

Sixth Chapter Lesson-10: Database security.

At the end of this lesson-

- 1. You will be able to explain database security.
- 2. You will be able to explain different methods of data encryption.

Database Security: Protecting data from an unauthorized user in a database is called database security.

Database Security controls certain aspects:

- Ensuring not to use data without permission.
- Protecting database systems from unknown users.
- Controlling the use of discs.
- Controlling the use of system resources.
- Controlling the actions taken by the users.

Types of Database Security: Database security is mainly divided into two ways, these are-

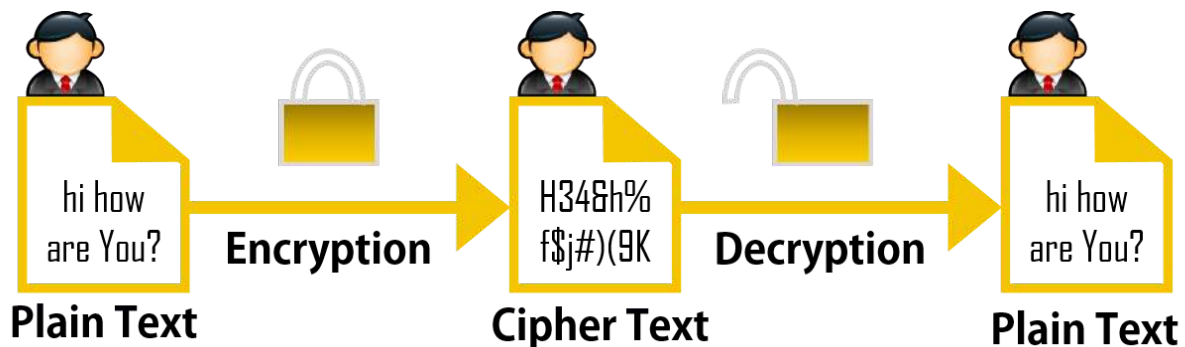
- System Security
- Data Security

System Security: Restrict the system from an unauthorized user and ensure data recover if data loses.

Data Security: Data Security controls database access and its uses in object level. The data is encrypted to the recipient for data security. After the data is reached to the recipient, the recipients then use the data to be decrypted and then used.

Data Encryption and Decryption:

Data encryption is a process of changing plain text to cipher text before sending the data from source to destination. For data security, data is sent to the receiver after encryption. Receiver reads the data after decryption of the data. Data decryption is a process of changing cipher text to plain text. Encryption and Decryption of data is called cryptography.



The main four parts of encryption:

- **Plain text:** The original message that is readable by humans.
- **Cipher text:** After encryption the message that is not readable by humans.
- **Encryption Algorithm:** Mathematical formula which is used to convert plain text to cipher text or cipher text to plain text.
- **Key:** Secret code which is needed to encrypt or decrypt.

Different Encryption Method:

- Caesar Code
- Data Encryption Standard-DES
- International Data Encryption Algorithm-IDEA

Lesson Evaluation-

Knowledge Based Questions:

- a. What is data security?
- a. What is data encryption?
- a. What is data decryption?

Comprehension Based Questions:

- b. Explain the method of data security.
- b. Why is data encryption done?-explain.
- b. 'Plain text and cipher text are not the same'-explain.
- b. Why encryption is important in database security?
- b. How to make sure data security is on a personal level.

Creative Questions:

Multiple Choice Questions: