String

3 concept

1st

Difference b/w

```
String s1 = new String("manshu");
String s2 = "manshu";
```

String object

String s1= new String ("manshu");

In this case two objects will be created one is in the heap

other one is in SCP(String constant pool) and

s1 is always pointing to heap object.

Heap

s1-->manshu

SCP

manshu

String literal

String s2 = "manshu";

In this case only one object
will be created in SCP
and
s is always
referring that object.

Heap

SCP

s2-> manshu

most imp difference

Whenever we are using new operator compulsory a new object will be created on the Heap .

There may be a chance of existing two objects with same content on the heap

but

there is no chance of existing two objects with same content on SCP .

conclusion

In heap Duplicates are allowed

in SCP Duplicates are not allowed

Goals

```
String s1= new String ("manshu");
String s2 = new String ("manshu");
String s3 = new String ("manshu");
String s4 = new String ("manshu");
String s5 = new String ("manshu");
```

Heap

s1-->manshu
s2-->manshu
s3-->manshu
s4-->manshu
s5-->manshu

SCP

manshu

Goals

```
String s1 = new String("shivam");
String s2 = new String ("shivam");
String s3 = "shivam";
String s4 = "shivam";
```

conclusion

In heap

s1--> shivam
s2--> shivam

in SCP

2nd

== vs equal()

in String class

```
String s1 = new String("manshu");
String s2 = new String("manshu");
String s3 =  new String("shivam");
String s4 = "manshu";
String s5 = "manshu";
String s6 = "shivam"
```

Heap

s1-->manshu
s2-->manshu
s3 --> shivam

SCP

s4->
s5-> **manshu**

s6-> **shivam**

```
String s1 = new String("manshu");
String s2 = new String("manshu");
```

s1 == s2 ?

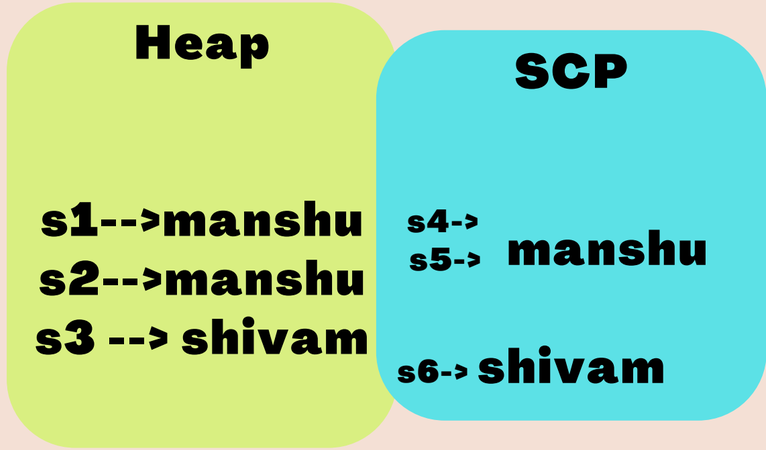
no

because both are in heap and refering to different object

s1.equal(s2)

yes

because both content are same

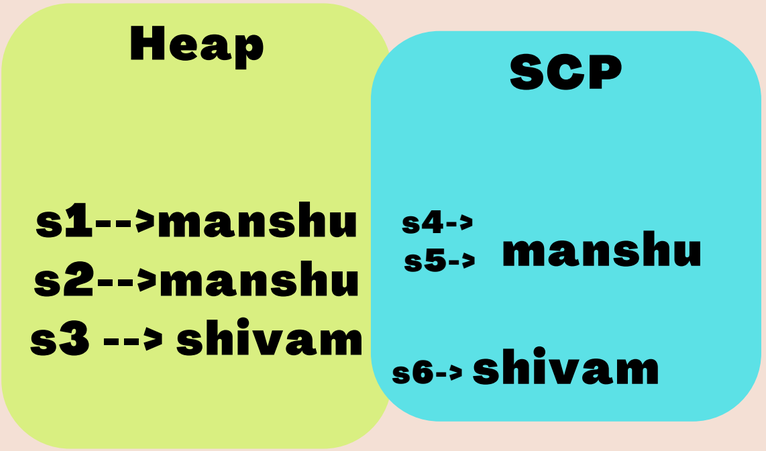


```
String s1 = new String("manshu");
String s4 = "manshu";"
```

s1 == s4 ?

