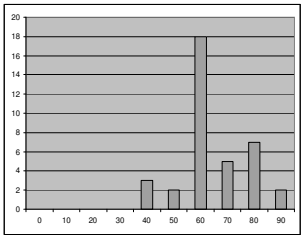
CSC407 Wrap-Up

Assignment #2/3



(pre-deductions)

Average = 67%, S.dev. = 12.5%, max = 90%

Assignments

- I will post ass#1 & #2/3 marks on the web
  - include assessed late penalties
  - by student number
  - please verify that your marks are accurate
- When ass#4 is marked, I will add them to the Web
  - collect ass #4 (and any other uncollected assignments) from the CSSU in the Engineering Annex

Review

- Architecture Introduction
  - General
    - How architecture fits into the development process
    - Definition of architecture (components, relationships, multiple structures)
    - Influences on and effects of architecture
    - Importance of architecture
    - important architectural attributes
  - Parnas KWIC case study
    - "On the Criteria To Be Used in Decomposing Systems into Modules"
      - information hiding
    - Compared two modularizations for the KWIC system
      - pervasiveness of the effect of changes

Review

- Design
  - OOD Introduction
    - Output of OOA is the "Problem domain component"
    - transform into a design & add other components
  - Design Patterns
    - Introduction
      - What they are, how they are documented, the space of design patterns
      - Overviewed a large number of design patterns
      - Granularity
      - Inheritance v.s. composition & delegation
    - LEXI case study
      - Composite, Strategy, Decorator, Bridge, Command, Iterator, Visitor
    - Creational Patterns
      - maze example
      - Abastract Factory, Builder, Factory Method, Prototype, Singleton
      - compared & contrasted
    - Structural Patterns
      - Adapter, Façade, Flyweight, Proxy (+ Bridge, Composite, Decorator)
    - Behavioral Patterns
      - Mediator (+ Command, Iterator, Strategy, Visitor)

Review

- System-Level Architecture
  - Monolithic Systems
    - exhibit module structure
    - multi-threading, symmetric multi-processing, distributed processing
    - data (import & export oriented)
  - Module Structures
    - in C, Java, C++
  - Library Structure
  - Java Beans
    - component object model
  - Client/Server Systems
    - Socket IPC, latency/bandwidth performance
    - RDBMS systems, JDBC, performance
  - Distributed Objects
    - Java RMI, stubs/skeleton marshalling, performance, CORBA/DCOM
    - EJBs
  - Three-Tiered Systems
    - Business rules – issues in assigning them to client/db
    - Internal IT case study

Exam

- Duration - 2 hours
- Examination Aids: books and notes
- Use examination booklets
- Total marks = 100
  - (30 marks) design problem
    - Give written explanation +UML
    - NO CODE
  - (30 marks) programming problem
    - Solution in Java (GIVE CODE)
    - Must use certain specific, named patterns
    - Show UML class diagram only
      - (show important members & attributes & all relationships)
  - (40 marks) three questions on design/architecture
    - requires written answers