 : NULL

37 : NULL

38 : NULL

39 : NULL

40 : Salkowski Original Location: 40 Probes: 1

41 : NULL

42 : Alcantara Original Location: 42 Probes: 1

43 : Nienberg Original Location: 43 Probes: 1

44 : NULL

45 : NULL

46 : NULL

47 : Crouch Original Location: 47 Probes: 1

48 : NULL

49 : Necromancer Original Location: 49 Probes: 1

50 : NULL

51 : NULL

52 : NULL

53 : Daniels Original Location: 53 Probes: 1

54 : NULL

55 : Judy Original Location: 55 Probes: 1

56 : NULL

57 : NULL

58 : NULL

59 : NULL

60 : NULL

61 : Charles Original Location: 61 Probes: 1

62 : NULL

63 : Casper Original Location: 63 Probes: 1

64 : Kelly Original Location: 63 Probes: 2

65 : NULL

66 : Carmona Original Location: 66 Probes: 1

67 : NULL

68 : Bhandari Original Location: 68 Probes: 1

69 : NULL

70 : Aguirrie Original Location: 70 Probes: 1

71 : Davies Original Location: 71 Probes: 1

72 : NULL

73 : Jeffrey Original Location: 73 Probes: 1

74 : NULL

75 : NULL

76 : Batbold Original Location: 76 Probes: 1

77 : NULL

78 : NULL

79 : Chris Original Location: 79 Probes: 1

80 : Eye Original Location: 79 Probes: 2

81 : Syncopate Original Location: 81 Probes: 1

82 : NULL

83 : Michael Original Location: 83 Probes: 1

84 : NULL

85 : Octavio Original Location: 85 Probes: 1

86 : NULL

87 : Qamruddin Original Location: 87 Probes: 1

88 : Farral Original Location: 87 Probes: 2

89 : Robert Original Location: 87 Probes: 3

90 : Vinnela Original Location: 89 Probes: 2

91 : NULL

92 : NULL

93 : NULL

94 : Wade Original Location: 94 Probes: 1

95 : Ellington Original Location: 95 Probes: 1

96 : Cook Original Location: 96 Probes: 1

97 : Zulfiqar Original Location: 97 Probes: 1

98 : Garza Original Location: 95 Probes: 4

99 : Corey Original Location: 96 Probes: 4

100 : Clayton Original Location: 96 Probes: 5

101 : Irreversible Original Location: 99 Probes: 3

102 : Acevedo Original Location: 102 Probes: 1

103 : Todd Original Location: 103 Probes: 1

104 : Christopher Original Location: 102 Probes: 3

105 : Person Original Location: 103 Probes: 3

106 : Fabricate Original Location: 106 Probes: 1

107 : Paschal Original Location: 107 Probes: 1

108 : NULL

109 : Fabulous Original Location: 109 Probes: 1

110 : Misogamist Original Location: 109 Probes: 2

111 : Constriction Original Location: 110 Probes: 2

112 : Egbe Original Location: 112 Probes: 1

113 : Northwest Original Location: 110 Probes: 4

114 : NULL

115 : NULL

116 : NULL

117 : NULL

118 : NULL

119 : Red Original Location: 119 Probes: 1

120 : Buck Original Location: 120 Probes: 1

121 : James Original Location: 119 Probes: 3

122 : Fernando Original Location: 120 Probes: 3

123 : NULL

124 : NULL

125 : NULL

126 : NULL

127 : Kyle Original Location: 127 Probes: 1

128 : Adam Original Location: 128 Probes: 1

Probe Statistics for 1st 30 keys

Minimum Num. Probes: 1

Maximum Num. Probes: 4

Average Num. Probes:

1.37

End of Probe Statistics.

Probe Statistics for last 30 keys

Minimum Num. Probes: 1

Maximum Num. Probes: 5

Average Num. Probes:

1.97

End of Probe Statistics.

