Abstract

In recent years, mobile is a very useful and important device for everyone because of it’s functionality. By the end of 2016 smartphone users are more than 2 billions according to the times of new York. Smartphone contain sensitive data so if they loss or hacked a big problem may arise directly or indirectly so mobile devices should be secure from different-different type of attacks. So security is a big issue. Basically there are 2 major attacks happens on mobile keypad locks. First one is brute force attack and the second one is smudge attack. Smudge attack also known as passive attack because in smudge attack attacker first have to collect and analyse the data.

**Index Terms**

Computer Science

Security

**Keywords**

Brute force attack (BFA), Smudge attack (SA), Completion rate (CR), error rate (ER), average (avg).