CS 230 Case Study Guidelines

Motivation

In a career as a computer professional, you will undoubtedly encounter many different programming languages. Sometimes you may be asked to carry out a project that requires knowledge of a new language. Other times, you may be asked to select a language or evaluate the usefulness of a language for a particular project.

In this case study project you are asked to learn and evaluate a language with which you are not currently familiar. This may be the first time you have attempted to learn a language without the help of an expert (such as a class instructor). The process may be frustrating at first, but learning new languages becomes easier with experience. One of the main goals of the project is to give you that experience in the relative safety of an academic setting.

Project Description

The final product of your project will be a term paper. This paper will be a significant work (16-20 pages) comprising the following sections:

1. Brief history and motivation of the language (~ 1/2 - 1 page). This part should introduce the reader to your language, much in the spirit of the discussion in chapter 24 of our textbook. Explain where the language came from and what its stated design goals are.

2. Description of the language environment (~2 pages). In order to learn a language, you will need to have access to an implementation. In this section, you should describe exactly what environment you are using. This section should include a very brief tutorial that actually walks the reader through running a simple program. If you had to acquire and install the language yourself, this process should also be outlined.

3. Basic program examples (~ 6 pages). In this section, you should provide and discuss some sample programs that demonstrate the basic syntax, control structures, and primitive data-types of the language. Along with the listings you should include detailed commentary on what the programs demonstrate about the language.

   The programs you choose in this section should be examples of the type that you once solved in CS 120 and CS 220. You should assume that the reader of your paper has a basic working knowledge of Python. You should highlight similarities/differences with comparable examples in Python. I suggest you use some previous projects from other classes as a starting point.

4. Advanced program examples (~ 4 pages). In this section, you should include one or more sample programs that demonstrate some of the special feature(s)/application(s) of your language. If your language is object oriented, show an example of how that works. If your language is great for string handling, show that. If your language has a number of novel features, you might expand this section.

5. Language evaluation (~ 3 pages). Given your overall experience with the language, reflect on how well the language meets the design goals set out in the first part. This section will be based on your personal experience with the case study, but your arguments should be supported by the general ideas and principles of language evaluation that we develop in class over the course of the semester.

6. Bibliography. A complete listing of the resources you used to complete the project. This includes books, web sites, online documentation, newsgroups, and any other help you receive.

In each of the content sections, you should strive to be concise and informative using proper terminology and (where appropriate) employing general concepts of programming languages that you learn during the semester. You are writing your paper for an audience that is knowledgeable about CS/programming languages, but has never encountered your particular language before. Your goal is to give them an "executive summary" of the language with sufficient detail to give them a feel for whether this language might be useful in their own projects.

Project Milestones

Recall that 20% of your grade for the class comes from your project score. There are a total of 100 points possible on the project. 60 points will be based on the quality of the completed paper turned in at the end of the semester. The other 40 points will be based on draft versions of the first 4 sections due at various points in the semester.

Component	Due Date	Points
History/Motivation	1/19	5
Language Environment	2/2	5
Basic Examples	3/1	15
Advanced Example(s)	4/6	15
Complete Paper	4/17	60

Note, each draft section should include a bibliography section that is complete for the project to that point. The completed paper is due at the time of the final exam (4/17).