Test 1

**CS425 - Software Engineering**

**October 4, 2014**

**Write all answers on the blank paper provided.**

1. (2pts) True/False --Needs, Features, and Requirements must all be testable. Explain your answer.

*False.Needs and Features do not need to be testable. Requirements must be testable.*

1. (2pts) Explain the difference between a use case flow and a scenario.

*A flow is a set of scenarios with similar goal and outcome. A scenario is one path through a flow.*

1. (4pts) What are 2 general rules to follow when creating a layers architecture? Give an example of each.

*Visibility – layers only depend on the same layer or next lower layer. E.g. UI layer depends on the business logic layer, but not on the data access layer.*

*Volatility – higher layers, more change – lower layers, less change – e.g. application logic in the highest layers – device drivers at the lower layer.*

1. (1pts) True/False--Key abstractions will always be entity classes. Explain your answer.

*False – we could have a boundary class or a control class that we know we will need. E.g. YogaDBAccess boundary class.*

1. (4pts) Explain the difference between an alternate flow and an exceptional flow. Give an example of each.

*An alternate flow explains the system responses needed when a business rule is not met – for example a class is full.*

*An exceptional flow shows the system response when an error condition occurs like a disk access failure, or some other system failure.*

1. (6 pts) List and briefly describe (one phrase for each) the components of a Use Case Description.
   1. *Name – reflects the goal*
   2. *Brief Description – describes the actor and goal*
   3. *Actors – simple list*
   4. *Flow of Events – show user action and system response – can have basic, alternate, and exceptional flows.*
   5. *Pre-Conditions – could be other use cases*
   6. *Post-Conditions – any system changes that persist*
   7. *Business Rules - the business logic for this use case*
2. We update our Yoga Studio Project problem statement to add the following:

***We want to reward our customers who take Yoga classes. Any customer currently enrolled in a Yoga class will receive a 20% discount on our Yoga products.***

* 1. (4pts)Show any modification to the Yoga StudioVision Document needed to address this change.

*There will be either a new Need/Feature pair for this or we could update the purchase product Need/Feature pair.*

* 1. (6pts)What are the components of our Yoga Studio SRS document? For each component specify if that component will change with this new problem statement change.Show anymodifications to the Yoga Studio SRS needed to address this change.

*Use Case Diagram, Use case definitions, and glossary. The only change will be for the*

***Customer Purchase Product*** *use case. It will have this new 20% discount for active students business rule added and there will be a check for this added in the system response for calculate the order price when the user clicks place order.*

1. (6pts)What are the outputs from architecture analysis? Suppose our problem statement changes so that we do not have pre-requisites for any classes. That is***, any customer can take any Yoga class in any sequence***. For each output of architecture analysis indicate if that output will change due to this problem statement change. Explain your reasoning and list the changes needed.

*Layers structure – no change*

*Architectural Mechanisms – no change*

*Key Abstractions – this will change. We no longer need the waivers class. We may not need the faculty members to be advisors, but this need not be reflected in the key abstractions.*