Lab 7

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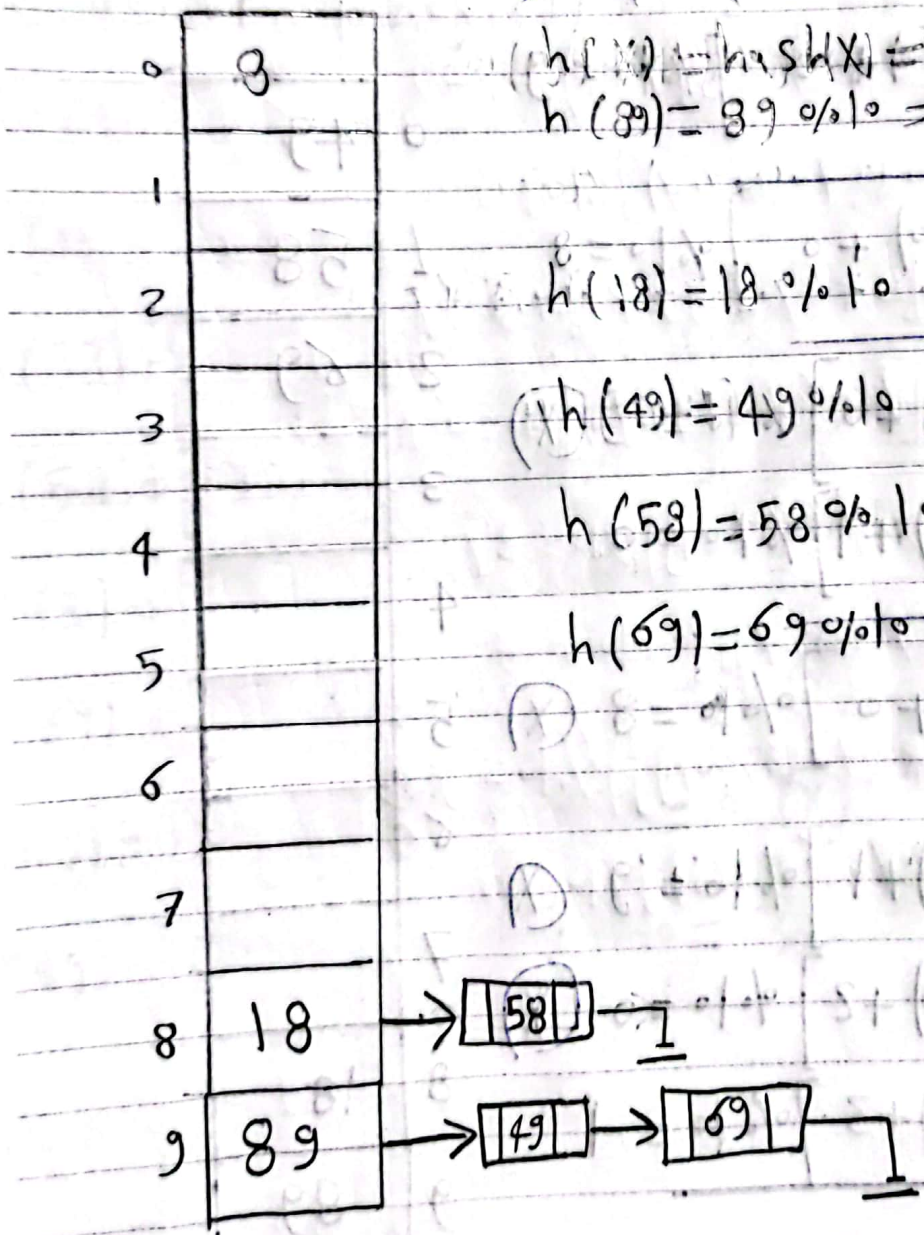
2. Separate Chaining (89, 18, 49, 58, 69)



h(x) = hash(x) = x % 10

h(89) = 89 % 10 = 9

h(18) = 18 % 10 = 8

h(49) = 49 % 10 = 9

h(58) = 58 % 10 = 8

h(69) = 69 % 10 = 9

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2- linear Probing

$h(x) = [hash\,h(x) + f(i)] \% t$

(89), (18), 49, 58, 69

$h(89) = [(89 \% 10) + 0] \% 10 = 9$

$h(18) = [(18 \% 10) + 0] \% 10 = 8$

$h(49) = [(49 \% 10) + 0] \% 10 = 9$ (X)

$h(49) = [(49 \% 10) + 1] \% 10 = 0$

$h(58) = [(58 \% 10) + 0] \% 10 = 8$ (X)

$h(58) = [(58 \% 10) + 1] \% 10 = 9$ (X)

$h(58) = [(58 \% 10) + 2] \% 10 = 0$ (X)

$h(58) = [(58 \% 10) + 3] \% 10 = 1$

$h(69) = [(69 \% 10) + 0] \% 10 = 9$ (X)

$h(69) = [(69 \% 10) + 1] \% 10 = 0$ (X)

$h(69) = [(69 \% 10) + 2] \% 10 = 1$ (X)

$h(69) = [(69 \% 10) + 3] \% 10 = 2$

0	49
1	58
2	69
3	
4	
5	
6	
7	
8	18
9	89

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(89, 18, 49, 58, 69)

3- Quadratic Probing

$h(X) = [hash(X) + F(i)^2] \% t$

$h(89) = [(89 \% 10) + 0] \% 10 = 9$

$h(18) = [(18 \% 10) + 0] \% 10 = 8$

$h(49) = [(49 \% 10) + 0] \% 10 = 9$ (X)

$h(49) = [(49 \% 10) + (1)^2] \% 10 = 0$

$h(58) = [(58 \% 10) + 0] \% 10 = 8$ (X)

$h(58) = [(58 \% 10) + (1)^2] \% 10 = 9$ (X)

$h(58) = [(58 \% 10) + (2)^2] \% 10 = 2$

$h(69) = [(69 \% 10) + 0] \% 10 = 9$ (X)

$h(69) = [(69 \% 10) + (1)^2] \% 10 = 0$ (X)

$h(69) = [(69 \% 10) + (2)^2] \% 10 = 3$

0	49
1	
2	58
3	69
4	
5	
6	
7	
8	18
9	89

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4- Double hasing (89, 18, 49, 58, 69)

$h(X) = [hash(X) + F(i)] \% 10$

$Fi = (i * [R - (X \% R)])$ R: The smallest prime number less Than T → Table size

$h(89) = ((89 \% 10) + [0 * (7 - (89 \% 7))]) \% 10 = 9$

$h(18) = ((18 \% 10) + [0 * (7 - (18 \% 7)]) \% 10 = 8$

$h(49) = ((49 \% 10) + [0 * (7 - (49 \% 7)) \% 10 = 9$ (X)

$h(49) = ((49 \% 10) + [1 * (7 - (49 \% 7))] \% 10 = 5$

$h(58) = ((58 \% 10) + [0 * (7 - (58 \% 7))]) \% 10 = 8$ (X)

$h(58) = ((58 \% 10) + [1 * (7 - (58 \% 7))]) \% 10 = 3$

$h(69) = ((69 \% 10) + [0 * (7 - (69 \% 7))]) \% 10 = 9$ (X)

$h(69) = ((69 \% 10) + [1 * (7 - (69 \% 7))]) \% 10 = 0$

0	69
1	
2	
3	58
4	
5	
6	49
7	
8	18
9	89

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