Security concepts

Unit 1

Goals of computer security

- The goals of computer security are :

1. Integrity
2. Confidentiality
3. Availability

1. Integrity : it deals with the knowledge that data has not been modified. Data integrity is related to data accuracy, but integrity and accuracy are not the same. For example, if information is entered incorrectly, it will remain incorrect. Integrity means preventing unauthorised modification. To preserve the integrity of an item means that the item is unmodified, precise, accurate, modified in a acceptable way by authorised people, or consistent.

2. Confidentiality :

It means preventing unauthorised access. It ensures that only the authorised person accesses the computer system. Only some data in the computer falls in the category of confidential data. There is data that can be made public and there is data that is considered sensitive. It is this critical or sensitive data that will require confidentiality. Data confidentiality cannot be enforced unless data integrity is present. The following items could require data confidentiality : credit card files, medical records, personnel data, mission-critical data, and R&D data etc.

3. Availability :

A computer system is available if :

- The response time is acceptable
- There is a fair allocation of resources

- Fault tolerance exists
- It is user friendly
- Concurrency control and deadlock management exists.

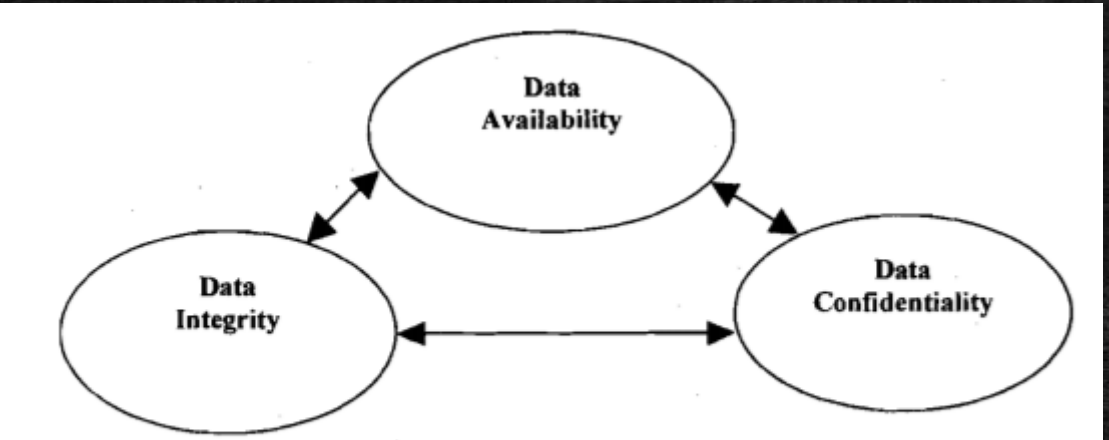

Figure 1: Relationship between Confidentiality, Integrity, and Availability