

Fall 2016 - CS 458 - Project Handout

This handout describes the semester project, including its milestones.

Important project goals

Important project goals include:

- maintaining an evolving collection of user stories, INCLUDING appropriate consultation with a "client"
 - it is expected that you have some user stories you have NOT reached as of the final milestone -- the negotiations with regard to what should be added for the next iteration are an important aspect of extreme programming/agile development that you are expected to be practicing as part of this project.
- working TOGETHER, as a TEAM, to implement **at least three working, deliverable iterations** of a system for your "client" that EACH implement a useful, operational subset of that "client"'s current version of those user stories
- a strong, concerted attempt at a **disciplined** approach to testing at VARIOUS levels
- using Extreme Programming/agile practices as discussed in class
- using and practicing software engineering practices and considerations

Grading Breakdowns for the Milestones

Your project grade will be the sum of the following:

Max Pts Possible	Project part	Description
5	Milestone 1	Project proposal, including an initial list of user stories
5	Milestone 2	Iteration 1 plan
10	Milestone 3	Completed Iteration 1
5	Milestone 4	Iteration 2 plan
15	Milestone 5	Completed Iteration 2
5	Milestone 6	Iteration 3 plan
25	Milestone 7	Completed Iteration 3
10	Milestone 8	Formal presentation/demonstration to class and to other observers
5	Milestone 9	Individual reflection paper
5	Participation 1	Based on 1st set of peer evaluations & instructor's evaluation of performance
5	Participation 2	Based on 2nd set of peer evaluations & instructor's evaluation of performance
5	Participation 3	Based on 3rd set of peer evaluations & instructor's evaluation of performance

The sum of the grades for the above project components will then be multiplied by 30% in computing the project portion of your CS 458 final semester grade.

The grades for Milestone 9 and Participation 1, 2, and 3 are individual grades, and may differ for each team

member. Except for unusual circumstances, the grades for the other milestones will be the same for each member of a team (although I reserve the option of giving different members of a team different grades for *any* project part, if I feel this is appropriate).

Part of your Participation grade will be determined by your thoughtfully and thoroughly filling out several peer evaluations forms at times to be specified. I will consider your and your peers' comments on these forms, meeting minutes and other submitted files/documents/activities, and my own observations in determining each team member's Participation grade.

A Few Important Points re: Project Teams

last modified: 2016-09-26 (also posted on the public course web site, under "References")

- At ANY time during the semester, if any student or team has serious issues with a team member, please bring them to my attention as soon as possible.
- (slightly adapted from Cashman and Eschenbach's ENGR 111 Team Contract Guidelines): There will be **NO illegal activity** during any team meetings or team working sessions.
 - Illegal activity includes, but is **not** limited to, underage drinking and illicit drug use.
 - This rule **must** be enforced **regardless** of whether the meeting takes place on or off campus.
 - The team must notify me **immediately** (or by the next class meeting) if a violation of this rule occurs and the offending team member will be removed from the team and assigned a **0** for the entire course project.
- NOTE that it is each team member's responsibility to, if at all possible, contact all of the other team members if they are going to be late for or are going to miss a team meeting (whether that meeting is during scheduled CS 458 class time or outside of it).
 - The team should discuss and agree to the means for such notifications (e-mail? text? etc.)
- Here is good advice for teams, from <http://www.ece.rutgers.edu/~marsic/Teaching/SE/projects.html>:
 - "Saying that "nobody asked me to do this or that," or, "I did everything that I was asked to do" is an **unacceptable** excuse.
 - Each team member should be **proactive** and not wait passively to be assigned responsibilities.
 - Do not ask others what should be done; rather, take initiative and suggest what should be done to make your project successful.
 - Take every opportunity to redistribute and/or rotate the responsibilities, make your personal suggestions be heard!
 - Many times defining the problem and determining what needs to be done is more difficult than actually doing it. Hence, problem defining and task assignment must be contributed to by all team members, rather than by the team leader alone."
- It will be each team member's responsibility to keep track of their contributions to the project. You will be expected to submit a list of these at some point (or points).
- Note that peer evaluations will be required at several points during the semester. Your thoughtful participation in these will also be part of your project grade.
- For each team meeting, the team is expected to fill out the posted "official" team meeting report form

(posted in the "References" section on the public course web site).

