

Topic 8: Databases

Keyword sheet - Cambridge AS & A Level Computer Science 9618. Tick each term once you can define it from memory.

Keyword	Definition	Know it?
Flat-file vs relational	Single table, with redundancy and inconsistency / multiple linked tables reducing redundancy.	
Entity / attribute / tuple	Object about which data is held / property of an entity (field) / one row (record).	
Primary key	Attribute (or set) that uniquely identifies each tuple.	
Candidate / secondary key	Attribute that could be the primary key / attribute used for fast searching but not unique.	
Foreign key	Attribute that references the primary key in another table to create a relationship.	
Relationships	One-to-one, one-to-many and many-to-many; many-to-many is resolved with a link table.	
Referential integrity	Foreign key values must match an existing primary key value, preventing orphan records.	
Normalisation	Process of organising data to remove redundancy and dependency anomalies: 1NF no repeating groups; 2NF no partial dependencies; 3NF no non-key dependencies.	
Entity-relationship (ER) diagram	Diagram showing entities, attributes and relationships.	
DBMS	Software that manages creation, access, security and integrity of databases.	
Data dictionary	Description of the database's tables, fields, data types, validation and keys.	
Logical schema	Structure of the database independent of any DBMS.	
Access rights	Permissions controlling which users can view, edit or delete data.	
DDL	Data definition language: CREATE TABLE, ALTER TABLE, DROP; defines structure.	
DML	Data manipulation language: SELECT, INSERT, UPDATE, DELETE; works with data.	
SQL query	SELECT ... FROM ... WHERE ... GROUP BY ... ORDER BY; with INNER JOIN to combine tables.	
Aggregate functions	SUM, COUNT, AVG, MAX and MIN; calculate a single value from many records.	