

1.3 EXCHANGING DATA · 1.3.2

Database concepts, keys & ER modelling

Flat file vs relational, the **three keys**, ER diagrams, and capturing/exchanging data. Spec 1.3.2(a)(b).

01 Flat file vs relational

● Flat file

One table. Data **redundancy & inconsistency**; hard to update.

● Relational

Linked tables, one per entity. Each fact stored once.

02 The three keys

Primary Unique ID for a record; never blank/duplicated.

Foreign A primary key from another table; **links** tables.

Secondary Non-unique field for searching/sorting.

03 ER relationships

1:1 one to one.

1:m one to many (most common).

m:n many to many → can't store directly.

Fix m:n Add a **link table** holding both PKs as FKs → two 1:m.

04 Capture vs exchange

Capture forms, OMR, OCR, barcode, sensors.

Exchange CSV, JSON, XML between systems.

FINAL PASS BEFORE THE EXAM

Rapid exam tips

Seven slips on database questions.

01

A primary key must be **unique and never blank** — a surname or repeatable code won't do.

02

A **foreign key** links tables (it's another table's primary key); a **secondary key** is for searching.

03

A **many-to-many** can't be stored directly — resolve it with a **link table**.

04

Name flat-file problems: **redundancy**, **inconsistency**, harder updates.

05

1:m is the most common relationship — one customer, many orders.

06

Capturing gets data in (forms, OMR); **exchanging** moves it between systems (CSV, JSON).

07

For "flat file vs relational" discussions: weigh redundancy, consistency, update ease and complexity, then justify for the scenario.