- You can fill it out electronically, or print it out, fill it out, and scan it, or print it out, fill it out, and take a picture of it -- your choice, as long as the result is readable, and your result is a PDF file.
- If you fill it out electronically, your "signature" in the final section can be your typing your name. Each team member is on their honor not to "sign" for another team member, and to only "sign" when they indeed are satisfied with the team meeting form's contents. It will be considered a serious breach of ethics if a team meeting form is "signed" by a member who did not attend or who does not agree that the information in that report is accurate, to the best of their knowledge.
- This form is provided in both tagged PDF and Word/.doc formats -- **HOWEVER**, if you fill out the .doc version, you should then save the filled out version **AS A PDF**.
- Decide on a naming scheme the team will use for the resulting completed team meeting forms, incorporating the meeting date using the format YYYY-MM-DD into the resulting file name (e.g., meeting-2016-09-30.pdf)
- Create a team-meetings directory in your team's GitHub project directory, and keep copies of the PDF versions of all of your completed team meetings forms there.
- Note that, when class time is provided for team meetings, teams are expected to meet during **all** of the provided class time (members aren't to leave before class time is over, work on other course work, etc)
- A team's grade may be affected if teams do not meet regularly or if team meeting forms are not filled out or are not appropriately filled out.

Required Comments for Project Code

These guidelines should be followed in the project code submitted for each project iteration.

- Note that, AS MUCH AS POSSIBLE, you are expected to work in pairs for the programming in this agile/extreme programming team project; your project grade will be affected adversely if this is not the case.
 - Remember that pair programming is two people working at the same time on the same code (ideally on the same computer and keyboard, but if this is essentially virtually the case, that will be acceptable unless there are problems), with one typing, one saying what to type, and discussion taking place along the way, with roles and pairs changing frequently.
- Remember: careful refactoring is encouraged in agile/extreme programming!
- Each module of project code -- for example, each function, each procedure, each class, each method within a class -- is expected to have an opening comment block that follows the team's coding standards, and **in addition** also includes at least the following information:
 - what it expects/needs to work (parameters, other necessary inputs, and/or preconditions)
 - what it does (what it returns, what are its side-effects, what are its results, and/or postconditions)
 - the names of the **pair** or person who created it, and the date of the initial creation
 - for each modification: **also** include the names of the **pair** or person who modified it, and the date of the modification
- Not including the names of who created/worked on each module will adversely affect the project grade.
- And, it is a **serious breach of ethics** to include your name on code you did not work on!

Milestone 1 - project proposal, including initial list of user stories

deadline

This is due by 11:59 pm on Friday, September 30 **BUT SOONER WOULD BE BETTER!!!**

how to "submit"

Make sure the milestone's pieces are in your team's private GitHub repository by the deadline; if you have them there sooner, please E-MAIL me, and MAYBE I can approve your proposed project more quickly!

what to submit

First: write a brief description (1-2 paragraphs should suffice) of your proposed project, including a last-modified date, in a file named `proposed-proj-descr.txt` or `proposed-proj-descr.pdf`, and include this in your team's GitHub repository in a directory named `proj-descr`.

Who will be the "client(s)" for your proposed project? This could be the actual clients if your proposed project has them, or it could be someone (or ones) who have agreed to serve in the client role.

IMPORTANT NOTE re: PROJECT CLIENTS!!

As I have been working on this project handout, it has become clear to me that I cannot serve as the client for a CS 458 project team. At the same time, the presence of a client is absolutely necessary to certain of the practices you are trying to get experience with in this course project.

Therefore, you need to find someone(s) willing to serve as a "client" for your proposed project.

- If you already have someone who has agreed to do so, that's great! Proceed as described below.
- If you do not, you need to find another CS 458 team similarly in need of a "client", and the two teams can serve as "clients" for one another, or (if needed) as part of a "client cycle" where Team A is the client for Team B, who is the client for Team C, who is the client for Team A.
 - Note: If a team needs another CS 458 team to be their "client", they must be willing to serve as a "client" for another CS 458 team.

