

# Final Project

20 Points

v. 8.0

It is recommended that you read the entirety of this document well in advance of this project's several deadlines, which appear on the following pages.

## Overview

Perhaps the most gratifying aspect of this course will be its final project. The final project will be your opportunity to take your knowledge of XML out for a spin and develop an application of your own.

So long as your project draws upon this course's lessons, along with one or more XML-based technologies (however mature), the nature of your project is entirely up to you, albeit subject to our approval. It is not necessary that your project utilize Java.

Inasmuch as software development is rarely a one-person effort, you will be allowed an opportunity to collaborate with one or two fellow students for this final project. Needless to say, it is expected that every student in any such group will contribute equally to the design and implementation of that group's project. Moreover, it is expected that the scope of a two- or three-person group's project will be, respectively, twice or thrice that of a typical one-person project. A one-person project, mind you, should entail time and effort equivalent to or (more likely) greater than that required by one of this course's other projects.

Although no more than three students may design and implement a given project, you are welcome to solicit advice from other classmates throughout the semester, particularly by way of `cscie259@lists.dce.harvard.edu`.

Although we suggest that your project be deployed on `nice.fas.harvard.edu`, you may utilize, with the staff's approval, an alternative infrastructure, provided the staff has access to any hardware and software that your project requires.<sup>1</sup>

Your final project will be graded on the following bases: timely submission of an adequate pre-proposal, the thoroughness of your proposal, timely submission of an adequate status report, the quality of your documentation, the logic of your design, the correctness and elegance of your code and configuration, and the extent of your application's functionality. In evaluating your submission on each of these bases, the staff will take into account the degree to which you have applied this course's lessons.

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<sup>1</sup> You are welcome to install software (that doesn't require root) in your FAS account, provided we can access your installation; if you find yourself strapped for disk space, you may email `accounts@fas.harvard.edu` to request an increase in your quota.

Recall that, with respect to your final grade, the final project bears 25% more weight than does any assigned project. Extensions on this final project will not be granted, except in cases of emergency. Technical difficulties will not constitute emergencies. Work submitted late without extension will be penalized as follows: projects submitted up to 24 hours late will incur a penalty of 5%; projects submitted up to 48 hours late will incur a penalty of 10%; projects submitted up to 72 hours late will incur a penalty of 25%; projects submitted up to 96 hours late will incur a penalty of 50%; projects submitted more than 96 hours late will incur a penalty of 100%. Lateness of electronic submissions will be determined down to the minute by those submissions' timestamps on `nice.fas.harvard.edu`.

**Pre-Proposal. (2 points.)**

*due by 2:35 P.M. ET on Thursday, 22 November 2007*

Intended to promote early thought, the pre-proposal is your opportunity to bounce ideas off of fellow classmates, to hear a variety of other ideas, to solicit one or two possible collaborators, and, ultimately, to share in a creative process with others.

Your pre-proposal should be submitted in the form of an email to `cscie259@lists.dce.harvard.edu` and should address the following questions.

- i. What is your name?
- ii. What do you do for a living?
- iii. Why are you taking CSCI E-259?
- iv. What technical background have you that might be of interest to potential collaborators?
- v. What are, at least, three problems that might be solved (in the form of a final project) with one or more XML-based technologies (however mature)?<sup>2</sup>
- vi. Which of those three problems, if any, are you interested in (partially) solving for your final project? Are you seeking collaboration? If so, are you seeking one or two collaborators with certain skillsets?
- vii. Any other comments or questions for the group?

If, for any reason, you are uncomfortable answering any of these questions (save v), you may coyly abstain from answering. Alternatively, you may email your responses to `malan@post.harvard.edu`, and I will forward your ideas anonymously if you wish. Also, if, for some reason, you consider your planned endeavor top-secret, it is fine to detail three other problems for v.

You are welcome and encouraged to respond to each other's posts. Beware that, by default, replies to `cscie259@lists.dce.harvard.edu` mailings go to the whole list.

Although this pre-proposal is due well before the course will have covered a number of topics, you are encouraged to propose problems that might be solved not only by technologies we have explored but also by ones we haven't (yet).

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<sup>2</sup> Be sure to detail each problem with at least three sentences.

**Proposal. (2 points.)**

*due by 2:35 P.M. ET on Thursday, 13 December 2007*

Whereas the pre-proposal is your chance to share ideas with your classmates, the project's proposal is your chance to share your choice of ideas with the staff.

