STRING CLASS

IN THE NAME OF ALLAH
بسم الله الرحمن الرحيم
THE GRACIOUS, THE MERCIFUL.

GETS - GETTING EDUCATION WITH TECHNOLOGICAL SYSTEM

Instructor: Sir A.Rehman Ali Brohi

LECTURE: 10
String Class

JAVA STRING

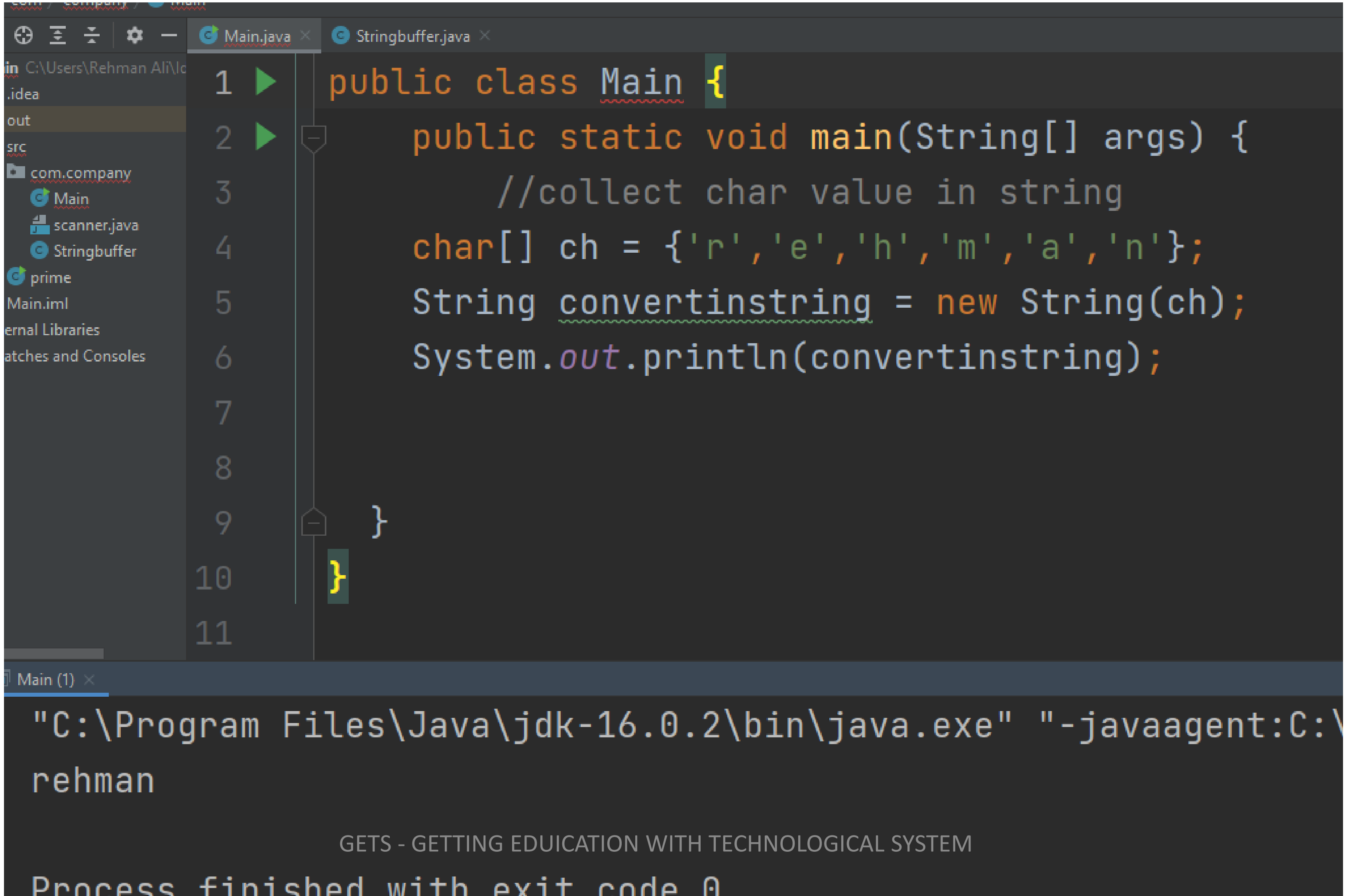
- What is String
- Immutable String
- String Comparison
- String Concatenation
- Substring
- Methods of String class
- StringBuffer class
- StringBuilder class
- String vs StringBuffer
- StringBuffer vs Builder
- toString method

WHAT IS STRING?