Put the name(s) of your client(s), along with at least an e-mail address for contacting your "client(s)", in a file named `proj-client.txt` or `proj-client.pdf`, also within the directory `proj-descr`.

Then: You are expected to have a directory in your GitHub private repository named `user-stories`.

For Milestone 1, place in this directory a "snapshot" of your initial set of user stories for your proposed project.

Because you may very well be writing your user stories on index cards -- as recommended in Extreme Programming -- the order that your stories happen to appear in this "snapshot" is not significant. These could literally be snapshots of index card converted into PDF, or a list pasted from whatever your team is using to keep your current user stories -- however you create this file containing your current user stories, make sure I can read its contents, and make sure it ends up as a readable PDF file.

And, make sure the "snapshot"'s file's name includes `milestone-1` in it. If I search your `user-stories` directory for your file with the pattern `*milestone-1*.pdf`, it should be found!

EACH user story is expected to include:

- a short-but-descriptive name <-- [yikes, forgot to mention this in in-class discussion! BUT it is useful!]
- 1-3 sentences describing the desired story, expressed in client-friendly language
 - as discussed in-class, you may CHOOSE either format (where the [so that <goal>] is optional):
A <type of user> can <task> [so that <goal>].
...OR...
As a <type of user>, I want to <task> [so that <goal>].
 - (remember: a user story should be UNDERSTANDABLE to client AND developer, TESTABLE, VALUABLE to the client, and SMALL ENOUGH that several user stories can be built in an iteration!)
- a ROUGH estimate, in hours, of how long you estimate this story will take to implement

what needs to be in your team's GitHub repository for Milestone 1?

- in directory `proj-descr`:
 - your project's description in file `proposed-proj-descr.txt/.pdf`
 - your proposed "client(s)" in `proj-client.txt/.pdf`
- in directory `user-stories`:
 - an appropriately-named (including `milestone-1` in its name) PDF containing a "snapshot" of your initial list of user stories
- in directory `team-meetings`:
 - appropriately-named (including the meeting date in the form `YYYY-MM-DD`) PDFs of all team meeting forms

project approval

I hope to let each team know whether their project proposal is approved by the beginning of class on Tuesday, October 4. (For teams that have their proposal pieces ready prior to September 30 and send me an e-mail accordingly, I hope to let them know SOONER than that.)

If your team's project proposal is NOT approved, I will meet with your team in "emergency session" during the team meeting time in lab on Wednesday, October 5 to determine how to proceed. Note that such teams will still need to submit Milestone 2 by Friday, October 14!

Milestone 2 - Iteration 1 plan

deadline

This is due by 11:59 pm on Friday, October 14 **BUT SOONER WOULD BE BETTER!!!**

how to "submit"

Make sure the milestone's pieces are in your team's private GitHub repository by the deadline.

what to submit

You are expected to have a directory in your GitHub private repository named `iteration-1`. For this milestone, this directory must include a file named `iteration-1-plan.txt` or `iteration-1-plan.pdf`, which contains:

- a LIST of the user stories to be implemented in iteration 1 (you can simply give the short name for each user story -- I can then look up the description for each in your `user-stories` directory)
 - note that it is EXPECTED that you have determined these by working with the "client". Include some confirmation of your client's agreement (dated notes from a meeting with your client (including names of all attending the meeting), or an e-mail from your client confirming this) in a file named `client-conf-1.txt` or `client-conf-1.pdf`.
 - REMEMBER: the eventual result of this first iteration is to be a working system that does something, even if it is small, that is valuable to the "client".
- the date, agreed-upon with the "client", by which the first iteration is to be completed
 - NOTE: keep in mind that you need to complete at least THREE iterations -- each a working system that does something valuable to the client -- by 11:59 pm on Friday of Week 15!

Also: you are expected to have a file `testing-plan-1.txt` or `testing-plan-1.pdf` within directory `iteration-1`, that describes how you plan to approach and attempt testing for iteration 1.

