SED Lecture 5
Dynamic Behaviour of Objects and UML Statecharts

Objectives
To understand the role of dynamic models in requirements analysis. To identify possible sequences of events which an object may perform. To be able to read and to construct UML statechart diagrams to model an object’s behaviour.

Key Points
- State charts are used to model the nontrivial behaviour of individual objects
- UML state charts are based on finite state machines (1950s) and on Harel's StateChart version of finite state machines (1980s)
- A UML state chart describes the response of an object of a given class to outside stimuli (events)
- UML also supports activity diagrams for giving a task-centric view of the behaviour of an object. Don’t confuse these with state charts. Activity Diagrams are used in B&D to describe software development processes, so you need to learn how to read these diagrams. In SED200 we will not be using activity diagrams for requirements analysis and design.
- Avoid "analysis paralysis" - when modelling think of which aspect of an object is dominant, and choose a model which illuminates that aspect.

Core reading
Bruegge & Dutuoit(2nd ed), 2.4.4 statechart diagrams 5.4.9 modelling state-dependent behaviour of individual objects

Sommerville (7th ed) 14.2.4 design models (Fig 14.14 state diagram)

Pressman (5th ed) 22.5.7 state diagrams

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