CS330: Programming Language Project (PLP)
Assignment 1: Language selection and overview

For this assignment, you will pick the programming language that you want to use for the PLP. This is the language that you will use for the rest of the semester and for your final project, so make sure that it's a language that has good documentation, either in books or on the Internet.

You must check with me for approval before selecting your language. At most only 2 students can work on the same language, and signing up is first-come, first-serve. (You should probably pick your language by Tuesday the 8th.)

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

1. What is the name of your language?
    Java

2. When/where was it created, and by whom? Was it written to address a particular problem or need?
    It was developed by **James Gosling** in the early 1990s, but it first appeared **May 23, 1995**. It was originally designed for interactive Television but it was too advanced when it first appeared to the digital cable industry at the time because C++ did not seemed ideal for the intended project because it required more memory. Originally called Oak, the current name of the programming language first came to mind when Gosling was having a coffee in his office.

3. Is it primarily structural, functional, scripted, object-oriented, or a combination of these? Or something else?
    Java is primarily an **object-oriented programming language**.

4. Is it compiled or interpreted, or a combination? Does it use a virtual machine?
    Java is **both** compiled and interpreted and it uses a **virtual machine** to execute the source code to the computer.

    Compiled:
        A Java source code is named under the file .java, and then a **Java compiler** will translate the entire source code into a machine code-file, known as Java byte code, which is a mesh of compiled programs written in the source code into class files. Lastly what happens is that the code is executed and the computer will released the output, it is read and released by the **Java virtual machine**.
    Interpreted:
        The bytecode file is ready for the Java Virtual Machine to take. Java interpreter would read one statement from the byte code and translates it to machine code that the computer understands which is why the program is able to be executed in the computer.

5. What types of programming is your language primarily used for (ex: web sites, video games, mobile devices, parsing, etc.). If your language is multi-purpose, provide some examples of different projects it's been used for.

> Java is a **multi-purpose** language that is used for web-development, video games, android applications, desktop applications, big data technologies and server apps.
>> **Games** that were written in Java was the original version of Minecraft and Bejeweled.
>> **Websites** that were written in Java include Stackoverflow, Ebay, and Linkedin (primarily uses Java).
>> **Android Applications** that were built with Java included Spotify, Twitter, Signal, and CashApp.
>> **Desktop Applications** that were made in Java include the scientific application MATLAB
>> **Big Data technologies** such as Hadoop are using Java as well as Accumulo which is Javabased.
>> **Server-side applications** such as LMAX trading applications process tens of millions request per-day because of its high-frequency.

6. Search on Github.com for your language: what are the 3 most popular projects (the ones with the most stars) involving your language?

> Java Design Patterns by iluwatar – ★60.3k
>> This program allows developers to create design patterns in Java.
> Elastic search by elastic – ★50.9k
>> It is a RESTful search engine with many APIs..
> RxJava by ReactiveX– ★43.4k
>> A Reactive Extension of the Java Virtual Machine

7. Where will you get information about this language when it's time to start programming in it? At the end of your assignment, provide a list of the names of books, website URLs, or any other resources that relate to your language in particular.

> Effective Java 2nd Edition by Joshua Bloch
> Head First Java by Kathy Sierra and Bert Bates
> CodeAcademy
> Reddit: https://www.reddit.com/r/javahelp/

The answers to these questions will be put in a GitHub repository that you create, which you will send me a link to. Make sure that your answers are clear, accurate, and fully-formed: remember that these tutorials are public, and GitHub users don't have the context of the assignment that you do.
 Explain the reasoning behind the answers as much as possible. If there is no clear-cut answer to a question, explain why not. And cite your sources!

A sample GitHub tutorial (for Perl) can be found here: https://github.com/amber-stubbs/PerlTutorial

Works Cited

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