Lecture 7
Hash Tables Exercises

Department of Computer Science
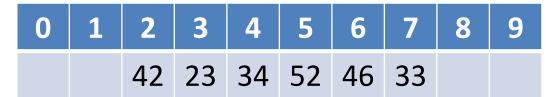
Hofstra University

Quiz: Linear Probing I

- Hashing: The keys 12, 18, 13, 2, 3, 23, 5 and 15 are inserted into an initially empty hash table of length 10 using open addressing with hash function h(k) = k % 10 and linear probing. What is the resultant hash table?

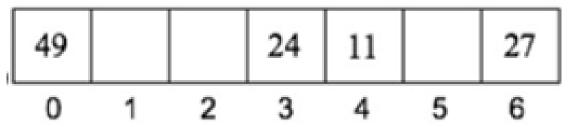| 0	1	2	3	4	5	6	7	8	9

Quiz: Linear Probing II

- Hashing: A hash table of length 10 uses open addressing with hash function h(k)=k % 10, and linear probing. After inserting 6 values into an empty hash table, the table is as shown below.

- Which one of the following choices gives a possible order in which the key values could have been inserted in the table?

- A. 46, 34, 42, 23, 52, 33
- B. 46, 34, 52, 23, 42, 33
- C. 33, 46, 34, 52, 23, 42
- D. 33, 46, 34, 52, 42, 23

0	1	2	3	4	5	6	7	8	9
		42	23	34	52	46	33		

Quiz: Linear Probing III

- What is the probability of next key going in the open slots in the following hash able? Assume each table index is equally likely for each key. Hash(k) = k % 7

49			24	11		27
0	1	2	3	4	5	6

Hashing

- Insert keys into a hash table of size 5, using different collision resolution methods.
- **Hash function**: h(k)=k%5 (maps keys to indices 0–4)
- **Keys to insert**: 10, 22, 15, 33, 25
- 1. Separate Chaining
- 2. Linear Probing
- 3. Quadratic Probing
- 4. Double Hashing
  - Two hash functions:
  - h1(k)=k%5
  - h2(k)=1+(k%3) (step size)
  - Probe sequence: Probe(k,i)=(h1(k)+i·h2(k))%5

1

0	1	2	3	4

2

0	1	2	3	4

3

0	1	2	3	4

4

0	1	2	3	4