# AIM Hashing

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**AIM**-**The keys 12, 18, 13, 2, 3, 23, 5 and 15 are inserted into an initially empty hash table oflength 10 using open addressing with hash function h(k) = k mod 10 and linear probing. What is the resultant** hash table.

Explanation,

Open addressing, or closed hashing, is a method of collision resolution in hash tables. With this method a hash collision is resolved by probing, or searching through alternate locations in the array (the probe sequence) until either the target record is found, or an unused array slot is found, which indicates that there is no such key in the table. Well known probe sequences include:

*linear probing* in which the interval between probes is fixed–often at 1.

- 12 mod 10 = 2   //adding 12
- 18 mod 10 = 8   //adding 18
- 13 mod 10 = 3   //adding 13
- 2 mod 10 = 2 collision    //adding 2
  (2 + 1) mod 10 = 3 again collision
  (using linear probing)
  ➔ (3 + 1) mod 10 = 4
- 3 mod 10 = 3 collision //adding 3
  (3 + 1) mod 10 = 4 again collision
  (using linear probing)
  ➔ (4 + 1) mod 10 = 5
- 23 mod 10 = 3 collision //adding 23
  (3 + 1) mod 10 = 4 collision
  (4 + 1) mod 10 = 5 again collision
  (using linear probing)
  ➔ (5 + 1) mod 10 = 6
- 5 mod 10 = 5 collision //adding 5
  (5 + 1) mod 10 = 6 again collision

➔ (6 + 1) mod 10 = 7
- 15 mod 10 = 5 collision //adding 15
  (5 + 1) mod 10 = 6 collision
  (6 + 1) mod 10 = 7 collision
  (7  + 1) mod 10 = 8 collision
  ➔ (8 + 1) mod 10 = 9 collision

So, resulting hash table


Final Table

| 0 |    |
|---|----|
| 1 |    |
| 2 | 12 |
| 3 | 13 |
| 4 | 2  |
| 5 | 3  |
| 6 | 23 |
| 7 | 5  |
| 8 | 18 |
| 9 | 15 |