1.00 Lecture 16

Design Lab I

Reading for next time: Big Java: sections 2.11-2.13, 3.9

Design Lab

• Focus is on problem formulation and design of classes (data members and methods)
• No solutions will be given in class
  – An example solution will be posted at 7pm tonight on the Web site
• Ask a lot of questions as you work through the lab
  – We encourage you to work with someone else
• You do not have to finish the entire program
  – The emphasis is on the design choices and early stages of implementation
Exercise

• Model the following:
  – A building contains a number of classrooms, faculty offices, and labs. It has a building number.
  – Each classroom has a number of seats, a number of power outlets,
    • And possibly a computer projector. Model this only if you have time at the end.
  – Each faculty office holds two people (faculty and administrator) and has a number of power outlets
  – Each lab holds a number of people and has a number of power outlets
    • And possibly lab equipment. Model this only if you have time at the end.
  – Each room (classroom, office, lab) has a number.
  – The building has a wireless LAN.

Exercise, p. 2

• Create methods, as appropriate, to:
  – Give the maximum number of people in the building.
    • Assume maximum classroom occupancy is the number of seats
  – At 10 seconds per occupant, give the evacuation time.
  – At 50 users per wireless LAN access point, give the number of access points needed
  – Give the number of power outlets in the building.
  – At 5 amps per outlet, projector, and wireless access point, and 20 amps per piece of lab equipment, give the total power required in the building
    • Model the projector and lab equipment power only if you have time at the end
Exercise, p.3

• Write a test class with a main() method to:
  – Create one or more buildings
  – For each building:
    • Create one or more of each room type, with appropriate data
    • Output the total power, LAN access points, evacuation time and number of people/seats