Difference between method overloading and method overriding in java

No.	Method Overloading	Method Overriding
1)	Method overloading is used to increase the readability of the program.	Method overriding is used to provide the specific implementation of the method that is already provided by its super class.
2)	Method overloading is performed within class.	Method overriding occurs in two classes that have IS-A (inheritance) relationship.
3)	In case of method overloading, parameter must be different.	In case of method overriding, parameter must be same.
4)	Method overloading is the example of compile time polymorphism.	Method overriding is the example of run time polymorphism.
5)	In java, method overloading can't be performed by changing return type of the method only. Return type can be same or different in method overloading. But you must have to change the parameter.	Return type must be same or covariant in method overriding.

Java String

Java String

In Java, string is basically an object that represents sequence of char values. An array of characters works same as Java string. For example:

```
char[] ch={'j','a','v','a','t','p','o','i','n','t'};
String s=new String(ch);
```

How to create a string object?

There are two ways to create String object:

1. By string literal
2. By new keyword

1) String Literal

Java String literal is created by using double quotes. For Example:

```
1. String s="welcome";
```

2) By new keyword

```
1. String s=new String("Welcome");//creates two objects and one reference variable
```

Immutable String in Java

A String is an unavoidable type of variable while writing any application program. String references are used to store various attributes like username, password, etc. In Java, **String objects are immutable**. Immutable simply means unmodifiable or unchangeable.

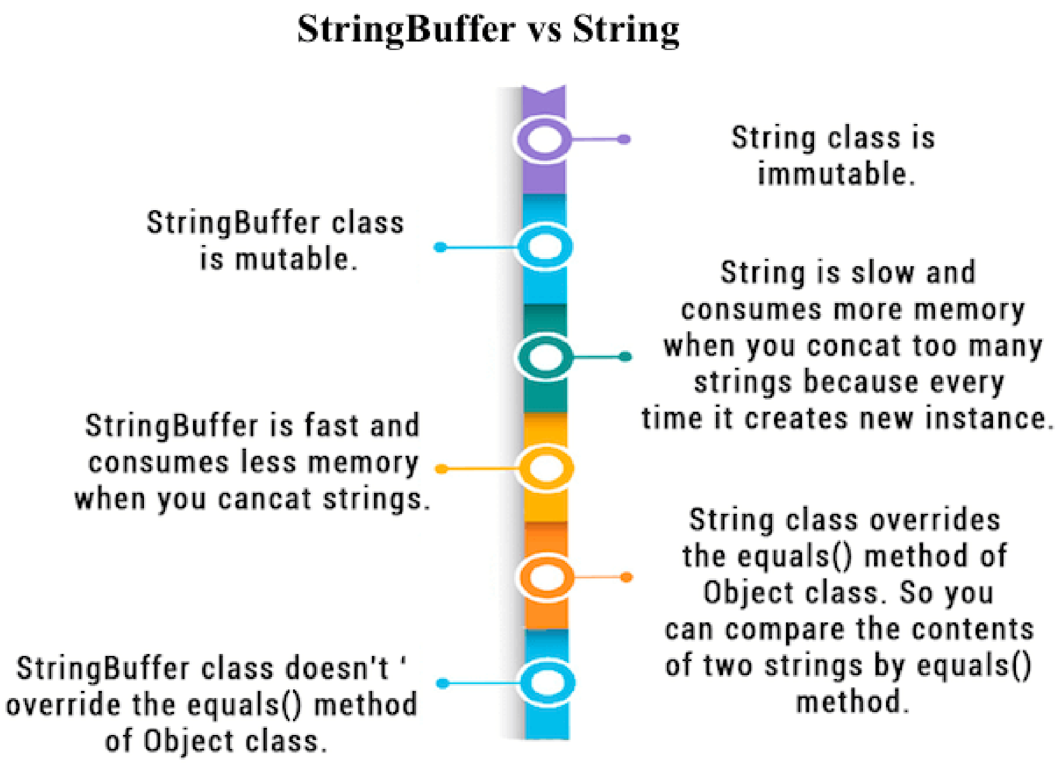
Java String Buffer Class

Java String Buffer class is used to create mutable (modifiable) String objects. The String Buffer class in Java is the same as String class except it is mutable i.e. it can be changed.

Java StringBuilder Class

Java StringBuilder class is used to create mutable (modifiable) String. The Java StringBuilder class is same as StringBuffer class except that it is non-synchronized. It is available since JDK 1.5.

Difference between String and String Buffer



StringBuffer vs String

String class is immutable.

StringBuffer class is mutable.

String is slow and consumes more memory when you concat too many strings because every time it creates new instance.

StringBuffer is fast and consumes less memory when you cancat strings.

String class overrides the equals() method of Object class. So you can compare the contents of two strings by equals() method.

StringBuffer class doesn't ' override the equals() method of Object class.

Difference between StringBuffer and StringBuilder

StringBuffer Class	StringBuilder Class
StringBuffer is present in Java.	StringBuilder was introduced in Java 5.
StringBuffer is synchronized. This means that multiple threads cannot call the methods of StringBuffer simultaneously.	StringBuilder is asynchronized. This means that multiple threads can call the methods of StringBuilder simultaneously.

StringBuffer Class	StringBuilder Class
Due to synchronization, StringBuffer is called a thread safe class.	Due to its asynchronous nature, StringBuilder is not a thread safe class.
Due to synchronization, StringBuffer is lot slower than StringBuilder.	Since there is no preliminary check for multiple threads, StringBuilder is a lot faster than StringBuffer.

How to create Immutable class?

There are many immutable classes like String, Boolean, Byte, Short, Integer, Long, Float, Double etc. In short, all the wrapper classes and String class is immutable.

Java toString() Method

If you want to represent any object as a string, **toString() method** comes into existence.

The toString() method returns the String representation of the object.

If you print any object, Java compiler internally invokes the toString() method on the object.

Advantage of Java toString() method

By overriding the toString() method of the Object class, we can return values of the object, so we don't need to write much code.

StringTokenizer in Java

The **java.util.StringTokenizer** class allows you to break a String into tokens. It is simple way to break a String. It is a legacy class of Java.