Subject 2438520119 Date

## □ == Operator:

The operator performs reference comparison, meaning it checks whether two strings refer to the exact same memory location. It returns true only if booth string variables point to same object in memory.

## .equals() Method:

The .equals() method performs value or content comparison, meaning it checks weather the actual text/content of the two strings is the same. It returns true if the contents of the strings match, even if they are stored in different memory locations.

Java string are immutable for several important design, performance and security reson. Here's a brakedown of why:

1. Security:
string are used in a network connection. file path's, class loading, etc. If string ware mutable. someone could modify the content and creating security vulnerabilities.

2. String Pooling:
Java uses a string pool to reuse string. Immutable strings make it safe to share references between variables.

3. Thread safty:
Immutable strings are naturally thread safe so multiple threads can red string without synchronization.

4. Caching of hashcode:
The strings class caches it's hashcode() result for better performance. This only works if the string content never changes.

5. Simplicity and Reliabilty: When a string is immutable, developer's can trust it dont change unexpectedly after creation. This makes code easier to debug and more predictable