Programming Languages
CS3210-001 Spring 2018
New Language Team Project
Specifications

Summary

Investigate a new-to-you programming language, write a report outlining the language, and present an overview of the language in class.

Notes

1. The language select should be relatively new in general use. It should not be known to either of the teammates (beyond what you've read while deciding on a language) and it should not be too similar to common languages. It should be Turing-complete, unless you wish to argue (to me, before your final selection) that some limited language is sufficiently complex and "interesting" for CS 3210.
2. Teams will be two people; you'll select your own language. Across the class there will be no duplicate languages. You will divide up the work, but both team members must understand the language to the level we are investigating it, and understand all of the material submitted on this project. Both team members must do part of the presentation. Set up a collaboration environment set up right away, so you can seamlessly work on the same materials.

Deliverables:

3. **Presentation.** This should be 15 minutes, followed by a short Q&A period with the audience. Use clear, concise slides. The audience will be asked to provide feedback on the presentations. Anyone in the department is invited to attend (other faculty and other CS students).
    a. Your target audience is upper-division CS students. Once scheduled, the presentations cannot be late (which implies all materials must be in on time too).
    b. Do at least one full walkthrough of the presentation in advance; I will attend so we need to arrange a time.
    c. You should have an audience of at least three or four other people to make the walkthrough realistic.
    d. You may include a very short demo of the language, but consider carefully whether the demo will contribute significantly to your presentation substance, not just show that you can run a program. As an example, a presentation on an animation-focused language would clearly be enhanced by showing it in operation.

4. **Handout.** Provide a one-page language summary as an audience handout. This is not a copy of the slides nor a web page.
5. **Formal Report.** This is a 3-5 page report on the language. The format is single-spaced, 12 pt readable font, such as Times, Arial, etc. It is the expanded, more comprehensive version of the presentation.
    a. Any code samples are an appendix and are in addition to the general page count.
    b. Copies of the slides are also part of the report but again, an appendix, and not part of the page count.
6. **Content** - Presentation and Report
    a. brief history: people, development goals, languages it is derived from, …
    b. general language overview: paradigm, syntax, purpose, common uses, …
    c. strengths and weaknesses of the language
    d. interesting, non-trivial tidbits specific to this language

e. *brief* sample code fragments; if possible, incorporate "interesting" features; don't show basic concepts that would be familiar to classmates; this code should be fragments only, not complete programs
f. standard references: books & web sites
g. Sebesta's language evaluation criteria (chap. 1): choose only 2 or 3 pertinent ones (can be pros or cons); these criteria are those listed under readability, writeability, and reliability
h. your individual, overall opinions of the language, supported by explanations (each person separately)
i. anything else you care to mention about the language

Comments

7. Don't spend very much of the time learning to program in the language – this is not the focus of the project, nor is teaching the language the focus of the presentation. You must, however, understand the core of the language (you could read and explain most of a non-trivial program). You can probably ignore syntax almost entirely.
8. Don't spend much time finding, setting up, and learning tools for the language.
9. Keep a wish list for future work on the language, when you are not constrained by time and specifications. Use this to keep from going too far afield during the development of the project.
10. Some of what you will be presenting will be opinions, but it must be informed opinion supported by concepts and facts at the CS 3210 level.
11. Review public speaking guidelines: organization, slides, … Do the same for report writing. Refer regularly to the project problem checklist. It contains common problems seen in student projects. Actively discuss how your team will avoid them, and use them as a final checklist when you believe you are finished.
12. "Pre-research": do some "pre-research" now to be sure your choice is workable: Are there materials available? Is there enough? Have you assured yourself (and me) that your choice is a reasonable project language?

Wrap-up.

13. Your schedule must have a completion date one week before the presentation, to allow for walkthroughs and improvements. In addition, submit your paper then for me to read and make suggestions on.
14. Grading. All project checkpoints must be met and all specifications followed. Project elements prior to the final presentation and materials will form a significant part of the grade.
15. Submissions.
    a. No late projects / presentations except in the case of a true emergency.
    b. Check with me if you are unsure of any specifications, before submitting the project.
    c. All submissions are posted once, under one member's Moodle account (use the same person's account for all project materials).
16. Due dates and scheduled activities.
    a. **February 13**: schedule roughed out, teams formed and languages selected.
    b. **Recommendation**: right now, "pre-schedule" two team meetings a week, then cancel them if they are not needed (when you don't need any in-person collaboration). That works much more smoothly than trying to set up a meeting with just a couple days notice.
    c. **February 15**, initial team organization, posted on Moodle, no paper copy.
        i. language and partner choice
        ii. a brief (one paragraph) statement about the language itself (what is it? what does it focus on? what's special or interesting?); it's understood that so far you know very little; also explain why you picked it (probably overlaps with the first part)
        iii. proposed, detailed project schedule, including dates, specific tasks, and task allocation between team members
        iv. two substantial resources for the language

    v. web link to language standard (or as close as the language has), in addition to the two resources mentioned above

d. **Week of March 5:** specific dates to be arranged by the team: two meetings with me to discuss project progress and (possibly) problems. Both team members must attend; plan on about 20 minutes; no submissions.
e. **March 13:** post a one- to two-sentence "ad" for your language (this will be hung on flyers and announced in CS classes). Its purpose is to interest students in coming to your presentation. Moodle only.
f. **Week of March 26**: copy of paper to me for review and suggestions. Paper copy.
g. **April 9:** target completion date.
h. **Week of April 16**: presentation and final submission of all materials to me (paper copy and Moodle). Materials: audience handout, slides (handout form for me, not one slide per page), research paper, sample output from a demo, if it is important, and one cover letter with contributions from both team members (template to be posted on Moodle).