- hint: this better not be empty!
- hint: think Extreme-Programming-attitude! You'd better include HOW you will handle UNIT testing,
- ...AND you'd better include HOW you will handle ACCEPTANCE testing

And, include the current "snapshot" of your user stories in a PDF file whose name includes `milestone-2` in it in your `user-stories` directory.

What needs to be in your team's GitHub repository for Milestone 2?

- your directories and files from Milestone 1
- in directory `iteration-1`:
 - your iteration 1 plan in file `iteration-1-plan.txt/.pdf`
 - confirmation that your client has seen and agrees with it in file `client-conf-1.txt/.pdf`
 - a description of your testing plan for iteration 1 in `testing-plan-1.txt/.pdf`

- in directory `user-stories`:
 - its previous contents
 - an appropriately-named (including `milestone-2` in its name) PDF containing a "snapshot" of your **current** list of user stories
- in directory `team-meetings`:
 - its previous contents
 - appropriately-named (including the meeting date in the form `YYYY-MM-DD`) PDFs of all team meeting forms from the time period of this milestone

Milestone 3 - Iteration 1

deadline

This is due by 11:59 pm on the date you gave in Milestone 2's `iteration-1-plan.txt/.pdf` file.

how to "submit"

Make sure the milestone's pieces are in your team's private GitHub repository by the deadline.

what to submit

You need to include a copy of the code for your RUNNING, WORKING deliverable within your team's private GitHub repository.

Note that it needs to meet the following requirements:

- it must run/work!
- the "client" can run it!
- it does something (even if "small") the "client" considers to be useful!
- it (hopefully!) implements the user stories you said it would implement in `iteration-1-plan.txt/.pdf`, and this is backed up by acceptance testing
- its "modules" include unit testing (which I am assuming you wrote before writing the code)
- every "chunk" of code has opening comment blocks, including the names of the pairs who created/worked on each, as described in the section "Required Comments for Project Code"

Include, in your `iteration-1` subdirectory, a file `README.txt` that includes:

- a CLEAR DESCRIPTION of what I need to do to run your deliverable, or see it running
- a list of the directories/files in your repository containing the code for this iteration, including a short description of each file listed

Also include, in your `iteration-1` subdirectory, a file `testing-1.txt/.pdf` that describes how you ACTUALLY accomplished the unit and acceptance testing for this iteration

And, include the current "snapshot" of your user stories in a PDF file whose name includes `milestone-3` in it in your `user-stories` directory.

What needs to be in your team's GitHub repository for Milestone 3?

- your directories and files from previous milestones
- a copy of your code for your running/working iteration 1 deliverable
- in directory `iteration-1`:
 - its previous contents
 - your file `README.txt` that describes your code for your completed iteration 1
 - your file `testing-1.txt/.pdf` that describes how you actually tested your code for this

completed iteration

- in directory `user-stories`:
 - its previous contents
 - an appropriately-named (including `milestone-3` in its name) PDF containing a "snapshot" of your **current** list of user stories
- in directory `team-meetings`:
 - its previous contents
 - appropriately-named (including the meeting date in the form `YYYY-MM-DD`) PDFs of all team meeting forms from the time period of this milestone

Milestone 4 - Iteration 2 plan

deadline

This is due by:

- ...11:59 pm on the date 1 week after your Iteration 1 (Milestone 3) deadline

how to "submit"

Make sure the milestone's pieces are in your team's private GitHub repository by the deadline.

what to submit

You are expected to have a directory in your GitHub private repository named `iteration-2`. For this milestone, this directory must include a file named `iteration-2-plan.txt/.pdf`, which contains:

- some form of feedback, even if preliminary, from your "client" from using the first iteration. Include some documentation of this (dated notes from a meeting with your "client" (including names of all attending the meeting), or an e-mail from your "client" including such feedback) in a file named `client-feedback-1.txt/.pdf`.
- a LIST of the user stories to be implemented in iteration 2 (you can simply give the short name for each user story -- I can then look up the description for each in your `user-stories` directory)
 - note that it is EXPECTED that you have determined these by working with the "client". Include some confirmation of your "client"'s agreement (dated notes from a meeting with your "client" (including names of all attending the meeting), or an e-mail from your "client" confirming this) in a file named `client-conf-2.txt/.pdf`.
 - remember: the eventual result of this second iteration is to be a working system that **does something** that is **valuable** to the "client".
- the date, agreed-upon with the "client", by which the second iteration is to be completed
 - NOTE: keep in mind that you need to complete at least THREE iterations -- each a working system that does something valuable to the client -- by 11:59 pm on Friday of Week 15!

