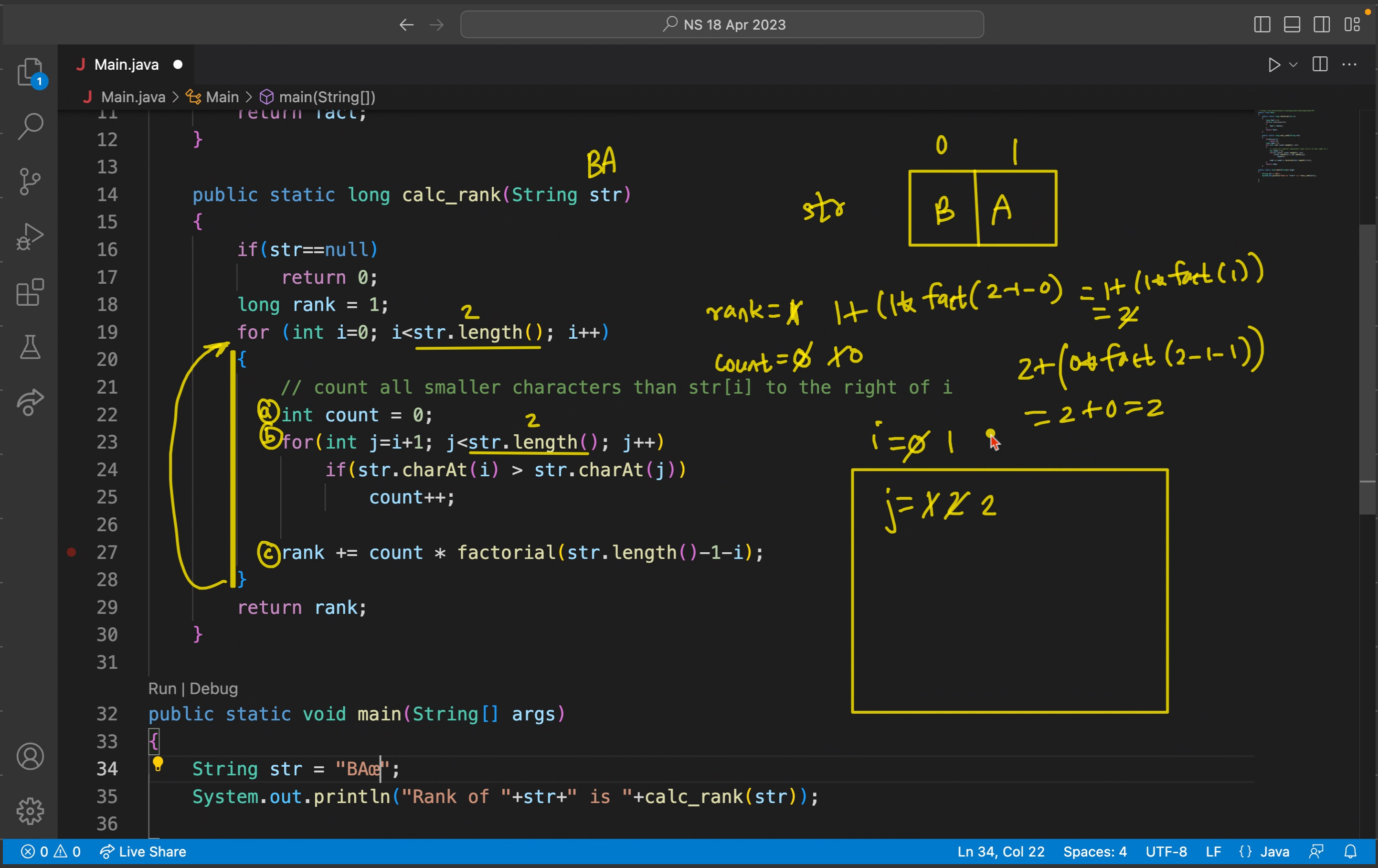
20 Apr 2023

https://my.newtonschool.co/playground/code/mxg4viddct70/


NS 18 Apr 2023
Main.java
Main.java > Main > main(String[])
BA
0 1
str
B A
2
$rank = \cancel{1}\ 1+(1*fact(2-1-0)) = 1+(1*fact(1)) = \cancel{2}$
$count = \cancel{0}\ \cancel{1}\ 0$
$2+(0*fact(2-1-1))$
$=2+0=2$
$i = \cancel{0}\ 1$
$j = \cancel{1}\ \cancel{2}\ 2$
a
b
c

