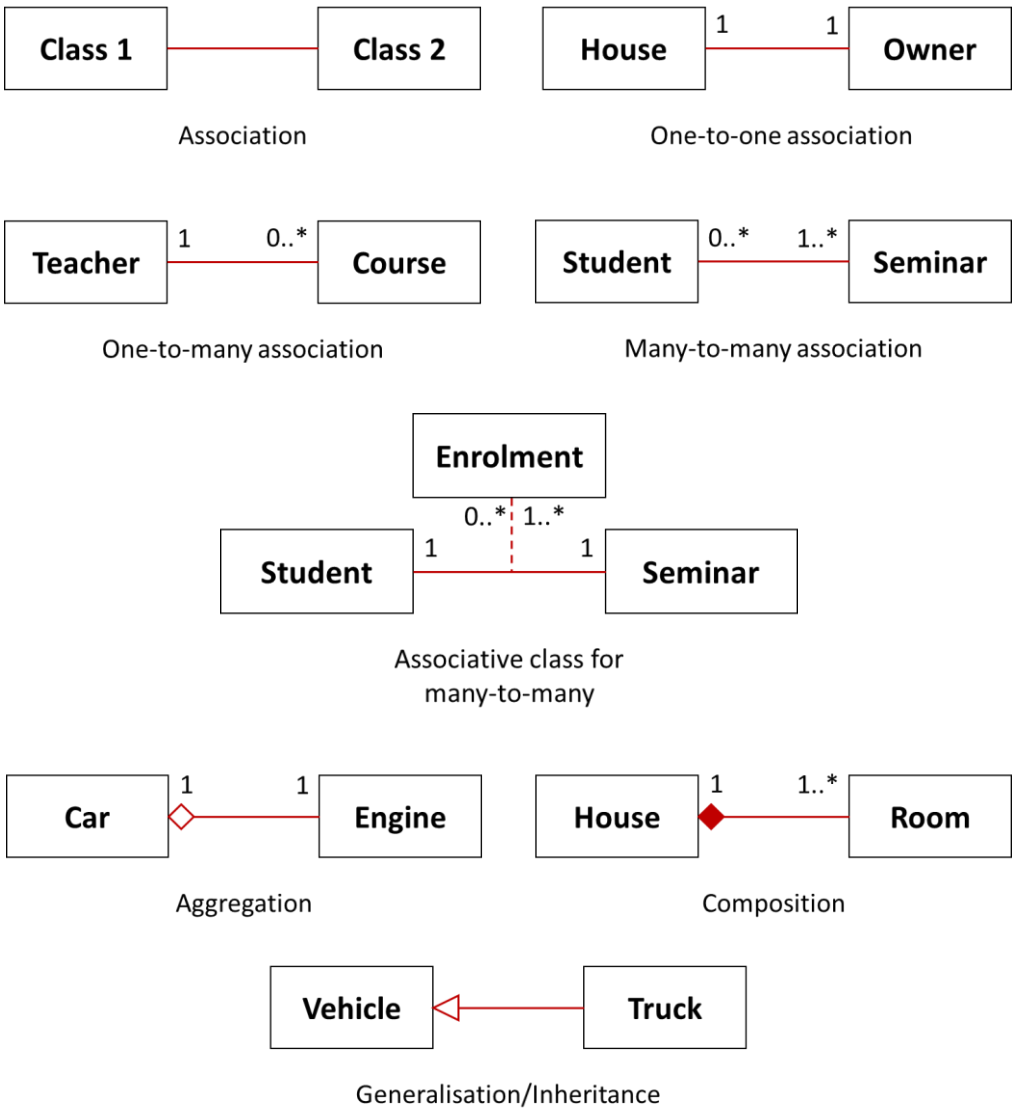
6. UML

COMP1531 • KC Notes

6.1 Unified Modelling Language

- **UML Diagram**: design and model for software development
  - **Structure Diagrams**: **static** structure of a system, **irrespective of time**
    - E.g. class diagram
  - **Behavioural Diagrams**: **dynamic** nature of a system – a series of actions over time
    - E.g. use case diagram, sequence diagram
    - **Interaction diagrams**: interactions between objects, e.g. activity diagram