Also: you are expected to have a file `testing-plan-2.txt/.pdf` within directory `iteration-2`, that describes how you plan to IMPROVE your testing for iteration 2 (compared to iteration 1)

- hint: this better not be empty!
- hint: think Extreme-Programming-attitude! You'd better include HOW you will improve UNIT testing,
- ...AND you'd better include HOW you will improve ACCEPTANCE testing
- (do you think no improvements are needed? Then describe what went particularly well with regard to each level of testing in iteration 1, and note that you will be continuing to do that in iteration 2.)

And, include the current "snapshot" of your user stories in a PDF file whose name includes `milestone-4` in it in your `user-stories` directory.

What needs to be in your team's GitHub repository for Milestone 4?

- your directories and files from previous milestones
- in directory `iteration-2`:
 - documentation of some feedback from your "client" on iteration 1 in file `client-feedback-1.txt` / `.pdf`
 - your iteration 2 plan in file `iteration-2-plan.txt` / `.pdf`
 - confirmation that your "client" has seen and agrees with it in file `client-conf-2.txt` / `.pdf`
 - the discussion described above in `testing-plan-2.txt`
- in directory `user-stories`:
 - its previous contents
 - an appropriately-named (including `milestone-4` in its name) PDF containing a "snapshot" of your **current** list of user stories
- in directory `team-meetings`:
 - its previous contents
 - appropriately-named (including the meeting date in the form `YYYY-MM-DD`) PDFs of all team meeting forms from the time period of this milestone

Milestone 5 - Iteration 2

deadline

This is due by 11:59 pm on the date you gave in Milestone 4's `iteration-2-plan.txt` file.

how to "submit"

Make sure the milestone's pieces are in your team's private GitHub repository by the deadline.

what to submit

You need to include a copy of the code for your RUNNING, WORKING deliverable within your team's private GitHub repository.

Note that it needs to meet the following requirements:

- it must run/work!
- the "client" can run it!
- it does something (even if "small") the "client" considers to be useful!
- it (hopefully!) implements the user stories you said it would implement in `iteration-2-plan.txt/.pdf`, and this is backed up by acceptance testing
- its "modules" include unit testing (which I am assuming you wrote **before** writing the code)
- every "chunk" of code has opening comment blocks, including the names of the pairs who created/worked on each, as described in the section "Required Comments for Project Code"

Include, in your `iteration-2` subdirectory, a file `README.txt` that includes:

- a CLEAR DESCRIPTION of what I need to do to run your deliverable, or see it running
- a list of the directories/files in your repository containing the code for this iteration, including a short description of each file listed

Also include, in your `iteration-2` subdirectory, a file `testing-2.txt/.pdf` that describes how you ACTUALLY accomplished the unit and acceptance testing for this iteration.

And, include the current "snapshot" of your user stories in a PDF file whose name includes `milestone-5` in it in your `user-stories` directory.

What needs to be in your team's GitHub repository for Milestone 5?

- your directories and files from previous milestones
- a copy of your code for your running/working iteration 2 deliverable
- in directory `iteration-2`:
 - its previous contents
 - your file `README.txt` that describes your code for your completed iteration 2
 - your file `testing-2.txt/.pdf` that describes how you actually tested your code for this

completed iteration

- in directory `user-stories`:
 - its previous contents
 - an appropriately-named (including `milestone-5` in its name) PDF containing a "snapshot" of your **current** list of user stories
- in directory `team-meetings`:
 - its previous contents
 - appropriately-named (including the meeting date in the form `YYYY-MM-DD`) PDFs of all team meeting forms from the time period of this milestone

