Lab Assignment 2: CS2233

August 21, 2023

Question:

Consider the following dataset click here. The dataset consists of a key parameter - NHS No., and three value parameters, `first name, email and gender`, respectively.

Construct a dictionary with the following hash table size $m = \{10, 19, 40, 61\}$. Prepare a hash table for this dataset for various values of hash table size m using universal hashing. Collision that occurred during hashing should be addressed by `chaining method`. Each node in the linked list should be represented via `struct` data type which consists of NHS No. as key parameter; `first name, email and gender` as three value parameters; and `pointer` to the next node.

Output a `histogram` corresponding to each size of the hash table. The histogram summarises the number of nodes in the linked list corresponding to each row of the hash table. You can represent the histogram with a graph in the $X - Y$ axis, wherein a point (x_i, y_i), the x_i corresponds to the row in the hash table, and y_i corresponds to the number of nodes in the linked list.

20 Marks