



Database Security

COMP23111 – Database Systems

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What is Database Security?

Tools designed to establish and preserve database; Integrity, Availability and Confidentiality.



Threats to Databases

There are 3 main commonly accepted security goals in Databases and we need to protect from the loss of them.

Loss of Integrity – Information should be protected from improper modifications

Loss of Availability – Loosing the ability to access the database

Loss of Confidentiality – Protecting the database from unauthorised disclosure



What is DB Security Important?

An organisations reputation, financial status, legal compliance and general functionality.



Some of the Biggest Data Breaches

<https://www.informationisbeautiful.net/visualizations/worlds-biggest-data-breaches-hacks/>

Common DB Security Threats

Insider Threats

Buffer Overflow
Exploitations

Backup Attacks

Database Software
Vulnerabilities

Denial of Service
Attacks

Malware

SQL / NoSQL
Injection Attacks

How to Protect a Database?

Restrict Access

Database Auditing

Authentication

Securing Outside
Applications

Other Methods