BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
CSE 208 (Data Structures and Algorithms II Sessional)
January 2023

Hashing Online (A1, B1)
Duration: 30 minutes

Specification:

You need to implement rehashing for your double-hashing-based hash table. The rehashing criteria will be the **load factor**
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At the start of the program, take the initial size of the hash table, *N*, and the maximum allowed load factor, *L* as inputs.

Keep updating the load factor of your table after every insertion or deletion.
Whenever the load factor exceeds *L*, rehash to a new table with approximately twice the size (it should be a prime number).

Also, whenever the load factor falls below $0.3 \times L$, rehash to a new table with approximately half the size (it should be a prime number too). But do not rehash if the new table size would fall below the initial size, *N*.

Every time a rehash is triggered in your program, you need to report the average search time, average number of probes, and load factor of your table just before and immediately after the rehash. To calculate the averages, you may search for 10% of the elements randomly.

To test your program, you may start inserting key-value pairs into your hash table till a rehash is initiated. After that keep deleting items until another rehash is triggered.