----------Theoretical Probe Calculation----------

Number of Keys: 70

Table load: 0.55

Calculated value of E, expected number of probes to locate key: 1.60

--------------------

1 : Under Original Location: 127 Probes: 3

2 : toluene Original Location: 128 Probes: 3

3 : NULL

4 : live Original Location: 4 Probes: 1

5 : NULL

6 : Lisa Original Location: 6 Probes: 1

7 : Dugger Original Location: 7 Probes: 1

8 : Dustin Original Location: 7 Probes: 2

9 : Derek Original Location: 7 Probes: 3

10 : Afterwards Original Location: 10 Probes: 1

11 : Honor Original Location: 7 Probes: 5

12 : NULL

13 : NULL

14 : Maiden Original Location: 14 Probes: 1

15 : Clark Original Location: 15 Probes: 1

16 : Akhila Original Location: 15 Probes: 2

17 : Yolk Original Location: 14 Probes: 4

18 : Staple Original Location: 14 Probes: 5

19 : NULL

20 : Matthew Original Location: 20 Probes: 1

21 : NULL

22 : 1234567890123456 Original Location: 22 Probes: 1

23 : Joseph Original Location: 23 Probes: 1

24 : Jordon Original Location: 23 Probes: 2

25 : Veronica Original Location: 25 Probes: 1

26 : John Original Location: 23 Probes: 4

27 : Joel Original Location: 23 Probes: 5

28 : magnetic Original Location: 27 Probes: 2

29 : inlet Original Location: 29 Probes: 1

30 : Scott Original Location: 30 Probes: 1

31 : Ajose Original Location: 31 Probes: 1

32 : Arauza Original Location: 31 Probes: 2

33 : Gurung Original Location: 31 Probes: 3

34 : Screen Original Location: 30 Probes: 5

35 : brutalize Original Location: 32 Probes: 4

36 : scat Original Location: 28 Probes: 9

37 : wet Original Location: 28 Probes: 10

38 : forgetful Original Location: 26 Probes: 13

39 : rationalize Original Location: 39 Probes: 1

40 : Salkowski Original Location: 40 Probes: 1

41 : quandary Original Location: 40 Probes: 2

42 : Alcantara Original Location: 42 Probes: 1

43 : Nienberg Original Location: 43 Probes: 1

44 : option Original Location: 44 Probes: 1

45 : mole Original Location: 45 Probes: 1

46 : NULL

47 : Crouch Original Location: 47 Probes: 1

48 : NULL

49 : Necromancer Original Location: 49 Probes: 1

50 : NULL

51 : marsupial Original Location: 51 Probes: 1

52 : sponsor Original Location: 52 Probes: 1

53 : Daniels Original Location: 53 Probes: 1

54 : NULL

55 : Judy Original Location: 55 Probes: 1

56 : Jutty Original Location: 55 Probes: 2

57 : exhilarate Original Location: 57 Probes: 1

58 : NULL

59 : orthodontist Original Location: 59 Probes: 1

60 : NULL

61 : Charles Original Location: 61 Probes: 1

62 : cap Original Location: 61 Probes: 2

63 : Casper Original Location: 63 Probes: 1

64 : Kelly Original Location: 63 Probes: 2

65 : ratiocination Original Location: 63 Probes: 3

66 : Carmona Original Location: 66 Probes: 1

67 : NULL

68 : Bhandari Original Location: 68 Probes: 1

69 : poison Original Location: 69 Probes: 1

70 : Aguirrie Original Location: 70 Probes: 1

71 : Davies Original Location: 71 Probes: 1

