LINEAR PROBING

- Probing is the process of getting next available hash table array cell.
- In linear probing, F(i) is a linear function of i. That means alternative locations are searched in a sequential manner. Thus,

F(i)=i

Example:

Insert the keys {89, 18, 49, 58, 69} into the hash table.

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

$h_i (X) = (Hash (X) + F(i)) mod$ Table size

Hash (89) =89 mod 10 = 9 (No collision)

Hash (18) =18 mod 10 = 8 (No collision)

Hash (49) =49 mod 10 = 9 (Collision Occurred)

h_i (49) = (Hash (49) + F(1)) mod 10

= (9 + 1) mod 10 =10 mod 10   = 0(No collision)

Hash (58) =58 mod 10 = 8 (Collision occurred)

h_i (58) = (Hash (58) + F(1)) mod 10

= (8 + 1) mod 10 =9 mod 10   = 9(Collision occurred)

h_i (58) = (Hash (58) + F(2)) mod 10

= (8 + 2) mod 10 =10 mod 10   = 0(Collision occurred)

h_i (58) = (Hash (58) + F(3)) mod 10

= (8 + 3) mod 10 = 11 mod 10   = 1(No Collision)

Hash (69) =69 mod 10 = 9 (Collision Occurred)

h_i (69) = (Hash (69) + F(1)) mod 10

= (9+ 1) mod 10 =10 mod 10   = 0(Collision occurred)

h_i (69) = (Hash (69) + F(2)) mod 10

= (9 + 2) mod 10 =11 mod 10   = 1(Collision occurred)

h_i (69) = (Hash (69) + F(3)) mod 10

= (9 + 3) mod 10 = 12 mod 10   = 2(No Collision)