■ Design Thinking, Requirements & Modelling – Summary

1. Design Thinking

- Definition: User-centered, iterative problem-solving (agile + lean + design thinking).
- Empathy: deeply understand users.
- Persona = archetypal user (role, goals, behaviors, outcomes).
- Empathy Map = 4 quadrants (Says, Thinks, Does, Feels) + pain points.
- User Stories: Format: 'As a [user], I want [goal], so that [benefit].' Should follow INVEST (Independent, Negotiable, Valuable, Estimable, Small, Testable).
- Epics: Large work broken into user stories (splitting method: F.E.E.D.B.A.C.K).
- Journey Map: Visual map of user experience → goals, pain points, touchpoints.

2. Gathering Requirements

- Understand the goal – align with mission.
- Review current system – find records, data, reports, bottlenecks.
- Discover actors & tasks – identify stakeholders (actors = roles interacting with system).
- Interview clients – ask open/closed questions, identify subject matter experts.
- Identify business rules – formal or informal constraints.
- Check historical values, exceptions, irregularities.

3. Conceptual Data Model

- Purpose: Graphical blueprint of the database (tables, fields, relationships).
- Entities & Tables: Tables = collections of entities (people, things, events). Records = rows, same structure.
- Use diagrams with rectangles and lines to represent entities and relationships.
- Relationships: Show how tables connect.
- Subtypes & Supertypes: Handle generalization/specialization.
- Lookup Tables: Ensure data consistency (finite list of valid values, e.g., dropdown menu).
- Initial Data Model: Draft before moving to logical/physical design.

■ In short: Design Thinking focuses on empathy, personas, stories, and journey maps to define user needs. Requirements gathering ensures goals, actors, rules, and constraints are captured. Conceptual modelling turns these into a visual database model with entities, relationships, and lookup tables for clarity and consistency.