6.2 UML Class Diagram

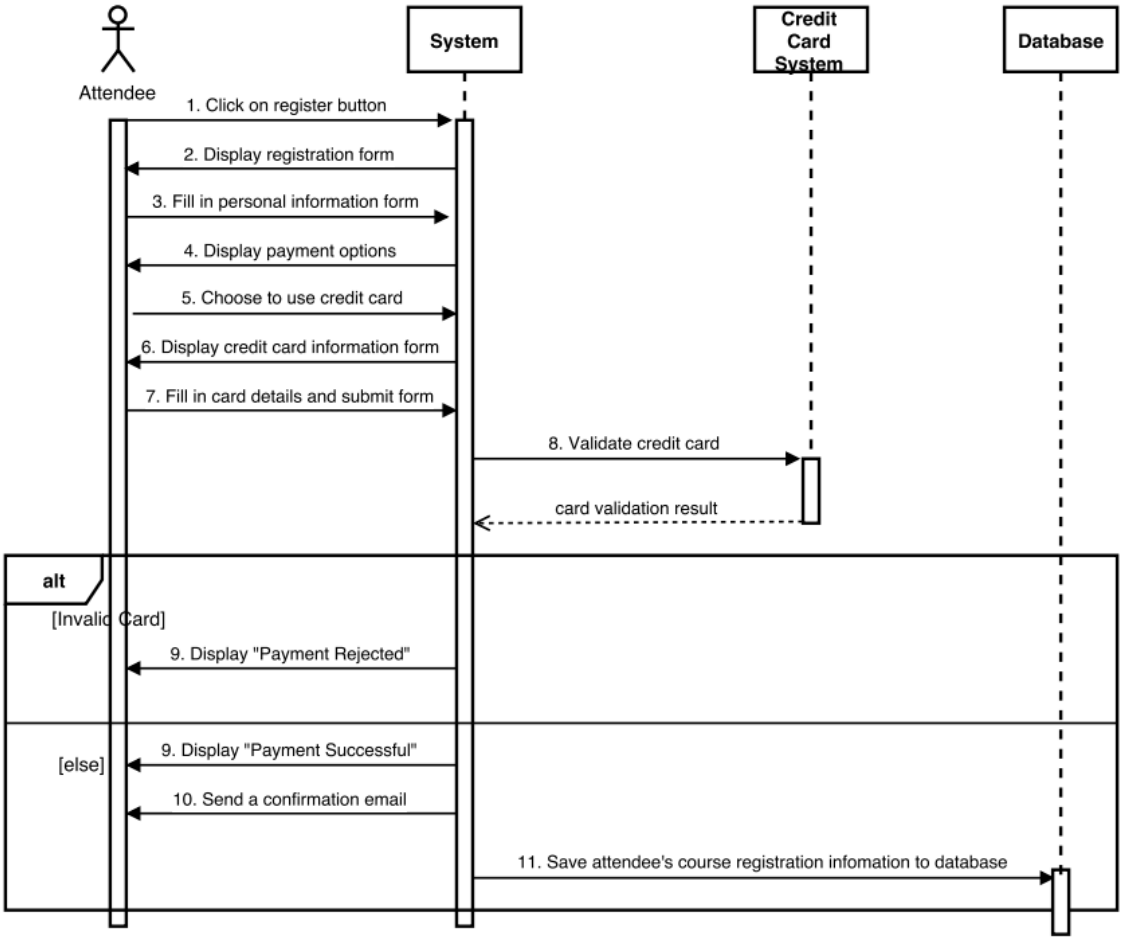


- Conceptual class diagram evolves into **detailed design class diagram**
    - To specify an attribute, <visibility> attribute_name : data_type
    - To specify a method, <visibility> method_name : return_type

BankAccount
- user: string - balance: float
+ add(int): void + withdraw(int): void + get_balance(): int

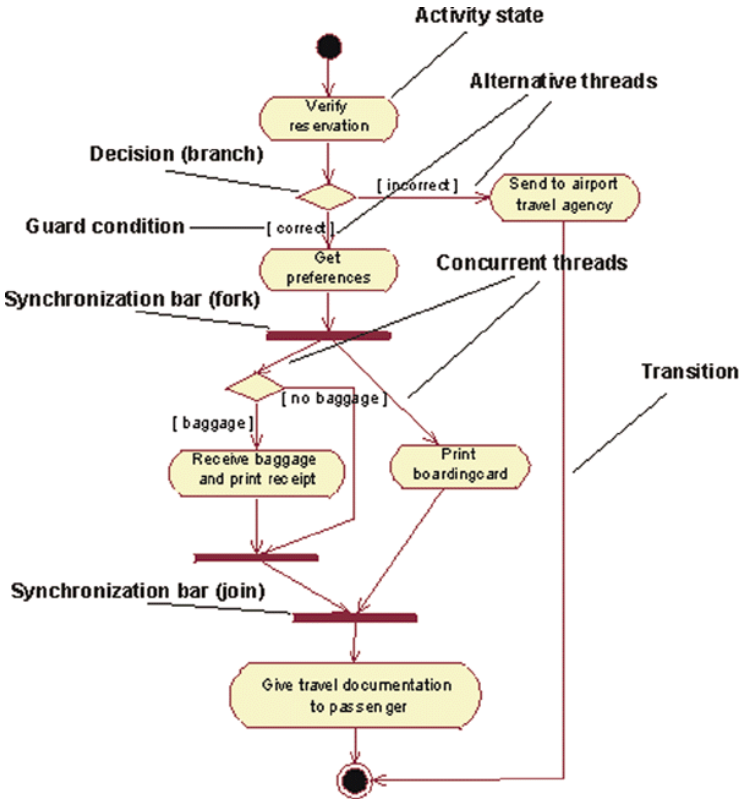
6.3 Sequence Diagram

- **Sequence Diagram**: A **visual summary of a use-case scenario**
    - Systems are treated as a **black box**, focus on activities that cross each system's boundaries
    - Should specify:
        - External actors
        - Messages (methods) invoked by actors
        - Return values associated with messages
        - Indication of loops, alternatives



6.4 Activity Diagram

- **Activity Diagram**: similarly visualise workflow of a business use-case
    - **Activity diagram** focuses more on **workflow** – how to divide responsibilities into classes
    - **Sequence diagram** focuses more on **handling of business entities**



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