

### 3.4 Another introduction to Hash Functions.

→ 3 main Requirements of Hash Algorithms.

- i. Speed
- ii. Avalanche Effect :- If one bit of Message changes whole hash changes.
- iii. It ~~is~~ should avoid the Hash collision.

It is possible to tweak the bits and create hash collision. Example MD5.

→ Problems with MD5 are

- Bad way to store passwords.
- It is overused in the web.
- MD5 is mainly used in File transfers, Download,

### 3.5 Password Management: Hash and Salting

→ One should not ~~to~~ store passwords.

Bad ways of storing passwords.

1. Storing password as it is.
2. Encrypt the password & store it.
3. Only using the hashing and store it. Rainbow table helps to break these passwords.

→ Hashing and salting is the best way to store passwords.

→ Salt is a random string of characters, which is different for every single user.