A proposal detailing your planned endeavor must be submitted via email to `cscie259@fas.harvard.edu` in the form of an attachment called `username.html`, where `username` is your FAS username; the email's subject line should contain "proposal"; the attachment should be structured as follows.<sup>3,4</sup>

- i. *Title*  
What will (likely) be the title of your project?
- ii. *Author(s)*  
What is your name? What are the names of your collaborators, if any?
- iii. *Abstract*  
In a sentence or two, summarize your project, making clear the problem(s) you intend to solve.
- iv. *What*  
In a paragraph or more, detail your project. What will your application do? What features will it have? How will it be executed?
- v. *Why*  
In a paragraph or more, justify your project. Why is the problem you intend to solve interesting or important? What is your motivation for this choice of project?
- vi. *How*  
In a paragraph or more, outline your plan of attack. What infrastructure will your project require?<sup>5</sup> What XML-based technologies will it utilize? In what language(s) will it be implemented? What new skills will you need to acquire? What topics will you need to research? If working with one of two other students, who will do what?
- vii. *Questions*  
In a sentence or more, ask for some help. What questions or concerns have you for the staff?

The staff will either approve your proposal or require modifications on your part for subsequent approval. Your proposal, even if approved, is not binding; you may alter your plan at any point, provided you obtain the staff's approval for any modifications. So that everyone may delight in each other's choice of projects, these proposals will be posted on the course's website; if, for any reason, you would rather your proposal be for the staff's eyes only, simply alert the staff.

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<sup>3</sup> That is, the attachment should be an (X)HTML file called `username.html`. If you submit an (X)HTML file that references images, you should attach those as well.

<sup>4</sup> If you have decided to collaborate with one or two other students, your group may submit one proposal collectively; your attachment's file name should contain each of your usernames.

<sup>5</sup> If you do not expect your project will execute on `nice.fas.harvard.edu`, be sure to discuss its needs with the staff.

**Status Report. (1 point.)**

*due by 2:35 P.M. ET on Monday, 7 January 2008*

Not only is the status report intended to keep the staff apprised of your progress, it is an opportunity to keep yourself on track.

Your status report should be submitted in the form of an email to `cscie259@fas.harvard.edu` and should address the following questions in at least one paragraph of four sentences.

- i. What have you done for your project so far?
- ii. What have you not done for your project yet?
- iii. What problems, if any, have you encountered?
- iv. Do you wish to alter your plan for your project (and obtain our approval) or do you intend to proceed as planned?

The status report will be graded only on its timeliness and the extent to which you answer the above.

## Implementation and Documentation. (15 points.)

*due by 2:35 P.M. ET on Thursday, 17 January 2008*

Ultimately due are implementation and documentation of your final project.

If you have not done your work on `nice.fas.harvard.edu` (even if it's not meant to execute on said machine), transfer via SFTP your work from your local machine to a directory called `fp/` in the `cscie259/` directory in your FAS account's home directory, taking care to upload any text files in ASCII mode.<sup>6</sup>

Your `fp/` directory should contain the following.

- i. Documentation for your application in the form of a file called `documentation.{html,pdf}`. This documentation is to be a user's manual for your application. Though the structure of your documentation is entirely up to you, it should be incredibly clear to the staff how your project is to be installed, how it can be configured, and how it can be used. Your documentation should be at least several paragraphs in length, if not several pages. It should not be necessary for us to contact you with questions regarding your project following its submission. Err on the side of holding our hand; be sure to answer in your documentation any questions that you think we might have while testing your work.
- ii. Any and all files required to compile and execute your application, including binaries, bytecodes, build files, configuration files, and source code.<sup>7</sup> Needless to say, all source code should be thoroughly commented.
- iii. Several sample files (more than we might want) with which your application can be tested.
- iv. Some closing remarks, in a file called `remarks.{html,pdf}`. This file need contain only a paragraph or so of text, but should give us a sense of your experience with your final project. What did you learn? What did you struggle with? Did you enjoy the experience? What would you do differently if you had the time? Any questions for us?

Submit your work electronically by executing the following command from within your `fp/` directory.

```
cscie259submit fp
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Thereafter, follow any on-screen instructions until you receive visual confirmation of your project's successful submission.

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<sup>6</sup> If you have collaborated with one or two other students, only one of you should submit via this process.

<sup>7</sup> Again, if your application requires hardware or software other than that offered by `nice.fas.harvard.edu`, be sure the staff is aware of and has approved your project's needs well in advance of your submission.