- In Java, String is an object that represents sequence of char values.

- An array of characters works same as Java String

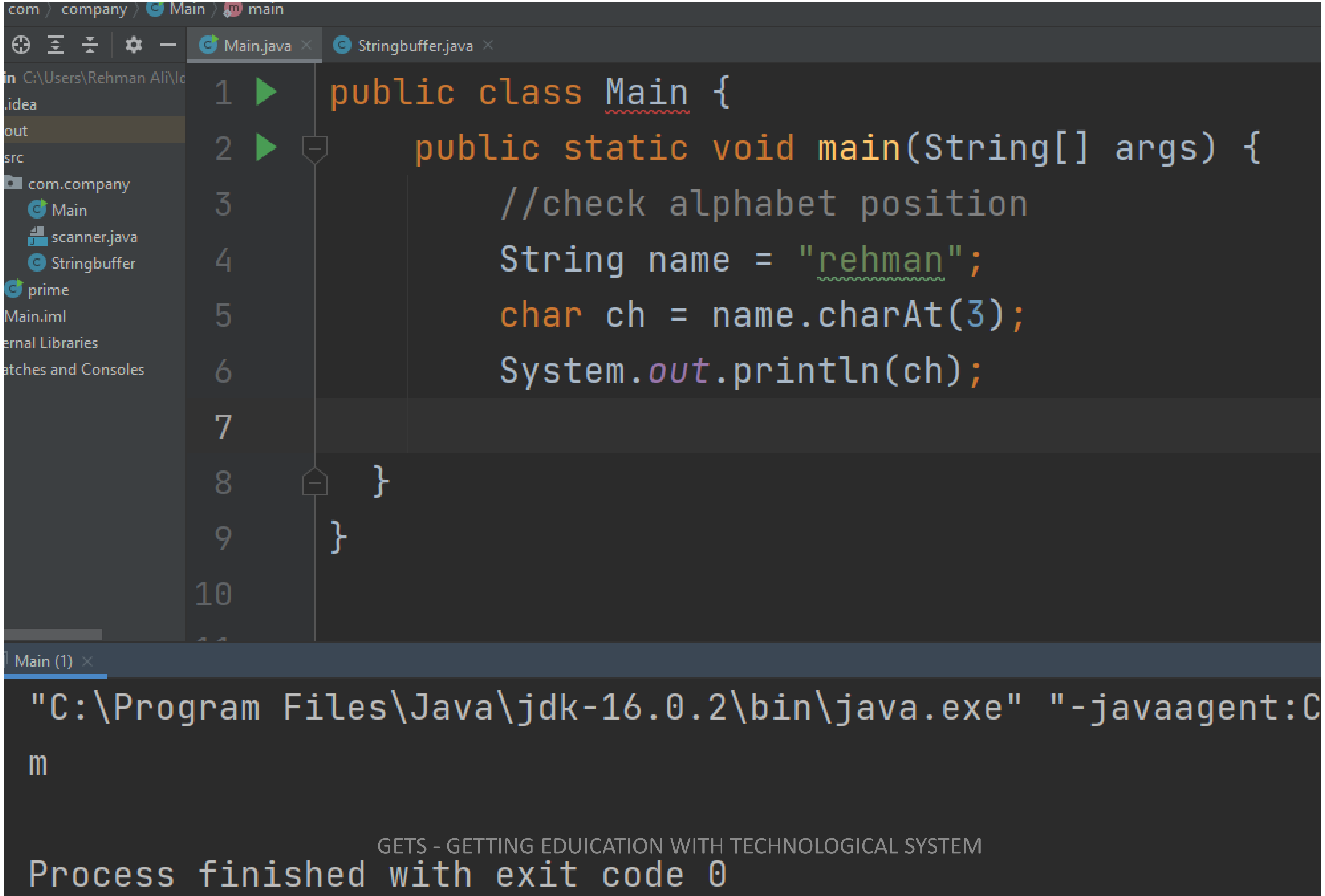
If want to convert char into String



```java
public class Main {
    public static void main(String[] args) {
        //collect char value in string
    char[] ch = {'r','e','h','m','a','n'};
    String convertinstring = new String(ch);
    System.out.println(convertinstring);


  }
}
```

```
"C:\Program Files\Java\jdk-16.0.2\bin\java.exe" "-javaagent:C:\
rehman

Process finished with exit code 0
```

