Strings and Arrays

What is string immutability?

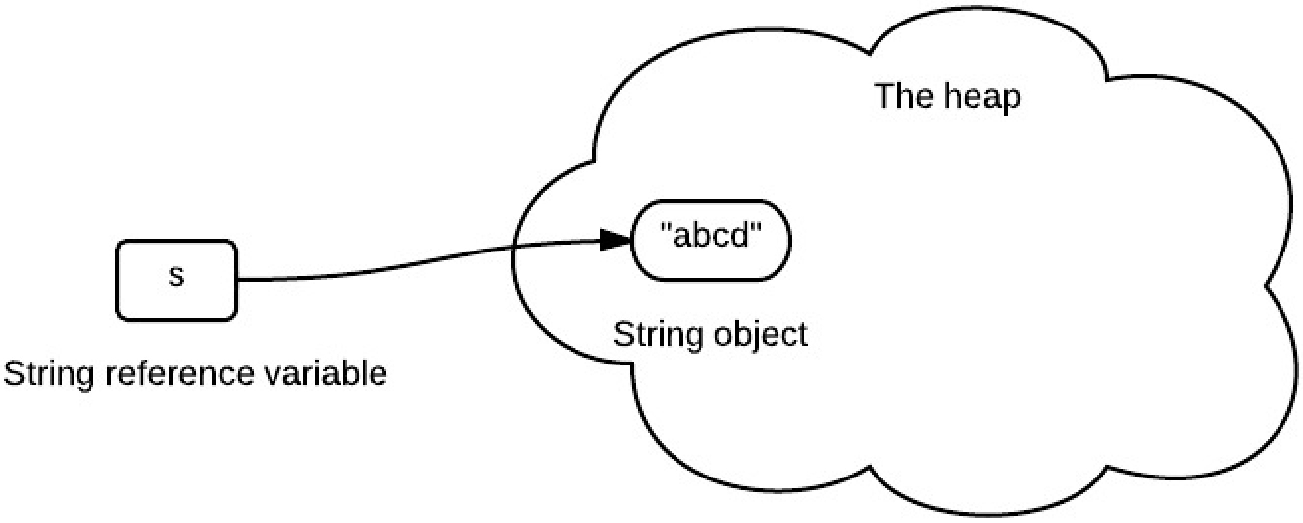
Diagram to show Java String’s Immutability,Here are a set of diagrams to illustrate Java String's immutability.

1.Declare a string

The following code initializes a string s.

```
String s = "abcd";
```

The variable *s* stores the reference of a string object as shown below. The arrow can be interpreted as "store reference of".

