CS330: Programming Language Project (PLP)

Assignment 1: Language selection and overview

Due before class on Wednesday, January 30, 2019

For this assignment, choose the programming language that you want to use for the PLP. This is the language that you will use for the remainder of the semester and for your final project, so make sure that **good** documentation is available, either in print or electronic form, otherwise you'll be struggling.

You must check with me to approve your language selection.

Only 2 students can work on the *same* language; signing up is *first-come, first-serve*! Please choose your language within a week of the start of the course. The list of claimed languages is in the [course page](#) on Moodle. I will keep the list updated as choices are approved and confirmed.

Assignment 1 is all about learning the basic properties of your language and what it's used for. Select your language and answer the following questions about it:

1. What is the name of your language? C++

2. When/where was it created and by whom? Was it developed to address a particular computing problem or need? It was created by Bjarne Stroustrup in 1979 while he was working at Bell Labs. It was not known as C++ until 1983. There was no definitive reference for it until 1985 - the same year it was released commercially. It was standardized internationally by the ISO in1998. [(Source)](#) C++ was developed to add object-oriented programming into a pre-existing language. In Stroustrup's own words, he brought two ideas together to do "high-level abstraction, but efficiently enough and close enough to the hardware for really demanding computer tasks." [(Source)](#)

3. Is it primarily procedural, functional, scripted, object-oriented, or a combination of these? Or something else? C++ is considered a partial object-oriented language, but it does apply a combination of these, including imperative features as well. [(Source)](#)

4. Is it compiled or interpreted, or a combination? Does it use a virtual machine? C++ is a compiled language that does not use a virtual machine. [(Source)](#)

5. What types of applications is your language primarily used for (e.g.: web development, video games, mobile devices, back-end services, operations engineering, etc.). If your language is multi-purpose, provide some examples of different applications it has been used for. C++ C++ has a variety of uses. Video game development is a huge application. It's also used for desktop, web, and mobile applications at companies such as Adobe, Amazon, Google, Paypal, and various finance companies like Bloomberg and Barclays. There are also database and animation software developed with C++. Most of the Microsoft operating systems have been developed with C++. The above does not cover all that this general purpose language has been and still is used for, but it does cover a significant portion.

6. Search on Github.com for your language: what are the 3 most popular projects (the ones with the most stars) involving your language? grpc/grpc (The C based gRPC (C++, Python, Ruby, Objective-C, PHP, C#), dmlc/xgboost (Scalable, Portable and Distributed Gradient Boosting (GBDT, GBRT or GBM) Library, for Python, R, Java, Scala, C++ and more. Runs on single machine, Hadoop, Spark, Flink and DataFlow), ocornut/imgui (Dear ImGui: Bloat-free Immediate Mode Graphical User interface for C++ with minimal dependencies)

7. Where will you get information about this language when it's time to start programming in it? I will be using either SoloLearn or CodeAcademy's tutorials (potentially both) to start programming. I may also look into Unreal Engine for making game scripts. As far as reference materials, I will be looking at cplusplus.com and isocpp.org as well as the C++ Core Guidelines..

At the end of your assignment, provide a list of the names of books, website URLs or any other resources (e.g. style guidelines) that relate to your language in particular. I will review these before approving your selection.

https://www.sololearn.com/Course/CPlusPlus/

https://www.codecademy.com/learn/learn-c-plus-plus

C++ Core Guidelines: https://github.com/isocpp/CppCoreGuidelines/blob/master/CppCoreGuidelines.md

Create a GitHub repository, place your answers to these questions there and email me its link. Make sure that your answers are clear, accurate and fully-formed; remember that these repositories are *public* .

Creating a GitHub Repository
https://github.com/
https://git-scm.com/book/en/v2/GitHub-Account-Setup-and-Configuration

You might also create local git repositories that work in conjunction with your remote GitHub repositories. Since *you* are the only contributor to *your* work, local version control is really not necessary, but the experience will be useful for you as a software engineer, since every company that develops software uses a Version Control System (VCS). Your choice.

Creating a Local Git Repository
https://git-scm.com/book/en/v2/Git-Basics-Getting-a-Git-Repository

Explain the reasoning behind your answers as much as possible. If there is no clear-cut answer to a question, explain why. And cite your sources!