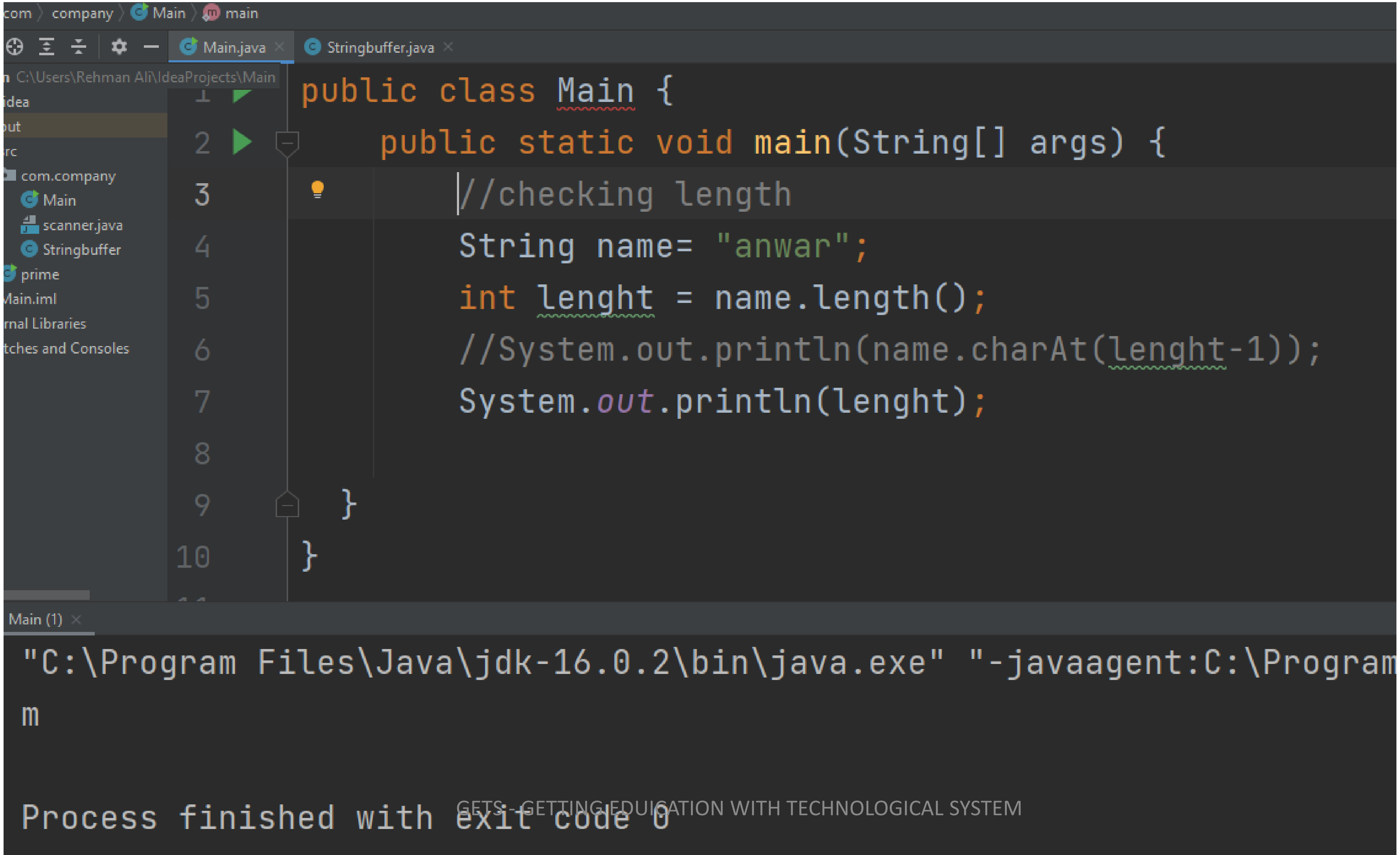
If want to check the position of character



```java
public class Main {
    public static void main(String[] args) {
        //check alphabet position
        String name = "rehman";
        char ch = name.charAt(3);
        System.out.println(ch);

    }
}
```

```
"C:\Program Files\Java\jdk-16.0.2\bin\java.exe" "-javaagent:C
m

Process finished with exit code 0
```

