

- 1) **(5 pts)** Even on a student project, there are significant risks to finishing the project on time. Analyze a software project of this type that you worked on and list its risks. What techniques can you use to reduce each risk?
- 2) **(10 pts)** For the following three projects, discuss the process model that would be appropriately used for the entire development life cycle. Argue why. (The answer is not unique; make sure your arguments are reasonable)
  - software for a pacemaker (check [http://en.wikipedia.org/wiki/Artificial\\_pacemaker](http://en.wikipedia.org/wiki/Artificial_pacemaker)).
  - software for automated toll collection and for controlling the road side traffic displays installed on a 100 km long toll highway (example Toronto's 407 hwy).
  - software for a two player shoot'em all game over the network.
- 3) **(20 pts)**

Suppose you are specifying the requirements for yet another web based social networking application such as Facebook (see <http://www.facebook.com/>). Let this project be called Fakebook. Think of a user updating the list of friends from her account on Fakebook. There are two ways of doing this: manually, when the user searches for friends with accounts on Fakebook, or automatically, when she enters her login info from a webmail service like google or yahoo and the list of friends is extracted from her address book.

Think of a sequence of events that you feel is reasonable for this operation and write use case(s) to describe your approach. Provide use case names, pre/post conditions, actors, and the sequence of events. Then draw a use case diagram for the use case(s) you extracted.
- 4) **(10 pts)** For the same Fakebook application described in the previous exercise, draw a UML class diagram that describes a high level architecture of the system. Identify the subsystems that you think are necessary to supply only the *update friend list* functionality described earlier. Draw then a deployment diagram where you provide the software/hardware mapping of your system. Explain your diagrams.