72 : prepossess Original Location: 71 Probes: 2

73 : Jeffrey Original Location: 73 Probes: 1

74 : dactyl Original Location: 69 Probes: 6

75 : nosegay Original Location: 70 Probes: 6

76 : Batbold Original Location: 76 Probes: 1

77 : sparse Original Location: 76 Probes: 2

78 : NULL

79 : Chris Original Location: 79 Probes: 1

80 : Eye Original Location: 79 Probes: 2

81 : Syncopate Original Location: 81 Probes: 1

82 : NULL

83 : Michael Original Location: 83 Probes: 1

84 : NULL

85 : Octavio Original Location: 85 Probes: 1

86 : NULL

87 : Qamruddin Original Location: 87 Probes: 1

88 : Farral Original Location: 87 Probes: 2

89 : Robert Original Location: 87 Probes: 3

90 : Vinnela Original Location: 89 Probes: 2

91 : Perfect Original Location: 91 Probes: 1

92 : parasympathetic Original Location: 87 Probes: 6

93 : wince Original Location: 92 Probes: 2

94 : Wade Original Location: 94 Probes: 1

95 : Ellington Original Location: 95 Probes: 1

96 : Cook Original Location: 96 Probes: 1

97 : Zulfiqar Original Location: 97 Probes: 1

98 : Garza Original Location: 95 Probes: 4

99 : Corey Original Location: 96 Probes: 4

100 : Clayton Original Location: 96 Probes: 5

101 : Irreversible Original Location: 99 Probes: 3

102 : Acevedo Original Location: 102 Probes: 1

103 : Todd Original Location: 103 Probes: 1

104 : Christopher Original Location: 102 Probes: 3

105 : Person Original Location: 103 Probes: 3

106 : Fabricate Original Location: 106 Probes: 1

107 : Paschal Original Location: 107 Probes: 1

108 : Cook Original Location: 96 Probes: 13

109 : Fabulous Original Location: 109 Probes: 1

110 : Misogamist Original Location: 109 Probes: 2

111 : Constriction Original Location: 110 Probes: 2

112 : Egbe Original Location: 112 Probes: 1

113 : Northwest Original Location: 110 Probes: 4

114 : Finagle Original Location: 114 Probes: 1

115 : Wine Original Location: 94 Probes: 22

116 : cauldron Original Location: 108 Probes: 9

117 : constrain Original Location: 117 Probes: 1

118 : privilege Original Location: 91 Probes: 28

119 : Red Original Location: 119 Probes: 1

120 : Buck Original Location: 120 Probes: 1

121 : James Original Location: 119 Probes: 3

122 : Fernando Original Location: 120 Probes: 3

123 : Rush Original Location: 119 Probes: 5

124 : NULL

125 : NULL

126 : NULL

127 : Kyle Original Location: 127 Probes: 1

128 : Adam Original Location: 128 Probes: 1

Probe Statistics for 1st 30 keys

Minimum Num. Probes: 1

Maximum Num. Probes: 4

Average Num. Probes:

1.37

End of Probe Statistics.

Probe Statistics for last 30 keys

Minimum Num. Probes: 1

Maximum Num. Probes: 28

Average Num. Probes:

4.20

End of Probe Statistics.

----------Theoretical Probe Calculation----------

Number of Keys: 109

Table load: 0.85

Calculated value of E, expected number of probes to locate key: 3.87

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------------------Random Probe w/ My Function @ 55%/85% load-----------------------