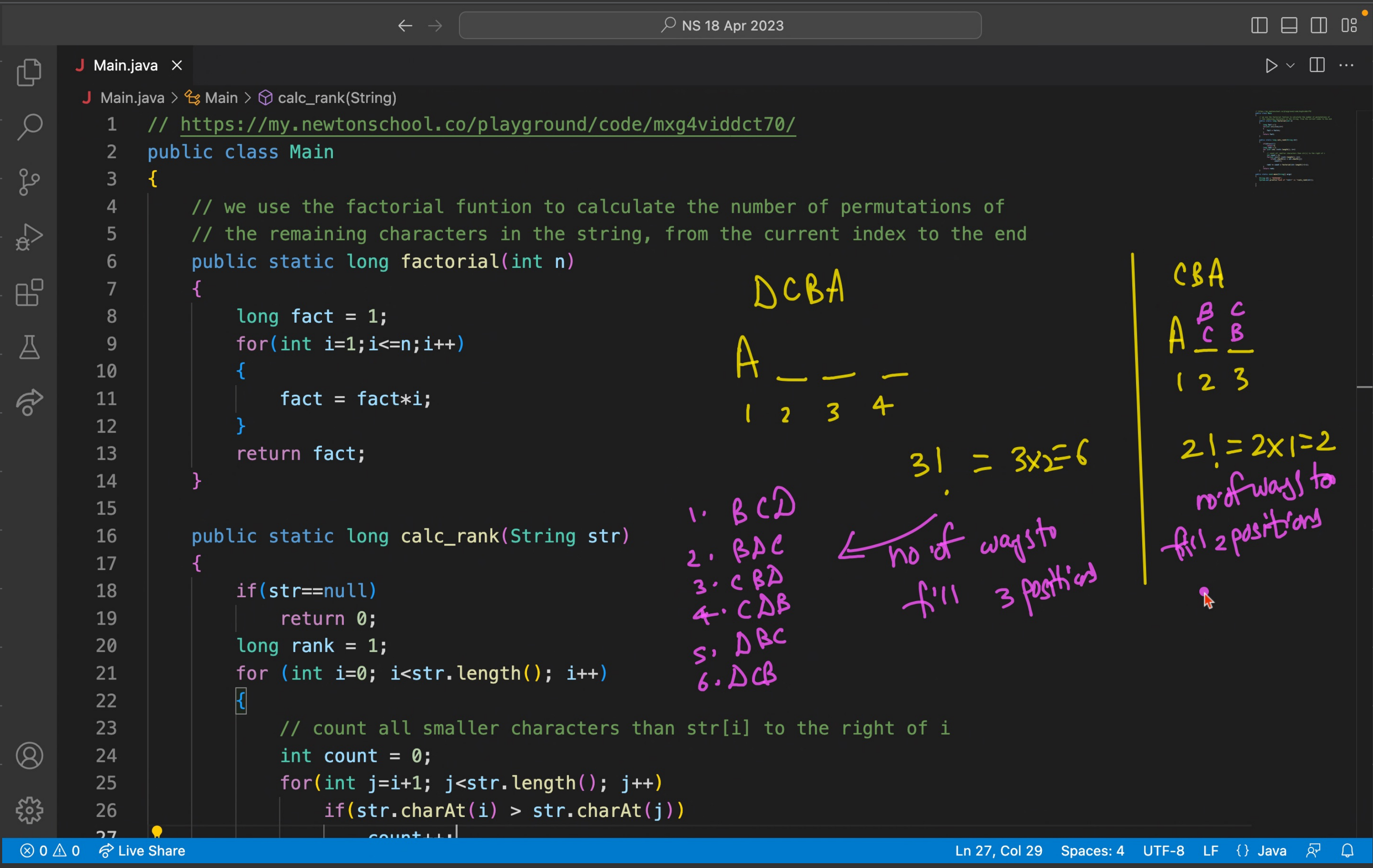
```java
        return fact;
    }

    public static long calc_rank(String str)
    {
        if(str==null)
            return 0;
        long rank = 1;
        for (int i=0; i<str.length(); i++)
        {
            // count all smaller characters than str[i] to the right of i
            int count = 0;
            for(int j=i+1; j<str.length(); j++)
                if(str.charAt(i) > str.charAt(j))
                    count++;

            rank += count * factorial(str.length()-1-i);
        }
        return rank;
    }

Run | Debug
public static void main(String[] args)
{
    String str = "BAœ";
    System.out.println("Rank of "+str+" is "+calc_rank(str));
```

⊗ 0 ⚠ 0 Live Share Ln 34, Col 22 Spaces: 4 UTF-8 LF {} Java



```java
// https://my.newtonschool.co/playground/code/mxg4viddct70/
public class Main
{
    // we use the factorial funtion to calculate the number of permutations of
    // the remaining characters in the string, from the current index to the end
    public static long factorial(int n)
    {
        long fact = 1;
        for(int i=1;i<=n;i++)
        {
            fact = fact*i;
        }
        return fact;
    }

    public static long calc_rank(String str)
    {
        if(str==null)
            return 0;
        long rank = 1;
        for (int i=0; i<str.length(); i++)
        {
            // count all smaller characters than str[i] to the right of i
            int count = 0;
            for(int j=i+1; j<str.length(); j++)
                if(str.charAt(i) > str.charAt(j))
                    count++;
```

⊗ 0 ⚠ 0 Live Share Ln 27, Col 29 Spaces: 4 UTF-8 LF {} Java rank += count * factorial(str.length()-1-i);