no

because s1 is in heap pointing to different than that of s4 which is in scp



s1.equal(s4)

yes

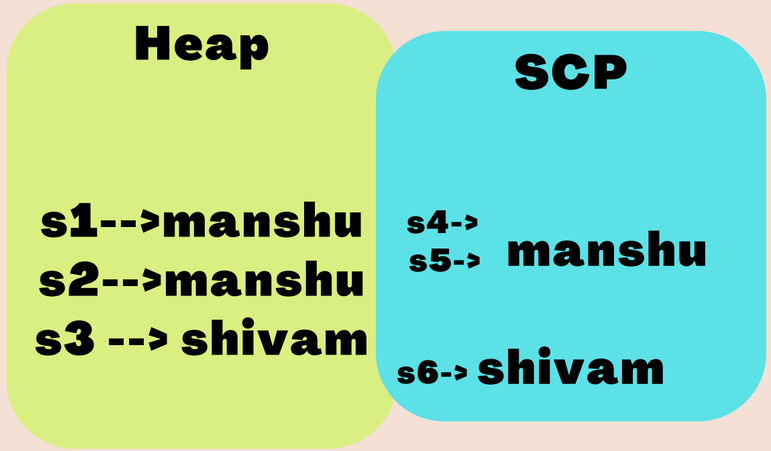
because both content are same

```
String s4 = "manshu";
String s5 = "manshu";
```

s4 == s5 ?

yes

because both s4 and s5 are in SCP and in SCP duplicate are not allowed thus both are pointing to same object



3rd

Immutability

String can not change

same like

what you have written with
pen that can't be change

Once we create a String object we can't perform any changes in the existing object.

If we are try to perform any changes
with those changes
a new object will be created.

This behavior is called
immutability of the String object.

For every String Constant one object will be created in SCP.

Because of runtime operation if an object is required to create compulsory that object should be placed on the heap but not SCP.

```
String s=new String("manshu");
s.concat(" shivam");
System.out.println(s);//manshu
```

Heap

s-->manshu

manshu shivam

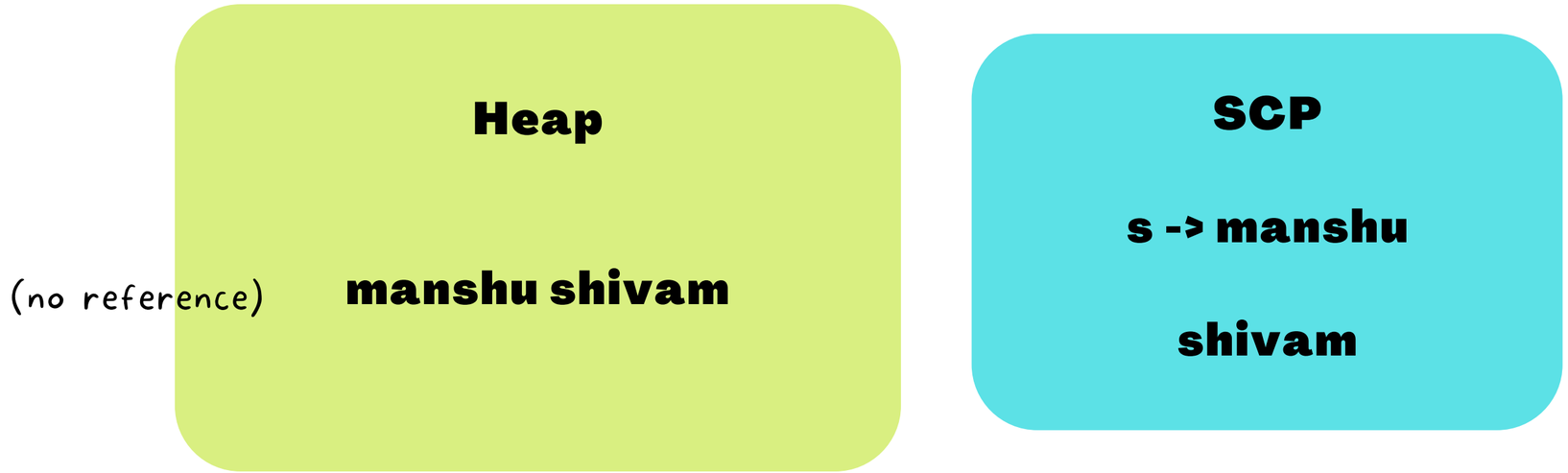
(no reference)