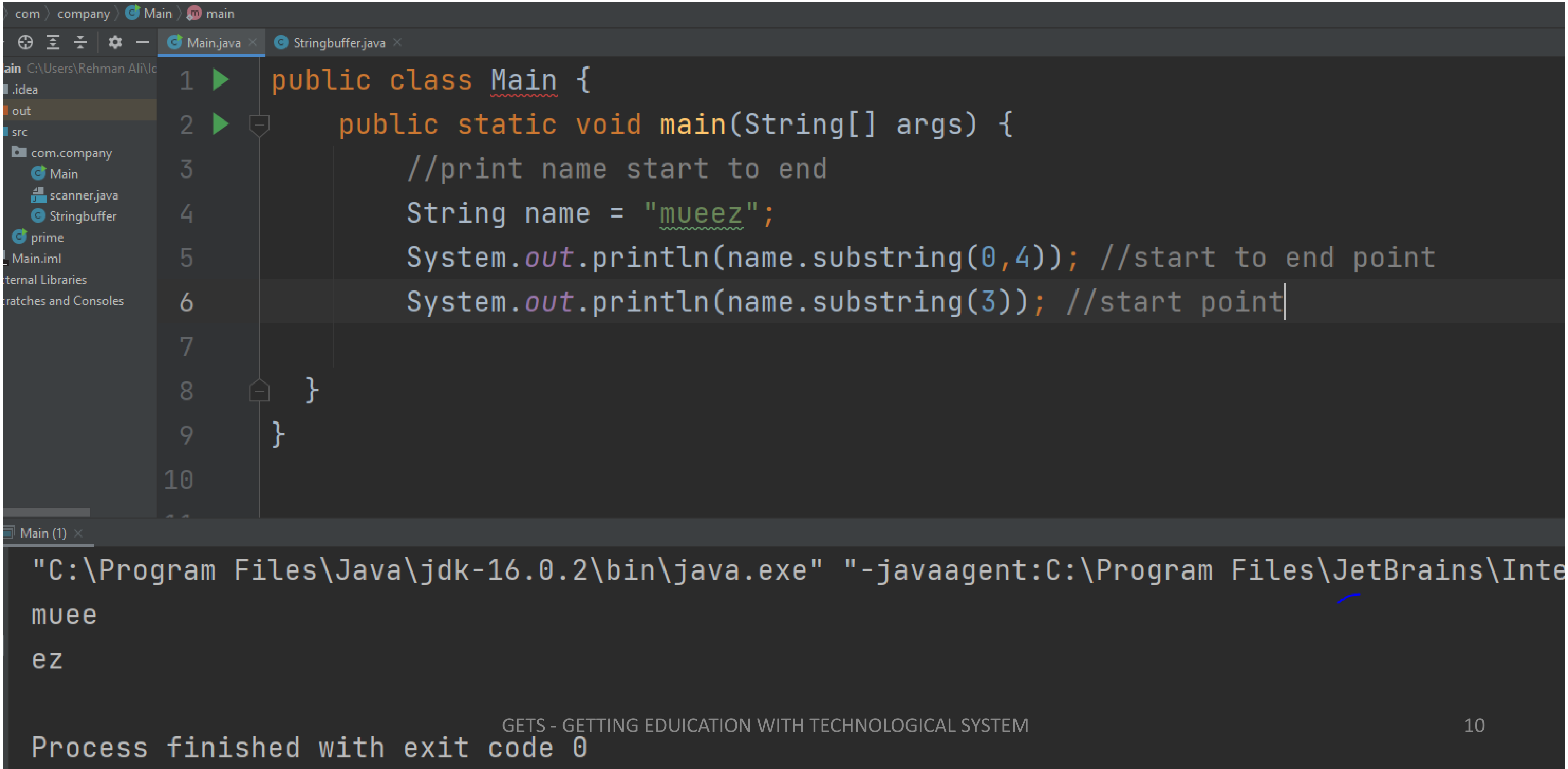
If want to check length of character or print the last character



```java
public class Main {
    public static void main(String[] args) {
        //checking length
        String name= "anwar";
        int lenght = name.length();
        //System.out.println(name.charAt(lenght-1));
        System.out.println(lenght);

    }
}
```

```
"C:\Program Files\Java\jdk-16.0.2\bin\java.exe" "-javaagent:C:\Program
m

Process finished with exit code 0
```