Milestone 6 - Iteration 3 plan

deadline

This is due by 11:59 pm on the date 1 week after your Iteration 2 (Milestone 5) deadline

how to "submit"

Make sure the milestone's pieces are in your team's private GitHub repository by the deadline.

what to submit

You are expected to have a directory in your GitHub private repository named `iteration-3`. For this milestone, this directory must include a file named `iteration-3-plan.txt/.pdf`, which contains:

- some form of feedback, even if preliminary, from your "client" from using the second iteration. Include some documentation of this (dated notes from a meeting with your "client" (including names of all attending the meeting), or an e-mail from your "client" including such feedback) in a file named `client-feedback-2.txt/.pdf`.
- a LIST of the user stories to be implemented in iteration 3 (you can simply give the short name for each user story -- I can then look up the description for each in your `user-stories` directory)
 - note that it is EXPECTED that you have determined these by working with the "client". Include some confirmation of your "client"'s agreement (dated notes from a meeting with your "client" (including names of all attending the meeting), or an e-mail from your "client" confirming this) in a file named `client-conf-3.txt/.pdf`.
 - remember: the eventual result of this third iteration is to be a working system that **does something** that is **valuable** to the "client".
- (I will assume the completion date for the third iteration is **11:59 pm on Friday, December 9**, unless you tell me here otherwise!)

Also: you are expected to have a file `testing-plan-3.txt/.pdf` within directory `iteration-3`, that describes how you plan to IMPROVE your testing for iteration 3 (compared to iterations 1 and 2)

- hint: this better not be empty!
- hint: think Extreme-Programming-attitude! You'd better include HOW you will improve UNIT testing,
- ...AND you'd better include HOW you will improve ACCEPTANCE testing
- (do you think no improvements are needed? Then describe what went particularly well with regard to each level of testing in iteration 2, and note that you will be continuing to do that in iteration 3.)

And, include the current "snapshot" of your user stories in a PDF file whose name includes `milestone-6` in it in your `user-stories` directory.

What needs to be in your team's GitHub repository for Milestone 6?

- your directories and files from previous milestones
- in directory `iteration-3`:

- documentation of some feedback from your "client" on iteration 2 in file `client-feedback-2.txt / .pdf`
- your iteration 3 plan in file `iteration-3-plan.txt / .pdf`
- confirmation that your "client" has seen and agrees with it in file `client-conf-3.txt / .pdf`
- the discussion described above in `testing-plan-3.txt`
- in directory `user-stories`:
 - its previous contents
 - an appropriately-named (including `milestone-6` in its name) PDF containing a "snapshot" of your **current** list of user stories
- in directory `team-meetings`:
 - its previous contents
 - appropriately-named (including the meeting date in the form `YYYY-MM-DD`) PDFs of all team meeting forms from the time period of this milestone

Milestone 7 - Iteration 3

deadline

This is due by 11:59 pm on Friday, December 9 (unless you indicated an earlier deadline in `iteration-3-plan.txt/.pdf`)

how to "submit"

Make sure the milestone's pieces are in your team's private GitHub repository by the deadline.

what to submit

You need to include a copy of the code for your RUNNING, WORKING deliverable within your team's private GitHub repository.

Note that it needs to meet the following requirements:

- it must run/work!
- the "client" can run it!
- it does something (even if "small") the "client" considers to be useful!
- it (hopefully!) implements the user stories you said it would implement in `iteration-3-plan.txt`, and this is backed up by acceptance testing
- its "modules" include unit testing (which I am assuming you wrote **before** writing the code)
- every "chunk" of code has opening comment blocks, including the names of the pairs who created/worked on each, as described in the section "Required Comments for Project Code"

Include, in your `iteration-3` subdirectory, a file `README.txt` that includes:

- a CLEAR DESCRIPTION of what I need to do to run your deliverable, or see it running
- a list of the directories/files in your repository containing the code for this iteration, including a short description of each file listed

Also include, in your `iteration-3` subdirectory, a file `testing-3.txt/.pdf` that describes how you ACTUALLY accomplished the unit and acceptance testing for this iteration

And, include the current "snapshot" of your user stories in a PDF file whose name includes `milestone-7` in it in your `user-stories` directory.

