Databases

University Computer Science · Vocabulary in context

Word	Example
databases /ˈdeɪtəbeɪsɪz/	**Databases** store records that programs can search and update.
entity /ˈentɪti/	A student is an **entity** in the school database.
relationship /rɪˈleɪʃənʃɪp/	A **relationship** links two entities, such as a student and a course.
cardinality /ˌkɑːdɪˈnælɪti/	The **cardinality** is one-to-many: one class has many students.
primary key /ˈpraɪməri kiː/	StudentID is the **primary key**: no two students share it. StudentID StudentID。
foreign key /ˈfɒrən kiː/	ClassID in the STUDENT table is a **foreign key**. STUDENT ClassID
referential integrity /ˌrefəˈrenʃl ɪnˈtegrɪti/	**Referential integrity** stops a row from pointing to a record that does not exist.
selection /sɪˈlekʃn/	An IF statement is a kind of **selection**. IF
projection /prəˈdʒekʃn/	A **projection** keeps only the columns you choose.
join /dʒɔɪn/	A **join** puts data from two tables together.
insert anomaly	An **insert anomaly** stops you adding a course until a student joins it.
update anomaly	An **update anomaly** makes you change the same title in many rows.

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delete anomaly	A **delete anomaly** loses course details when the last student leaves.
functional dependency	The **functional dependency** course → title means each course has one title. course → title
second normal form	**Second normal form** removes data that depends on only part of the key.
third normal form	**Third normal form** removes data that depends on a non-key column.
Boyce-Codd	**Boyce-Codd** normal form is a stricter version of third normal form.
B-tree	A **B-tree** keeps keys sorted so searches are fast.
query plan	The **query plan** shows how the database will find the rows.
transaction /trænˈsækʃn/	A **transaction** either finishes completely or not at all.
atomicity	**Atomicity** means a transaction happens completely or not at all.
consistency	**Consistency** means the data always follows the rules.
isolation /ˌaɪsəˈleɪʃn/	**Isolation** stops two transactions from getting in each other's way.
durability	**Durability** means saved data survives a crash.
serializability	**Serializability** means the result is the same as running transactions one by one.

Word	Example
isolation levels	Different **isolation levels** allow different problems for more speed.
two-phase locking	In **two-phase locking**, a transaction takes all its locks before releasing any.
authentication /ɔːˌθentɪˈkeɪʃn/	**Authentication** checks that you are who you say you are.
authorisation /ˌɔːθəraɪˈzeɪʃn/	**Authorisation** decides what a user is allowed to do.
principle of least privilege /ˈprɪnsɪpl ɒv liːst ˈprɪvɪlɪdʒ/	The **principle of least privilege** gives each user only the rights they need.
parameterised statements	**Parameterised statements** stop SQL injection attacks. SQL
data governance	**Data governance** sets rules for who can use data and how.

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