1 : NULL

2 : NULL

3 : NULL

4 : NULL

5 : Kyle Original Location: 127 Probes: 3

6 : Lisa Original Location: 6 Probes: 1

7 : Dugger Original Location: 7 Probes: 1

8 : Dustin Original Location: 7 Probes: 2

9 : NULL

10 : Afterwards Original Location: 10 Probes: 1

11 : NULL

12 : NULL

13 : Derek Original Location: 7 Probes: 3

14 : Maiden Original Location: 14 Probes: 1

15 : Clark Original Location: 15 Probes: 1

16 : Akhila Original Location: 15 Probes: 2

17 : NULL

18 : NULL

19 : NULL

20 : Matthew Original Location: 20 Probes: 1

21 : NULL

22 : 1234567890123456 Original Location: 22 Probes: 1

23 : Joseph Original Location: 23 Probes: 1

24 : Jordon Original Location: 23 Probes: 2

25 : Veronica Original Location: 25 Probes: 1

26 : NULL

27 : NULL

28 : NULL

29 : John Original Location: 23 Probes: 3

30 : Scott Original Location: 30 Probes: 1

31 : Ajose Original Location: 31 Probes: 1

32 : Arauza Original Location: 31 Probes: 2

33 : NULL

34 : NULL

35 : NULL

36 : NULL

37 : Gurung Original Location: 31 Probes: 3

38 : NULL

39 : NULL

40 : Salkowski Original Location: 40 Probes: 1

41 : NULL

42 : Alcantara Original Location: 42 Probes: 1

43 : Nienberg Original Location: 43 Probes: 1

44 : NULL

45 : Yolk Original Location: 14 Probes: 4

46 : NULL

47 : Crouch Original Location: 47 Probes: 1

48 : NULL

49 : Necromancer Original Location: 49 Probes: 1

50 : NULL

51 : NULL

52 : NULL

53 : Daniels Original Location: 53 Probes: 1

54 : Joel Original Location: 23 Probes: 4

55 : Judy Original Location: 55 Probes: 1

56 : NULL

57 : NULL

58 : NULL

59 : NULL

60 : NULL

61 : Charles Original Location: 61 Probes: 1

62 : NULL

63 : Casper Original Location: 63 Probes: 1

64 : Kelly Original Location: 63 Probes: 2

65 : NULL

66 : Carmona Original Location: 66 Probes: 1

67 : NULL

68 : Bhandari Original Location: 68 Probes: 1

69 : NULL

70 : Aguirrie Original Location: 70 Probes: 1

71 : Davies Original Location: 71 Probes: 1

72 : NULL

73 : Jeffrey Original Location: 73 Probes: 1

74 : NULL

75 : NULL

76 : Batbold Original Location: 76 Probes: 1

77 : NULL

78 : NULL

79 : Chris Original Location: 79 Probes: 1

80 : Eye Original Location: 79 Probes: 2

81 : Syncopate Original Location: 81 Probes: 1

82 : NULL

83 : Michael Original Location: 83 Probes: 1

84 : NULL

85 : Octavio Original Location: 85 Probes: 1

86 : NULL

87 : Qamruddin Original Location: 87 Probes: 1

88 : Farral Original Location: 87 Probes: 2

89 : Vinnela Original Location: 89 Probes: 1

90 : NULL

91 : NULL

92 : NULL

93 : Robert Original Location: 87 Probes: 3

94 : Wade Original Location: 94 Probes: 1

95 : Ellington Original Location: 95 Probes: 1

96 : Cook Original Location: 96 Probes: 1

97 : Zulfiqar Original Location: 97 Probes: 1

98 : NULL

99 : Irreversible Original Location: 99 Probes: 1

100 : NULL

101 : Garza Original Location: 95 Probes: 3

102 : Acevedo Original Location: 102 Probes: 1

103 : Todd Original Location: 103 Probes: 1

104 : Person Original Location: 103 Probes: 2

105 : NULL

106 : Fabricate Original Location: 106 Probes: 1

107 : Paschal Original Location: 107 Probes: 1

108 : Christopher Original Location: 102 Probes: 3

109 : Fabulous Original Location: 109 Probes: 1

110 : Misogamist Original Location: 109 Probes: 2

111 : Constriction Original Location: 110 Probes: 2

112 : Egbe Original Location: 112 Probes: 1

113 : NULL

114 : NULL

115 : NULL

116 : Northwest Original Location: 110 Probes: 3

117 : NULL

118 : NULL

119 : Red Original Location: 119 Probes: 1

120 : Buck Original Location: 120 Probes: 1

121 : Fernando Original Location: 120 Probes: 2

122 : NULL

123 : NULL

124 : Clayton Original Location: 96 Probes: 5

125 : James Original Location: 119 Probes: 3

126 : NULL

127 : Corey Original Location: 96 Probes: 4

128 : Adam Original Location: 128 Probes: 1

Probe Statistics for 1st 30 keys

Minimum Num. Probes: 1

Maximum Num. Probes: 4

Average Num. Probes:

1.33

End of Probe Statistics.

Probe Statistics for last 30 keys

Minimum Num. Probes: 1

Maximum Num. Probes: 4

Average Num. Probes:

1.70

End of Probe Statistics.