SCP

manshu

shivam

```
String s= "manshu";
s.concat(" shivam");
System.out.println(s);//manshu
```



```
String s1 = new String ("manshu")
String s2 = s1.toUpperCase();
String s3= s1.toLowerCase();

System.out.println(s1 == s2);
System.out.println( s1 ==s3);
```

what will be output ?? -->

most valuable concept

Note -

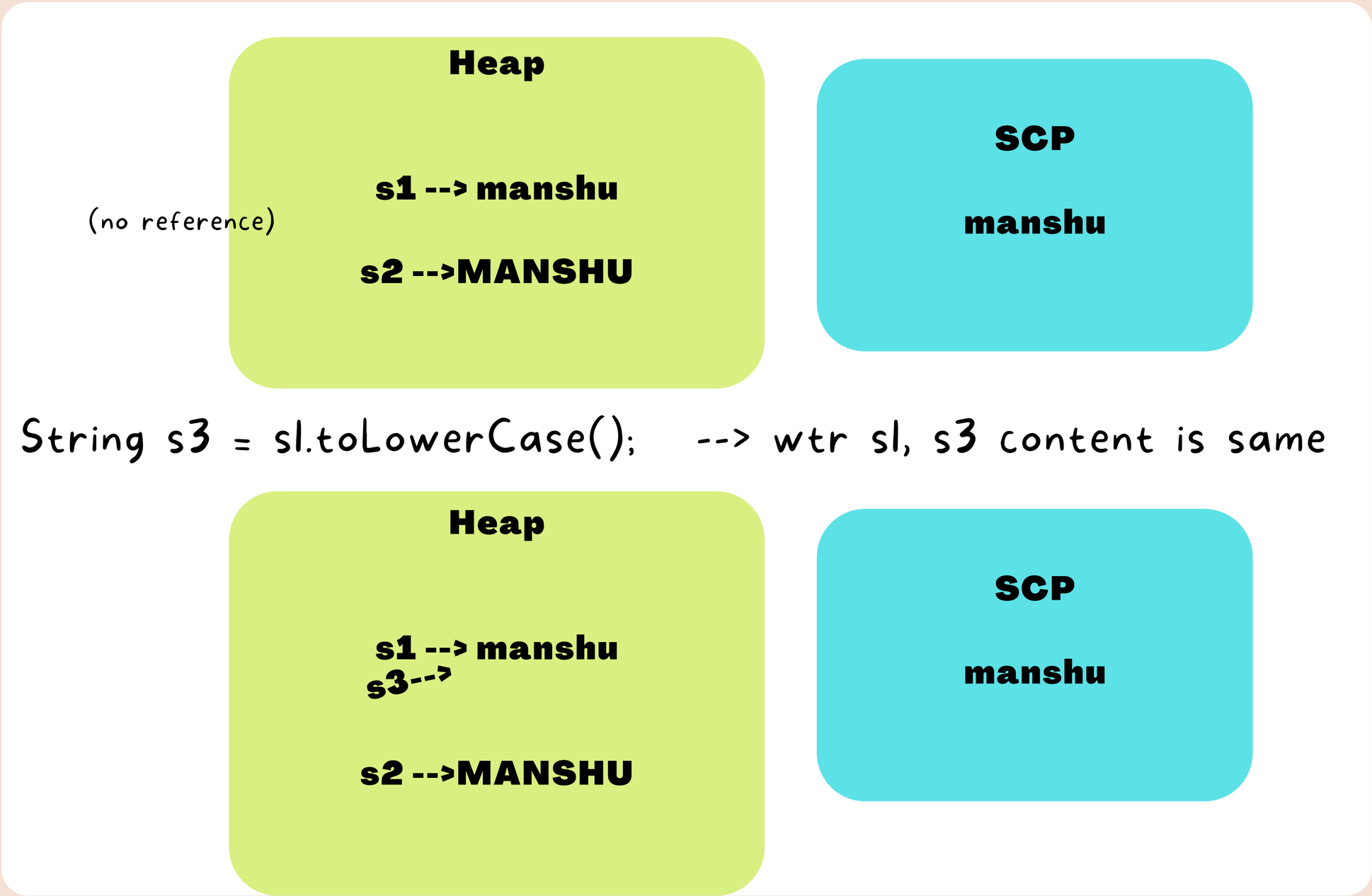
Because runtime operation

ifthere is a change in content
