

## Reverse String

Write a function that takes a string as input and returns the string reversed.

**Example:**

Given `s = "hello"`, return `"olleh"`.

## Solution 1

### Cheating Method using StringBuilder

```
public class Solution {  
    public String reverseString(String s) {  
        return new StringBuilder(s).reverse().toString();  
    }  
}
```

### Classic Method by swapping first and last

```
public class Solution {  
    public String reverseString(String s) {  
        char[] word = s.toCharArray();  
        int i = 0;  
        int j = s.length() - 1;  
        while (i < j) {  
            char temp = word[i];  
            word[i] = word[j];  
            word[j] = temp;  
            i++;  
            j--;  
        }  
        return new String(word);  
    }  
}
```

### Same as previous but using byte instead

```
public class Solution {  
    public String reverseString(String s) {  
        byte[] bytes = s.getBytes();  
        int i = 0;  
        int j = s.length() - 1;  
        while (i < j) {  
            byte temp = bytes[i];  
            bytes[i] = bytes[j];  
            bytes[j] = temp;  
            i++;  
            j--;  
        }  
        return new String(bytes);  
    }  
}
```

### Classic Method by swapping first and last

*If you don't like temp variable*

```

public class Solution {
    public String reverseString(String s) {
        byte[] bytes = s.getBytes();
        int i = 0;
        int j = s.length() - 1;
        while (i < j) {
            bytes[i] = (byte)(bytes[i] ^ bytes[j]);
            bytes[j] = (byte)(bytes[i] ^ bytes[j]);
            bytes[i] = (byte)(bytes[i] ^ bytes[j]);
            i++;
            j--;
        }
        return new String(bytes);
    }
}

```

## Using recursion

```

public class Solution {
    public String reverseString(String s) {
        int length = s.length();
        if (length <= 1) return s;
        String leftStr = s.substring(0, length / 2);
        String rightStr = s.substring(length / 2, length);
        return reverseString(rightStr) + reverseString(leftStr);
    }
}

```

written by [ratchapong.t](#) original link [here](#)

## Solution 2

```
class Solution {
public:
    string reverseString(string s) {
        int i = 0, j = s.size() - 1;
        while(i < j){
            swap(s[i++], s[j--]);
        }

        return s;
    }
};
```

written by [Ximin.Z](#) original link [here](#)

## Solution 3

```
class Solution(object):  
    def reverseString(self, s):  
        """  
        :type s: str  
        :rtype: str  
        """  
        return s[::-1]
```

written by [cheffyu](#) original link [here](#)

From [Leetcode](#).