Promineo Tech Back-End Coding Bootcamp Week 1 Research Assignent

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Prompts

1. What is git? Why is it useful? What is the git workflow?

    Git is an free and open-source program that is utilized by several major companies and projects as a means to help in software development environments to ensure that the process of a coding project can operate as smoothly as possible. The way that Git can achieve this is through its branching model, which makes it stand out from most other source control management (SCM) tools currently available. This branching model allows and encourages the utilizations of multiple local branches of data directorys for a repository that can act independently of each other, while also allowing for those multiple local branches to upload their code to a common repository that can keep a team of software developers to all maintain the same, up-to-date code for all to test independently of each other or among each other. It also ensures that there is always a back-up of the code, in case something goes wrong in the coding process (like if the primary portion of code becomes corrupted or accidentally deleted).

    This can reflect in the workflow as Git's branching-and-merging feature can lead to software developers creating new branches for when they are testing ideas for improving the code without fully commiting the changes into the main code in case it doesn't work quite right, or even become a branch that will be merged into the main branch of code in the form of a patch, or even as a new feature. In any of the following cases, once the new branches have served their purpose(s), they can be simply deleted later, making it a very versatile tool. Git also can keep track of the various changes to the source branches by the means of it's own 'save-points', known as commits, and will also provide merge-conflict messages that allow its users to manually adjust the changes in the codes, to prevent the unintentional overwriting of someone else's codes.

2. What are the 8 primitive data types in Java? What makes them each unique? What values can they hold?

    The 8 primitive data types of Java are: byte, short, int, long, float, double, boolean, and char. What makes each unique is the manner in how they help Java

process certain variable data when running the code. Of the 8 primitive data types, four of them (byte, short, int, and long) share similar data storages, as they specifically store whole numbers.

How they vary is the range of numbers that each data type can store. The byte data type, for example, can only store 8 bits of data (represented as a range of -128 to 127), while the int data type has the most general range of whole numbers that it can store (-2,147,483,648 to 2,147,483,647). As one can expect, the long and short data types would be appropriately name, as the former stores a larger range of whole numbers than the int data type (that being -9,223,372,036,854,775,808 to 9,223,372,036,854,775,807), while the latter stores a smaller range of whole numbers than the int data type, though its range is not smaller than that of the byte data type (it being -32,768 to 32,767).

Two other similar data types of the 8 are the double and float data types, as they are able to store fractional numbers, giving them more flexibility for complex arithmetic operations over that of the byte, short, int and long data types. Where the two differ, however, is the number of decimal digits they can store. The double data type can store up to 15 decimal digits, while the float can store up to 6 or 7 decimal digits. This is due to the latter being used to determine a more precise decimal data type, while the former is used for a more broad decimal data type.

The boolean data type is more unique of the 8 primitive data types, as it stores only two variables, that being a true value or a false value. As for the char data type, it stands out from all of the other data types, other than the boolean, in that it stores a non-number character value (either a letter or an ASCII). Though, unlike the other data types, the char data type can only store a single character value.

Sources

Prompt 1

- https://git-scm.com/
- https://git-scm.com/about/branching-and-merging
- https://learn.promineotech.com/mod/book/view.php?id=8266&chapterid=436

Prompt 2

- https://docs.oracle.com/javase/tutorial/java/nutsandbolts/datatypes.html
- https://www.w3schools.com/java/java_data_types.asp
- https://learn.promineotech.com/mod/book/view.php?id=8266&chapterid=437