Static Hashing : In Static Hashing we have a Bucket Overflow Problem.

Let Suppose we want to Store a Record or insert a Record. We will Calculate the address of a bucket by Hashing and address of bucket which get generated does not have enough Space, a Bucket Over Flow is occured.

Reasons for Bucket Over flow to occur

→ **Insufficient buckets :-**

$$n_B > n_r / f_r$$

Where n_B No. of buckets
n_r No. of Records
f_r Records in a bucket.

If n_B is not greater than n_r/f_r then there is Insufficient Buckets

→ **Skew:** Some buckets are assigned more Records than are others, so a Bucket may overflow even when other Buckets still have Space. This Situation is Called Bucket Skew.

→ Multiple Records may have the same search key
→ Non uniform distribution of Search Keys.

2 Approaches for Reducing the Bucket Overflow

Increase No. of bucket fudge factor

Overflow Bucket.

Increase No. Of Bucket with Fudge factors :-

If we choose no of buckets to be

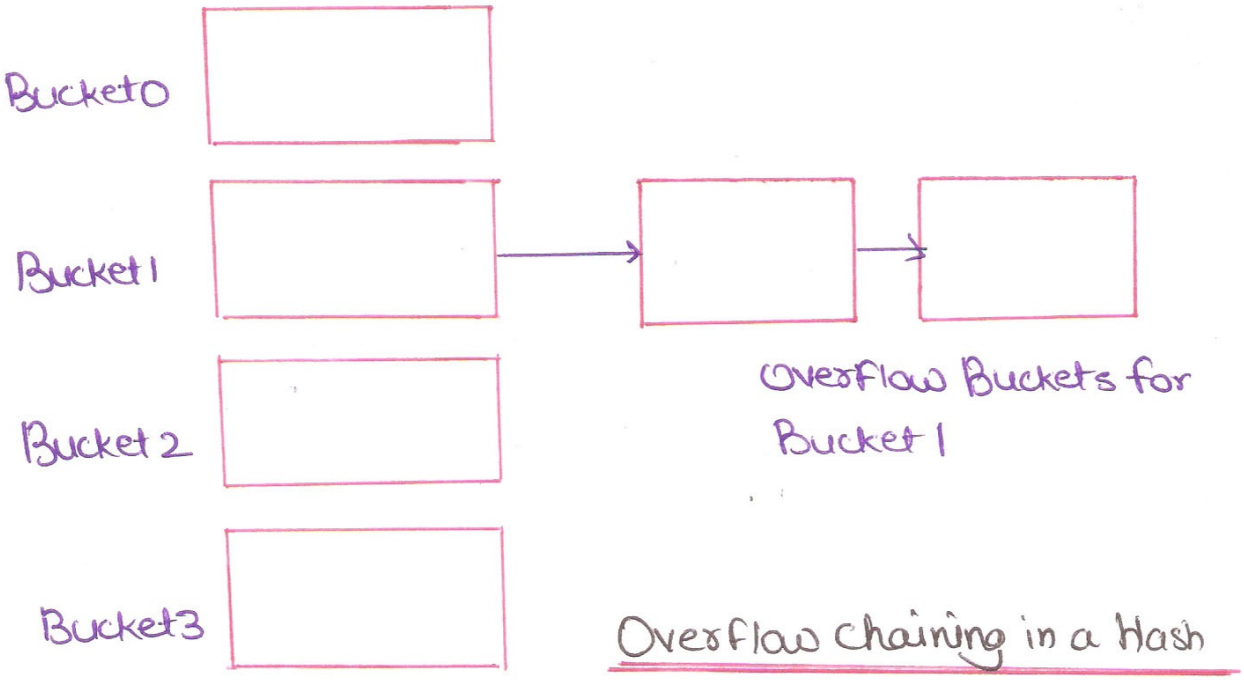
$$(n_r / f_r) * (1+d)$$

d is fudge factor = 0.2

About 20 percent of the space in the buckets will be empty but the overflow is reduced.

Overflow Buckets:- Let Suppose we want to insert a record into bucket b as per Hashing function. And b is already full then System will provides an Overflow buckets for b and inserts the Record into it.

→ If Overflow bucket is also full then another overflow bucket will be allotted and they are chained together in a LinkedList which is called Overflow Chaining



Overflow Chaining in a Hash Structure