
SYMBOL TABLE IMPLEMENTATION using HASH TABLE (separate linked list for each hash value)

It is required to store various strings (*identifier names*) in a **Symbol Table**. Assume a HASH TABLE implementation for the Symbol Table and the hash function is defined as follows:

Read in strings from an input file (text file) and calculate **hash value for each string** using the hash function given below.

You can permit collisions, in case if they occur [i.e. one or more strings can map to the same hash value; you can store them in the same **sub-list** corresponding to the computed hash value]

Assume that the input string has *English alphabets* (upper case and lower case) and *digits*. Note the range of ASCII values for A-Z is **65-90**, a-z is **97-122** and digits 0-9 is **48-57**.

HASH FUNCTION for an input string is defined as follows:

HASH VALUE=

$((\text{sum of ASCII values of the English alphabets} + 2 * \text{sum of ASCII values of digits present in the string}) * 17 + 5) \text{ MOD } 5$

Example : Input String : **Az9**

Hash Value = $((65 + 122 + 2*57) * 17 + 5) \text{ MOD } 5 = (301*17 + 5) \% 5 = 5122 \% 5 = 2$

Note: MOD denotes modulus operator [i.e. remainder after division]

Compute the hash values for each of the following twenty input strings:

B2y E3x F4w C5v D2u A2t K5y M6z N7a Y3w b2Y e3X f4W c5V d2U a2T k5Y m6Z n7A y3W
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Assume that you can read each input string from a text file [one string in each line]

Draw the contents of the Symbol Table showing the elements of each **sub-list**.