Research Week 1

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

Git is a free, open-source version control system that tracks changes made in computer files while allowing many people to work on the program or a part of the program remotely or offline without affecting the master program in the Git repository. Each programmer works on a local version of the main programs. Git maintains a record of versions so programs can be reverted if something in the new code doesn't work. It has one main branch but also allows for separate branches where changes can be made without affecting the main branch before merging those changes into the main branch.

The workflow of Git is a bit of a circle but begins in the working directory. Changes made in the working directory must get transferred into the master branch or the working subbranch. First, the changed files must be staged (added) before proceeding to the next step. The next step is to package the changes (commit) to be made to the main branch or other branch, like taking a snapshot of the code. The final step is to push the changes to the repository in the main branch or another branch. The opposite of push is pull, which sort of completes the circle. A pull gets changes in the master branch or other branch and copies those changes into the local working directory.

References

What is Git? (2022, July 21). Retrieved November 4, 2022 from
https://learn.microsoft.com/en-us/devops/develop/git/what-is-git

What is Git? (2021, July 28). Retrieved November 4, 2022 from
https://phoenixnap.com/kb/what-is-git

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

byte – 1 byte (8 bits) – holds positive or negative integers between -128 (-2^7) and 127 (2^7-1).
Useful in arrays for saving memory.

short – 2 bytes (16 bits) – holds positive or negative integers between -32,768 (-2^{15}) and
32,767 (2^{15}-1). Used to save memory if needed.

int – 4 bytes (32 bits) – holds positive or negative integers between -2,147,483,648 (-2^{31}) and
2,147,483,648 (2^{31}-1). Most commonly used integer data type.

long – 8 bytes (64 bits) – holds positive or negative integers between
-9,223,372,036,854,775,808 (-2^{63}) and 9,223,372,036,854,775,807 (2^{63}-1). Allows widest
range of integers.

float – 4 bytes (32 bits) – single-precision floating-point for values between -3.4E8 and 3.4E38
with up to 7 significant digits. Not for precise values like currency. Useful to save
memory in arrays.

double – 8 bytes (64 bits) – double-precision floating point for values between -1.7E308 and
1.7E308 with up to 16 significant digits. Most commonly used float data type.

boolean – 1 byte (8 bits) – used for logic equations. Values are True or False.

char – 2 bytes (16 bits) – used to hold a single character of any type.

References

Primitive Data Types. (n.d.). Retrieved November 4, 2022 from
https://docs.oracle.com/javase/tutorial/java/nutsandbolts/datatypes.html

Java primitive data types. (n.d.). Retrieved November 4, 2022 from
https://www.tutorialspoint.com/Java-primitive-data-types#

3. What is your favorite thing you learned this week?

I'd have to say the favorite thing I learned this week is how easy it is to track and maintain software version changes through Git. I have worked a little with Microsoft SharePoint before, and while it also does a good job of tracking and maintaining software changes, it also does many other things that can sometimes confuse the process. I still have a lot to learn about the usefulness of Git, but that will happen as I use it more and more.

References

My brain and emotions.