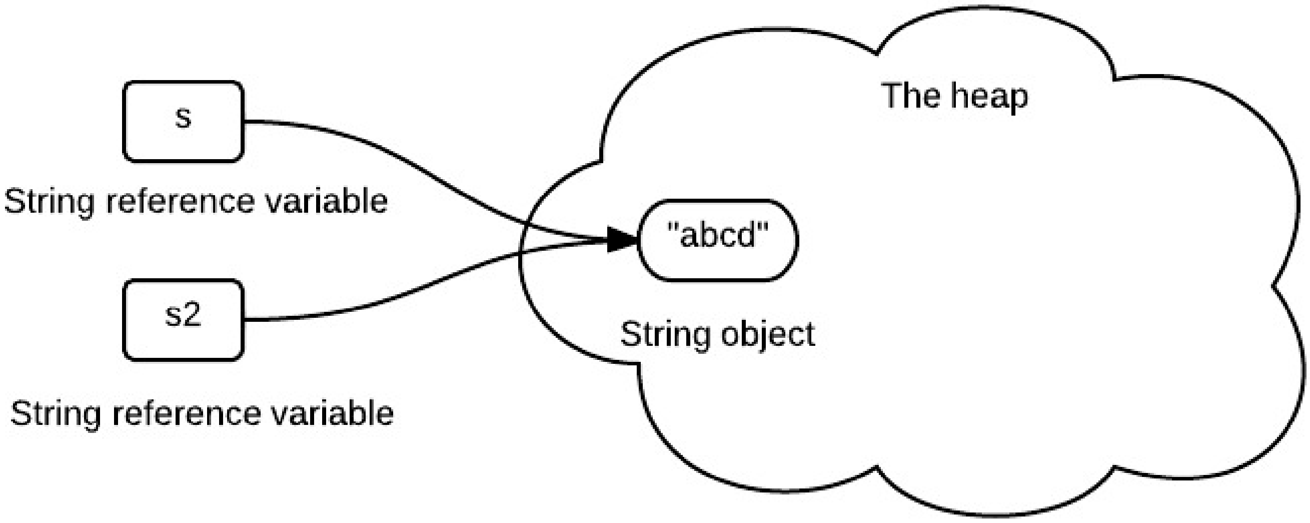


2. Assign one string variable to another string variable

The following code assign *s* to *s2*.

```
String s2 = s;
```

s2 stores the same reference value since it is the same string object.

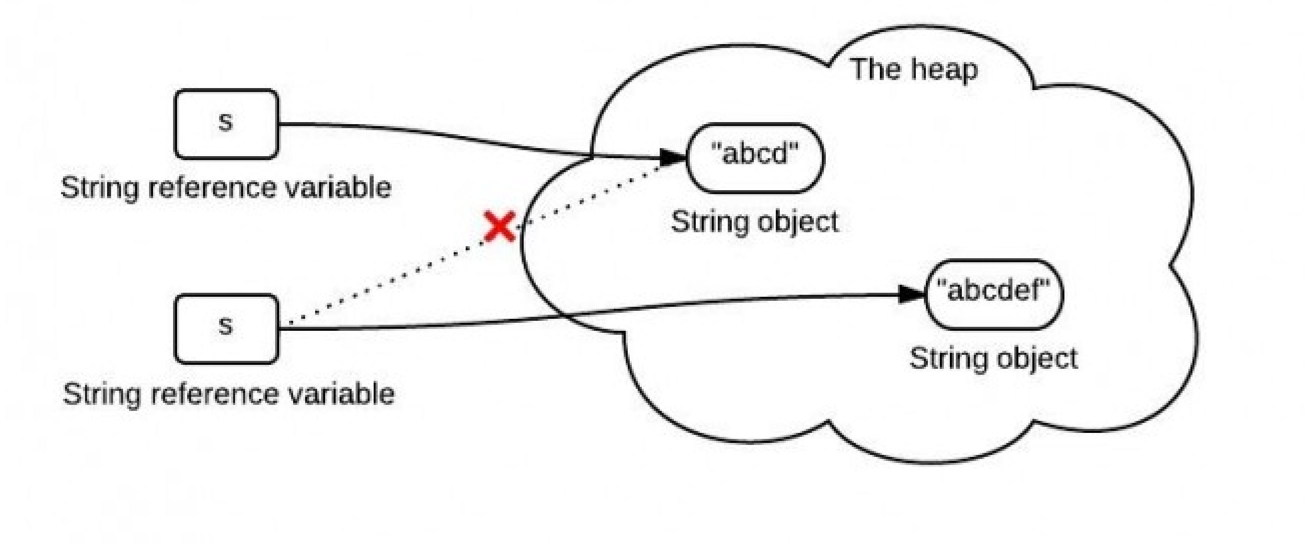


3. Concat string

When we concatenate a string "ef" to *s*,

```
s = s.concat("ef");
```

s stores the reference of the newly created string object as shown below.



Summary

In summary, once a string is created in memory(heap), it can not be changed. All methods of String do not change the string itself, but rather return a new String.

If we need a string that can be modified, we will need *StringBuffer* or *StringBuilder*. Otherwise, there would be a lot of time wasted for Garbage Collection, since each time a new String is created. Here is an example of using *StringBuilder*.