$= 1 + [2 * f(2)]$

$= 1 + [2 * 2]$

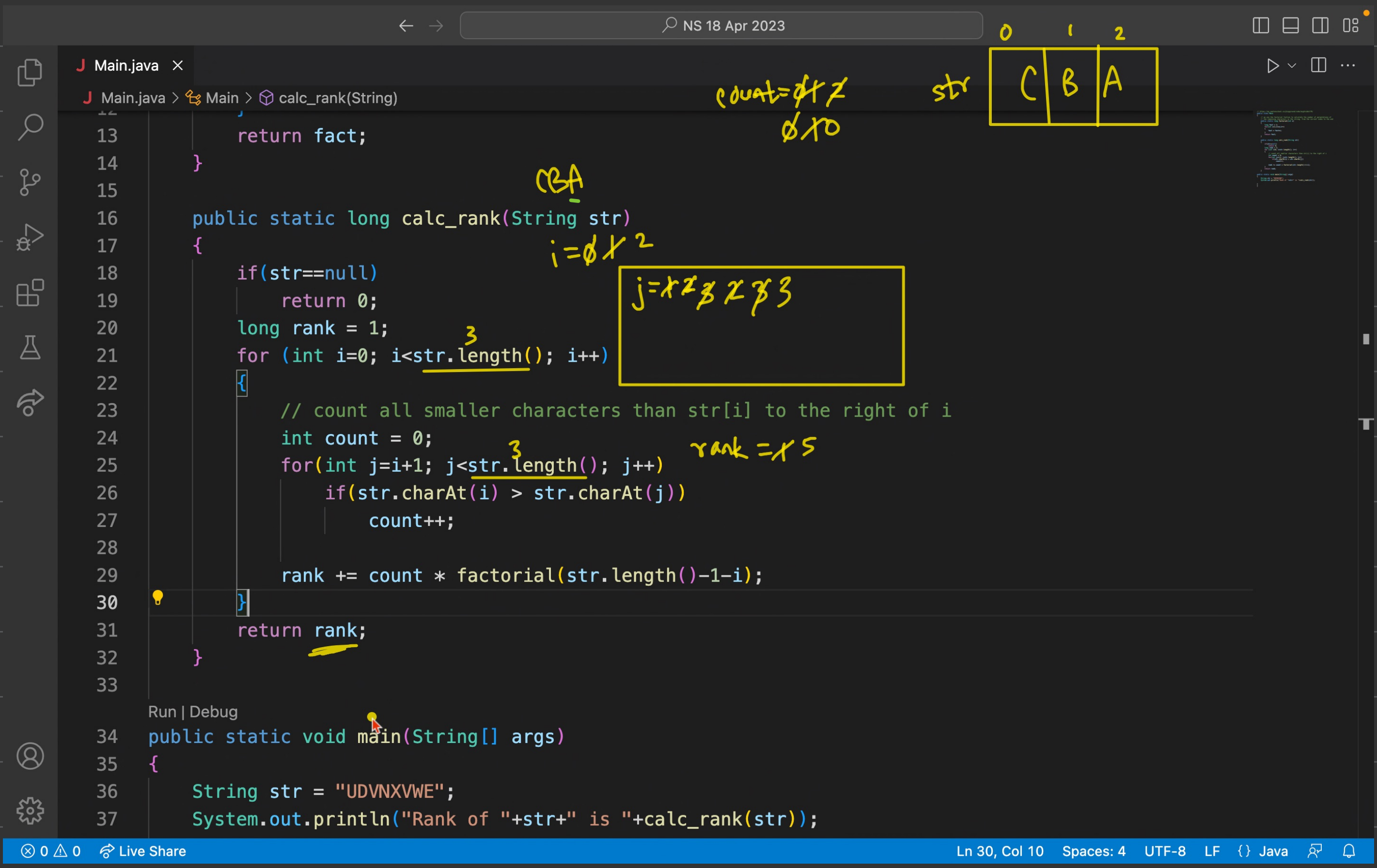
$= 1 + 4$

$= 5$

$= 5 + [1 * f(1)]$

$= 5 + 1$

$= 6$



NS 18 Apr 2023
Main.java
Main.java > Main > calc_rank(String)
0 1 2
str C B A
count = ~~0~~ ~~1~~ ~~2~~ ~~0~~ ~~1~~ 0
CBA
i = ~~0~~ ~~1~~ 2
j = ~~1~~ ~~2~~ ~~3~~ ~~2~~ ~~3~~ 3
rank = ~~1~~ 5
3
3
Run | Debug
Ln 30, Col 10 Spaces: 4 UTF-8 LF Java
Live Share

```java
        return fact;
    }

    public static long calc_rank(String str)
    {
        if(str==null)
            return 0;
        long rank = 1;
        for (int i=0; i<str.length(); i++)
        {
            // count all smaller characters than str[i] to the right of i
            int count = 0;
            for(int j=i+1; j<str.length(); j++)
                if(str.charAt(i) > str.charAt(j))
                    count++;

            rank += count * factorial(str.length()-1-i);
        }
        return rank;
    }

public static void main(String[] args)
{
    String str = "UDVNXVWE";
    System.out.println("Rank of "+str+" is "+calc_rank(str));
```