with those changes a new object will be created only on the heap but not in SCP.

If there is no change in wrt current content(object)
no new object will be created
the same object will be reused.
This rule is same whether object present on the Heap or SCP

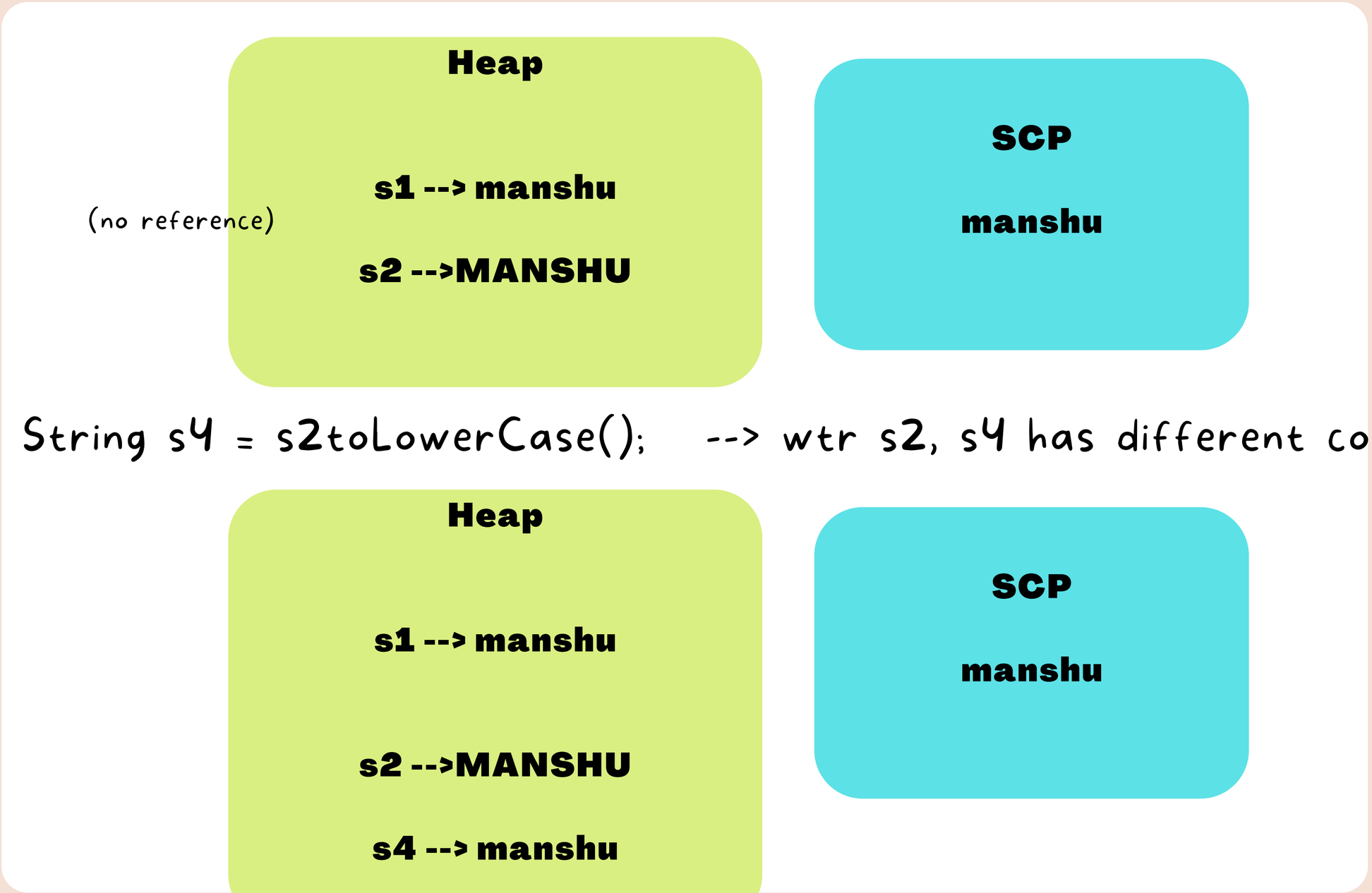
```
String s1 = new String ("manshu")
String s2 = s1.toUpperCase();
String s3= s1.toLowerCase();


System.out.println(s1 == s2); // false
System.out.println( s1 ==s3); // true but why ?
```

