1a. Store the given keys (in the given order) in an initially empty hash table. The size of table is 6 and it resolves collision by chaining strategy.

13 18 23 25 17 2 1 19 11 0 14 8 31 17 22 29 4

1b. Compute the average nuber of tests performed when searching for a key in the completed table in the problem 1a . Suppose that the all keys which are in the table are searched for equally often and that it is never searched for keys which are not in the table.

2. Store the given keys (in the given order) in an initially empty hash table. The table resolves the collisions by open addressing and linear probing.
a. The size of table is 13   b. The size of table is 17   c. The size of table is 21

17 22 15 23 18 8 7 9 34 22 18

3. Store the given keys in problem 2 (in the given order) in an initially empty hash table. The table resolves the collisions by open addressing and double hashing. Compare the effectivity of the tables in cases a. - d.

a. The size of table is 13, second hash function is $h_2(k) = 1 + k \% 3$,
b. The size of table is 13, second hash function is $h_2(k) = 1 + k \% 5$,
c. The size of table is 17, second hash function is $h_2(k) = 1 + k \% 11$,
d. The size of table is 21, second hash function is $h_2(k) = 1 + k \% 5$,

4. Store the given keys (in the given order) in an initially empty hash table.
Count the number of collisions in each case listed bellow:

```
LISCH – Late Insert Standard Coalesced Hashing
Keys to insert:  9 11 18 27 29 36 43 45
Table size: 9,      Hash function: h(k) = k % 9

LISCH – Late Insert Standard Coalesced Hashing
Keys to insert:  10 12 20 23 32 39 40
Table size: 10,     Hash function: h(k) = k % 10

LICH – Late Insert Coalesced Hashing
Keys to insert:  9 11 18 27 29 36 43 45
Table size: 7,    Cellar size: 2,     Hash function: h(k) = k % 7

LICH – Late Insert Coalesced Hashing
Keys to insert:  10 12 20 23 32 39 40
Table size: 8,    Cellar size: 2,     Hash function: h(k) = k % 8

EISCH – Early Insert Standard Coalesced Hashing
Keys to insert:  9 11 18 27 29 36 43 45
Table size: 9,      Hash function: h(k) = k % 9

EISCH – Early Insert Standard Coalesced Hashing
Keys to insert:  10 12 20 23 32 39 40
Table size: 10,     Hash function: h(k) = k % 10

EICH – Early Insert Coalesced Hashing
Keys to insert:  9 11 18 27 29 36 43 45
Table size: 7,    Cellar size: 2,     Hash function: h(k) = k % 7

EICH – Early Insert Coalesced Hashing
Keys to insert:  10 12 20 23 32 39 40
Table size: 8,    Cellar size: 2,     Hash function: h(k) = k % 8
```