Week 2

*Three-Level Architecture*

* All users access the same data
* Views from one user do not affect views from others
* Physical design is hidden from users
* Changes to physical structure does not affect memory
* DBA changing internal or conceptual structures does not affect users’ views

*ANSI-SPARC Three-Level Architecture*

* Internal structure – how the data is stored (physical)
* Conceptual structure – entities and relationships (community)
* External structure – user views (user)

*Multi-User Architectures*

* Teleprocessing – traditional; multiple terminals connected to a mainframe
* File server – connected to multiple workstations; database on file server, DBMS on workstations
  + Disadvantages: greater network time, more complex concurrency & recovery, more memory use with multiple DBMSs.
* Client-server –
  + Traditional 2-tier: client (tier 1) has applications and interface, server (tier 2) has database and DBMS
    - Advantages: increased performance, database access and consistency, reduced hardware and communication costs
    - Disadvantages: “fat” client – the client side had significant overhead and required greater resources to run effectively
  + 3-tier: client (tier 1) has interface, application server (tier 2) has business and data processing logic, database server (tier 3) has database access and data validation
    - Advantages: centralised application maintenance, less client-side resources required, easier to update one tier without affecting others, synergises with a Web environment, allows cloud computing