CITS2220 Lecture 8
Introduction to Software Design

Objectives
To understand the goals of system design and its change of focus from problem domain to solution domain.
To know the main steps of the design process. To know of methods for evaluating the quality of designs.

Key Points

1. Design is a creative process. Designers invent systems that serve a function, for example, that meet specified requirements. What is invented is constrained both by the function to be served and by what constructions are possible.
2. There are also no recipes for generating good designs. Yet there are rational criteria for preferring some designs over others: simplicity, coherence, adequacy in meeting requirements and adaptability to changes.
3. During System Design developers decompose a system into subsystems and select strategies (platforms, data management, control, access, boundaries) for building the system.
4. Coupling is the degree of interdependence between modules: in class diagram terms, the number of associations crossing a subsystem boundary.
5. Cohesion of a module is the extent to which its individual components are needed to perform the same task: the number of associations within a subsystem boundary.
6. A good subsystem decomposition for a design should minimize coupling and maximize cohesion.

Core reading
Bruegge & Dutuoit, 6.2 An overview of system design, 6.3.3 coupling and cohesion, 6.4.3 identifying subsystems
Sommerville (7th ed) 14.2 The OO Design process
Pressman (5th ed) 22.1 object-oriented design, 22.2.1 partitioning the analysis model

UWA CITS2220 semester 1, 2010