

COMSW4156\_001\_2014\_3: ADVANCED SOFTWARE ENGINEERING (Fall 2014)

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## Assignments

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#### ▼ Settings for "Risk Assessment and Design (2014 Team Assignment 4)"

<b>Created by</b>	Gail E. Kaiser
<b>Date created</b>	Oct 7, 2014 5:59 pm
<b>Open</b>	Oct 9, 2014 12:00 am
<b>Due</b>	Oct 28, 2014 5:00 pm
<b>Accept Until</b>	Oct 28, 2014 5:00 pm
<b>Modified by instructor</b>	Oct 8, 2014 6:11 pm
<b>Student Submissions</b>	Single Uploaded File only
<b>Number of resubmissions allowed</b>	Unlimited
<b>Accept Resubmission Until</b>	Oct 28, 2014 5:00 pm
<b>Grade</b>	Points (max 20.0)
<b>Alert:</b>	Yes
<b>Honor pledge:</b>	Yes

#### Assignment Instructions

Your team design document should consist of a single file uploaded to courseworks **plus** the specified material entered into JIRA at <http://ase.cs.columbia.edu/jira>. Only one member of your team should submit the courseworks file (but all team members can edit JIRA). You may submit as often as you want up to the deadline.

The first page of your document should indicate your team name and list the full names and uni's of every team member.

The second page should give a short synopsis of your proposed project. This can be copied verbatim from your proposal or requirements document if nothing has changed.









Starting on the third page labeled "Risk Assessment", and continuing for one or more pages, discuss the major risks to your project; you do not need to identify all conceivable risks, focus on those most likely to occur and/or that would have the greatest impact if they do. Each risk should have a name, a description, and a plan for eliminating or reducing the risk; this might include adjusting your requirements, "spikes", or other approaches. Create risk issues in JIRA and associate them with the corresponding use cases where relevant; some risks may be cross-cutting, affecting many or all use cases (e.g., there may be significant risks associated with your choice of framework and/or external APIs).

Starting on a new page labeled "Design", and continuing for one or more pages, present your design in light of your risk mitigation plans. Describe the major classes (and/or interfaces), including any relationships between them, and also the main interactions among classes that collectively implement all your use cases. Sketch class diagrams and sequence diagrams. Modularize for clarity, e.g., separate sequence diagrams for major alternative flows. Discuss any design patterns adopted or adapted and how they affect your classes and their interactions; these can be *any* design patterns, not necessarily discussed in class or in the Head First book. Create corresponding class diagram and sequence diagram issues in JIRA. Cross-reference sequence diagrams with the use cases they implement and class diagrams with the sequence diagrams they appear in. (Image files can be attached to JIRA issues; use the class diagram issue type for abstract interfaces.)

Again starting on a new page labeled "Unit Testing", and continuing for one or more pages, present a set of unit tests (in pseudo-code) corresponding to each class that exercise all the public methods of that class and collectively cover all the sequence diagrams. Determine the equivalence partitions for each method parameter, and make sure the test cases cover the "middle" of the partition as well as "at", "just above" and "just below" each equivalence partition boundary, considering both valid and invalid inputs. Create unit test issues in JIRA (unit test is an issue sub-task rather than standard) and associate them with the corresponding class diagram and sequence diagram issues.

Optionally, for extra credit, start again on a new page labeled "Extra Credit" and apply equivalence partitioning and boundary analysis to method results (including any exceptions raised) and to the cross-product of multiple parameters to the same method where relevant.

**Additional resources for assignment**

-  [ArgoUML](#) ( 1 KB; Oct 7, 2014 5:59 pm )
-  [Modelio](#) ( 1 KB; Oct 7, 2014 5:59 pm )
-  [StarUML](#) ( 1 KB; Oct 7, 2014 5:59 pm )
-  [Umbrello](#) ( 1 KB; Oct 7, 2014 5:59 pm )
-  [Violet](#) ( 1 KB; Oct 7, 2014 5:59 pm )
-  [ASE - 6m - Project Proposal with Design and Revised Plan.pdf](#) ( 416 KB; Oct 7, 2014 8:04 pm )
-  [Assignment4-DesignAndDevelopmentPlan.pdf](#) ( 589 KB; Oct 7, 2014 8:04 pm )
-  [design\\_planning.pdf](#) ( 3 MB; Oct 7, 2014 8:05 pm )

► Student view of the assignment "Risk Assessment and Design (2014 Team Assignment 4)"

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