IN ADDITION!!! in your iteration-3 subdirectory:

- You will read about architecture views of a system in Jalote, Chapter 5 -- create and include an appropriate Connector and Component (C&C) architecture diagram for your project's final iteration (in PDF format), in a file named `c-and-c-arch.pdf`.
 - Include a description of what you are trying to show here, and any additional information you think I should know about your C&C architecture diagram, in a file `c-and-c-arch-README.txt`.
- You will read about UML diagrams in Jalote, Chapter 6 -- select one type of UML diagram (DIFFERENT

from your C&C architecture diagram, if you happened to depict it using UML!), and submit an instance of that diagram appropriate for your project's final iteration (in PDF format), in a file named `uml-ex.pdf`.

- Include a discussion of why you chose this UML diagram type, a description of what you are trying to show here, and any additional information you think I should know about your UML diagram, in a file named `uml-ex-README.txt`.

What needs to be in your team's GitHub repository for Milestone 7?

- your directories and files from previous milestones
- a copy of your code for your running/working iteration 3 deliverable
- in directory `iteration-3`:
 - its previous contents
 - your file `README.txt` that describes your code for your completed iteration 3
 - your file `testing-3.txt/.pdf` that describes how you actually tested your code for this completed iteration
 - a C&C architecture diagram in file `c-and-c-arch.pdf` and accompanying file `c-and-c-arch-README.txt`
 - a UML diagram (different from your C&C architecture diagram) in file `uml-ex.pdf` and accompanying file `uml-ex-README.txt`
- in directory `user-stories`:
 - its previous contents
 - an appropriately-named (including `milestone-7` in its name) PDF containing a "snapshot" of your **current** list of user stories
- in directory `team-meetings`:
 - its previous contents
 - appropriately-named (including the meeting date in the form `YYYY-MM-DD`) PDFs of all team meeting forms from the time period of this milestone

Milestone 8 - Formal presentation/demonstration

A formal team presentation/demonstration of your final iteration will be given in class, during Week 15 of the semester. With 10 teams, these presentations will need to be done during all three class meetings during Week 15. Note that I nevertheless hope to invite departmental faculty to attend some of the presentations if their schedules permit -- if you would like to invite anyone, particularly your "client(s)", please feel encouraged to do so!

To be presented:

during all three class sessions during Week 15, order probably to be determined by random drawing

(The exception would be if a team has non-CS-458 "client(s)" who would like to attend the presentation, and are only available during a particular class day that week -- such teams should let me know their "client"'s time constraints as soon as possible, and I will *try* to schedule such teams such that their "clients" can attend.)

Presentation purpose:

The purpose of this presentation is to:

- Demonstrate your project final iteration in action -- to demonstrate its strengths, show off its capabilities!
- Add to your experience in giving a formal team presentation, especially one demonstrating software
- Give a final report to the instructor (and to audience members) about your project final iteration

Turn in (BEFORE presenting):

- A typed outline of your team's presentation
- Print-outs of any slides, illustrations, etc. used in your presentation to the class that are not directly from the running final iteration
 - Black-and-white printouts with 4-6 slides per page are fine for meeting this requirement

Presentation guidelines:

- **Everyone** on the team should participate significantly and roughly equally in this presentation!
- The presentation should take 15-20 minutes (before the question-answer period).
 - It is expected that you will have planned, organized, practiced, etc. enough so that your presentation will be no shorter than 15 minutes, and no longer than 20 minutes.
 - At 20 minutes, your presentation will be stopped, so that there is time for all presentations.
 - If the presentation does take less than 15 minutes, or if it has to be stopped at 20 minutes because you have not yet finished, then there will be a **time penalty**.
 - A question-and-answer period of 5 minutes will follow the presentation.
- A formal **overview** bulleted-list of the presentation's main parts should **start** the presentation, and it should be both **displayed** and **verbally summarized** at the presentation's beginning.