----------Theoretical Probe Calculation----------

Number of Keys: 70

Table load: 0.55

Calculated value of E, expected number of probes to locate key: 1.45

--------------------

1 : ratiocination Original Location: 63 Probes: 7

2 : NULL

3 : NULL

4 : live Original Location: 4 Probes: 1

5 : Kyle Original Location: 127 Probes: 3

6 : Lisa Original Location: 6 Probes: 1

7 : Dugger Original Location: 7 Probes: 1

8 : Dustin Original Location: 7 Probes: 2

9 : NULL

10 : Afterwards Original Location: 10 Probes: 1

11 : cauldron Original Location: 108 Probes: 4

12 : Under Original Location: 127 Probes: 6

13 : Derek Original Location: 7 Probes: 3

14 : Maiden Original Location: 14 Probes: 1

15 : Clark Original Location: 15 Probes: 1

16 : Akhila Original Location: 15 Probes: 2

17 : NULL

18 : NULL

19 : Rush Original Location: 119 Probes: 5

20 : Matthew Original Location: 20 Probes: 1

21 : NULL

22 : 1234567890123456 Original Location: 22 Probes: 1

23 : Joseph Original Location: 23 Probes: 1

24 : Jordon Original Location: 23 Probes: 2

25 : Veronica Original Location: 25 Probes: 1

26 : forgetful Original Location: 26 Probes: 1

27 : Staple Original Location: 14 Probes: 6

28 : magnetic Original Location: 27 Probes: 2

29 : John Original Location: 23 Probes: 3

30 : Scott Original Location: 30 Probes: 1

31 : Ajose Original Location: 31 Probes: 1

32 : Arauza Original Location: 31 Probes: 2

33 : brutalize Original Location: 32 Probes: 2

34 : Cook Original Location: 96 Probes: 7

35 : inlet Original Location: 29 Probes: 3

36 : Screen Original Location: 30 Probes: 3

37 : Gurung Original Location: 31 Probes: 3

38 : Honor Original Location: 7 Probes: 4

39 : rationalize Original Location: 39 Probes: 1

40 : Salkowski Original Location: 40 Probes: 1

41 : scat Original Location: 28 Probes: 6

42 : Alcantara Original Location: 42 Probes: 1

43 : Nienberg Original Location: 43 Probes: 1

44 : option Original Location: 44 Probes: 1

45 : Yolk Original Location: 14 Probes: 4

46 : mole Original Location: 45 Probes: 2

47 : Crouch Original Location: 47 Probes: 1

48 : NULL

49 : Necromancer Original Location: 49 Probes: 1

50 : NULL

51 : marsupial Original Location: 51 Probes: 1

52 : sponsor Original Location: 52 Probes: 1

53 : Daniels Original Location: 53 Probes: 1

54 : Joel Original Location: 23 Probes: 4

55 : Judy Original Location: 55 Probes: 1

56 : Jutty Original Location: 55 Probes: 2

57 : exhilarate Original Location: 57 Probes: 1

58 : NULL

59 : orthodontist Original Location: 59 Probes: 1

60 : NULL

61 : Charles Original Location: 61 Probes: 1

62 : cap Original Location: 61 Probes: 2

63 : Casper Original Location: 63 Probes: 1

64 : Kelly Original Location: 63 Probes: 2

65 : NULL

66 : Carmona Original Location: 66 Probes: 1

67 : NULL

68 : Bhandari Original Location: 68 Probes: 1

69 : poison Original Location: 69 Probes: 1

70 : Aguirrie Original Location: 70 Probes: 1

71 : Davies Original Location: 71 Probes: 1

72 : prepossess Original Location: 71 Probes: 2

73 : Jeffrey Original Location: 73 Probes: 1

74 : NULL

75 : toluene Original Location: 128 Probes: 8

76 : Batbold Original Location: 76 Probes: 1

77 : sparse Original Location: 76 Probes: 2

78 : NULL

79 : Chris Original Location: 79 Probes: 1

80 : Eye Original Location: 79 Probes: 2

81 : Syncopate Original Location: 81 Probes: 1

82 : dactyl Original Location: 69 Probes: 6

83 : Michael Original Location: 83 Probes: 1

84 : NULL

85 : Octavio Original Location: 85 Probes: 1

