SWE4743 OBJECT-ORIENTED DEVELOPMENT
Spring 2016
Language Group Research Project Description

Objective

To help solidify the abstract nature of the concepts we will be discussing in Object-Oriented Development, you will be given the opportunity to get hands-on experience in various object-oriented languages in a small group setting. Each group will investigate multiple IDE's, as specified below.

The project includes:

1. An annotated bibliography that identifies all references used and gives a brief summary of the contributions from the reference, your opinion of the reference, and whether or not you found it helpful and would recommend it to your classmates.
2. Each group will share their experiences and knowledge with the class in a presentation.

Activity

Each group will compile data for each of the IDE's they investigated. The goal is to locate as many reference sources for the IDE's as possible. These can include books, articles, url's for either products or information (articles, vendors, etc.), testimonials, experiential reports, technical information, and pricing information. We have several OO languages in our project lab that we encourage you to investigate. There are others that you can get free from the internet (may be on a limited basis); and finally, other languages / IDE's that you can read about and include in your investigation.

For your project, each TEAM must decide which language environment they will select in which to build their final project. Therefore your team will definitely want to become familiar with as many IDEs as you have access to so you can make an informed decision. Individual groups can divide the work any way they choose, but each student is expected to contribute to all aspects of the project: the research, the bibliography, and the presentation, and as part of the presentation, **each student will contribute to the implementation of a demo in the selected IDE.**

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The problem statement

Investigate one or more object-oriented languages, either each with its own IDE or one language with several IDEs, with the goal of each student selecting ONE language/IDE in which he/she chooses to implement a project. THIS LANGUAGE/IDE MUST BE ONE YOU ARE NOT ALREADY PROFICIENT IN. Each group will prepare ONE annotated bibliography. For each reference located, give an appropriate bibliographic listing following the format specified below, a short (one paragraph) summary that includes the main contributions of the reference, YOUR NAME (so I'll know who found & wrote it), your opinion of the reference, and whether or not you found it helpful and would recommend it to your classmates. As you investigate the references, focus on each of the following questions. Do not include the answers to these questions in the annotated bibliography. Instead, the group presentation will answer these questions for each language / IDE you investigate. Your presentation should describe how each language addresses the question, and may include either a short example or a screen shot in each language to illustrate your answer. The questions to be included follow.

1. Inheritance – Does this language support single, multiple, or other forms of inheritance?
2. Class or Component Reuse – What facilities are provided for class or component reuse and to what degree is reuse part of this language?
3. Information hiding – How is information hiding utilized in this language?
4. Message binding – When does this language do its message binding?

In addition to just answering the following questions, each team is to build a very simple graphical prototype (we're not looking for text-based here) in the language/IDE the TEAM selected to discover the following features. Each prototype must collect some user input (from the class), must accept this input and write it to a

back-end database, and then retrieve this data to show the prototype is reading and writing to a database.

1. Database support – How specifically does this language handle back-end database connectivity (what drivers are supported)?
2. Usability – How easy is it to become familiar with and up and running on this language platform?
3. Integrated Development Environment – What specific features (packages, etc.) does this IDE provide to support GUI prototype development?
4. Web development – Does this language support web-development? To what degree?
5. Pros and Cons – For each language / IDE, identify what you found to be the best selling feature and the biggest handicap (one per language/IDE).

The reference lists must be merged, so you will have to work together to finish the deliverable. The presentation will be done as a panel discussion to share the information you accumulated with the class.

You will be given a group grade on the bibliography, and an individual grade for your contributions to the bibliography as well as a presentation grade.

Presentation

You must get together with your panel group to decide who will cover what information, and to ensure that each student presents different information. You must also decide the order of presentation, and who will be the moderator for the discussion. The moderator will give a brief introduction to the topic and will introduce each speaker. This should take no longer than 2 minutes in total.

Each student will be given EIGHT minutes to present his/her research, and the panel will answer questions and/or discuss the relevant issues for an additional three minutes. Thus, each panel will have a total of: TOTAL_TIME = (No_of_Students_in_Group * 8) + 3 minutes for their presentation. A classmate will be assigned the duty of signaling when time is up, and points will be deducted for taking more time than is allotted.

Some guidelines you will want to follow in your presentation are:

1. Please do not bore us.
2. Please speak loudly enough to be heard even in the back of the room.
3. Absolutely DO NOT READ to us (see number 1).
4. Make eye contact with your audience.
5. Try to make your topic seem interesting by telling us what you liked or didn't like about what you learned.

Bibliography

You MUST use APA style (https://owl.english.purdue.edu/owl/section/2/10/) for your bibliography. In the annotated bibliography, the references are identified as in any reference list: the sources are listed alphabetically and chronologically for multiple sources by the same author**. For each reference, you include your summary as explained above.** For example:

Boehm, B. 1973. "Software and Its Impact: A Quantitative Assessment." Datamation, May, 1973: 48-59.

This article presents the results of a statistical study done to identify the financial impact that software has on the gross national product of the USA over the last decade and predicts the growing impact for the next decade. Even though the article had lots of statistics, it was well written and I found it very interesting. Boehm's projections were very insightful and I found this article very useful for my study on Software Engineering Economics. (This is just an example…)

Boehm, B. 1984. .....

Summary

Coad, P. and Yourdon, E. 1990. .....

Summary

Team Assignment

C/C++/C# AND Java (Presentation date: Feb 29)

- Joe B.
- Miles
- James E.

Ruby (Presentation date: Feb 29)

- Matthew
- Ruth
- David
- Felipe

Smalltalk (Presentation date: Mar 2)

- Andrew
- Ryan
- Jerome
- Calvin

Python (Presentation date: Mar 2)

- Qazi
- Dee
- Joe H.
- Nathaniel

Groovy (Presentation date: Mar 7)

- Misti
- Curtis
- Alejandro
- Ethan

Swift (Presentation date: Mar 7)

- Darji
- Shaluvi
- Noor
- Marcus
- Francis

Have fun with this assignment! You will get as much out of this as you put into it!