- I hope that there will be guests from outside of the class at these final presentations; for them, as well as for formality, then, you should **briefly** introduce/describe your project, and then **briefly** discuss its "history";
 - You should **briefly** discuss interesting problems encountered, how you dealt with them, etc.
 - **Brief** discussions of general group-project issues your group encountered are also encouraged -- in fact, it would be remiss to omit them at this stage.
 - And, **brief** ties you have seen/experienced to general software engineering topics from class discussions and readings are **encouraged**.
 - You should definitely display and **briefly** discuss the Component and Connector architecture diagram of your final iteration as well as the UML diagram you chose to create related to your final iteration.
 - BUT **be careful not to take too long for this part**, because:
 - ...Don't forget that the **MOST IMPORTANT purpose** of this presentation is to **demonstrate** your project final iteration "**LIVE**", actually showing it in operation; **this should be the HEART and the MAIN FOCUS of your presentation**.
 - Demonstrate its strengths -- show off its capabilities!
 - You are expected to demonstrate features "live" rather than to simply talk about them.
 - It is expected that you will carefully **plan** how you will demonstrate your project's capabilities (you know the order of demonstration of the different features, for example, and you have sample inputs/data already planned and ready to demonstrate;
 - ...you are **not** discussing within the team what to present next during the presentation, or what sample inputs/data to use!)
 - After your live demonstration, you should include a **brief discussion of "future work"** -- what would you work on next, in the next iteration and/or in future iterations, if you had more time?
 - Finally, be careful to close with a **definite conclusion**, briefly summarizing your accomplishments and/or lessons learned -- BUT end with a **positive** note, not an apology!
 - It should be clear to the audience that you have concluded your formal presentation -- (that is, I shouldn't have to guess whether you have finished or not... your presentation should not vaguely trail off, while you discuss: "Is that it? Yeah, that's it...")
 - As implied above, it is expected that you will carefully plan, organize, and practice your presentation. E.g.,
 - Each presenter should avoid reading directly from notes and instead make eye contact with the audience (each should have practiced his/her part so that he/she can just glance at notes while presenting rather than reading them word-for-word)
 - The "segues" between team members need to be smooth and polished as well -- each member should introduce the next speaker and topic explicitly: "And now Sally will demonstrate the widget-adjusting portion of our application..."
 - One team member should operate (or "drive") the computer while another actually speaks/presents. This does require coordination and practice on the part of the team -- but the result looks more polished and professional.
- It should be planned in advance which team member is serving as "driver" when, and this "driver" should also know what to do next at any given point.

- Each presenter should know what he/she plans to do next at any given point, as should the overall team;
 - (Avoiding having to discuss, during the presentation, what should be shown next -- everyone should already know that from having planned and practiced the presentation beforehand)
- You will use either the **BSS 313** or the **FH 232** lab projector (depending on your team's presentation/demonstration date); a laptop CAN be connected to these projectors, if you do not want to use the room's computer. It is the team's responsibility to make sure in advance that they can successfully project what they need to for this presentation; if you need to make special arrangements, do so well in advance of the presentation!

Milestone 9 - Individual reflection paper

Due:

Beginning of final exam period

Turn in:

Individually-written papers including:

- description of your favorite feature/aspect of your team's project final iteration
- description of something that you learned (in general) from this project
- a description of tools/approaches your team used to communicate and collaborate on this project
 - include how well each tool/approach worked or did not work
 - how might you improve communication/collaboration on a future project that you work on?
- briefly discuss your experience using `git` and `GitHub` on this project, also including whether or not you now feel comfortable using it or not
- a description of how your team partitioned the work in the project
 - include whether this approach worked well or not
 - how might you improve work partitioning on a future project that you work on?
- a description of your team's approach to testing in the project
 - include whether this approach worked well or not
 - how you might improve testing on a future project that you work on?
- any other points, pertinent to course discussion, that you would like to make

These papers do not need to be long, but they do need to be taken seriously, and they need to discuss all of the areas listed above. Note that grammar and spelling will be taken into account -- as seniors presumably about to graduate, you should be able to write a technical reflection paper with proper mechanics!

The primary purpose of this milestone is to provide you with an opportunity for some final reflection on your project as the semester comes to an end.