86 : NULL

87 : Qamruddin Original Location: 87 Probes: 1

88 : Farral Original Location: 87 Probes: 2

89 : Vinnela Original Location: 89 Probes: 1

90 : wet Original Location: 28 Probes: 11

91 : Perfect Original Location: 91 Probes: 1

92 : wince Original Location: 92 Probes: 1

93 : Robert Original Location: 87 Probes: 3

94 : Wade Original Location: 94 Probes: 1

95 : Ellington Original Location: 95 Probes: 1

96 : Cook Original Location: 96 Probes: 1

97 : Zulfiqar Original Location: 97 Probes: 1

98 : nosegay Original Location: 70 Probes: 5

99 : Irreversible Original Location: 99 Probes: 1

100 : Wine Original Location: 94 Probes: 3

101 : Garza Original Location: 95 Probes: 3

102 : Acevedo Original Location: 102 Probes: 1

103 : Todd Original Location: 103 Probes: 1

104 : Person Original Location: 103 Probes: 2

105 : NULL

106 : Fabricate Original Location: 106 Probes: 1

107 : Paschal Original Location: 107 Probes: 1

108 : Christopher Original Location: 102 Probes: 3

109 : Fabulous Original Location: 109 Probes: 1

110 : Misogamist Original Location: 109 Probes: 2

111 : Constriction Original Location: 110 Probes: 2

112 : Egbe Original Location: 112 Probes: 1

113 : NULL

114 : Finagle Original Location: 114 Probes: 1

115 : quandary Original Location: 40 Probes: 8

116 : Northwest Original Location: 110 Probes: 3

117 : constrain Original Location: 117 Probes: 1

118 : parasympathetic Original Location: 87 Probes: 4

119 : Red Original Location: 119 Probes: 1

120 : Buck Original Location: 120 Probes: 1

121 : Fernando Original Location: 120 Probes: 2

122 : privilege Original Location: 91 Probes: 4

123 : NULL

124 : Clayton Original Location: 96 Probes: 5

125 : James Original Location: 119 Probes: 3

126 : NULL

127 : Corey Original Location: 96 Probes: 4

128 : Adam Original Location: 128 Probes: 1

Probe Statistics for 1st 30 keys

Minimum Num. Probes: 1

Maximum Num. Probes: 4

Average Num. Probes:

1.33

End of Probe Statistics.

Probe Statistics for last 30 keys

Minimum Num. Probes: 1

Maximum Num. Probes: 11

Average Num. Probes:

3.10

End of Probe Statistics.

----------Theoretical Probe Calculation----------

Number of Keys: 109

Table load: 0.85

Calculated value of E, expected number of probes to locate key: 2.24

Resulting Relative File from Random Probe w/ My Function @ 85%

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

--in file HashOutput.txt—

ratiocination

live Kyle Lisa Dugger

Dustin Afterwards

cauldron   
 Under Derek Maiden Clark Akhila Rush Matthew 1234567890123456 Joseph Jordon Veronica forgetful Staple magnetic John Scott ‑ Ajose ­ Arauza brutalize ! Cook " inlet # Screen $ Gurung % Honor & rationalize ' Salkowski ( scat ) Alcantara \* Nienberg + option , Yolk - mole . Crouch / Necromancer 1 marsupial 3 sponsor 4 Daniels 5 Joel 6 Judy 7 Jutty 8 exhilarate 9 orthodontist ; Charles = cap > Casper ? Kelly @ Carmona B Bhandari D poison E Aguirrie F Davies G prepossess H Jeffrey I toluene K Batbold L sparse M Chris O Eye P Syncopate Q dactyl R Michael S Octavio U Qamruddin W Farral X Vinnela Y wet Z   
 Perfect [ wince \ Robert ] Wade ^ Ellington \_ Cook ` Zulfiqar a nosegay b Irreversible c Wine d Garza e Acevedo f Todd g Person h Fabricate j Paschal k Christopher l Fabulous m Misogamist n Constriction o Egbe p Finagle r quandary s Northwest t constrain u parasympathetic v Red w Buck x Fernando y privilege z Clayton | James } Corey  Adam €

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