solution

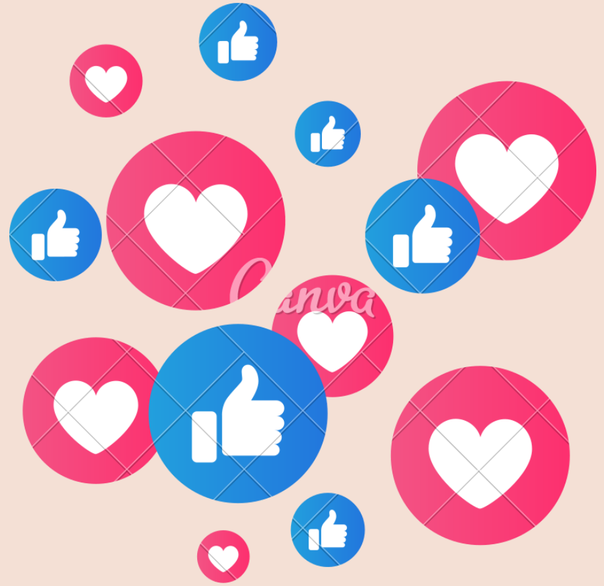

Heap
s1 --> manshu
s2 -->MANSHU
(no reference)
SCP
manshu
String s3 = s1.toLowerCase(); --> wtr s1, s3 content is same
Heap
s1 --> manshu
s3-->
s2 -->MANSHU
SCP
manshu

```
String s1 = new String ("manshu")

String s2 = s1.toUpperCase();


String s4 = s2.toLowerCase();


                                ;
System.out.println( s1==s4); //false why ?
```

solution


Heap
s1 --> manshu
s2 -->MANSHU
(no reference)
SCP
manshu
String s4 = s2.toLowerCase(); --> wtr s2, s4 has different content
Heap
s1 --> manshu
s2 -->MANSHU
s4 --> manshu
SCP
manshu

Thank you



Follow for such content

disclaimer :-
this slide does not make any
sence here

in Hindi String is called "dhaga"

and Kabir explains immutability concept like

रहिमन धागा प्रेम का, मत तोड़ो चटकाय।
टूटे से फिर ना जुड़े, जुड़े गाँठ परि जाय॥

string can not change
if you change new object will be created