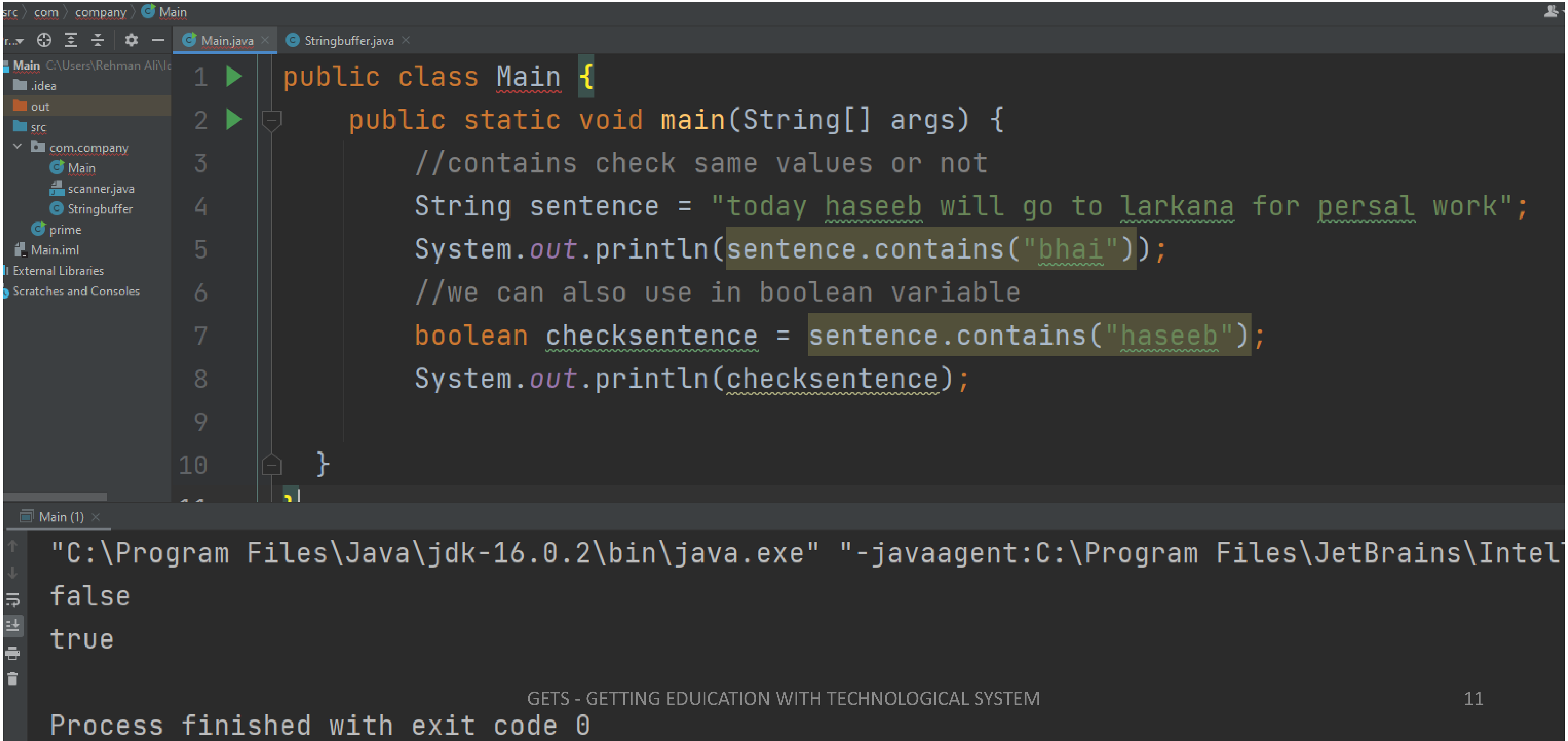
If want to display the First to end character



```java
public class Main {
    public static void main(String[] args) {
        //print name start to end
        String name = "mueez";
        System.out.println(name.substring(0,4)); //start to end point
        System.out.println(name.substring(3)); //start point

    }
}
```

```
"C:\Program Files\Java\jdk-16.0.2\bin\java.exe" "-javaagent:C:\Program Files\JetBrains\Inte
muee
ez

Process finished with exit code 0
```

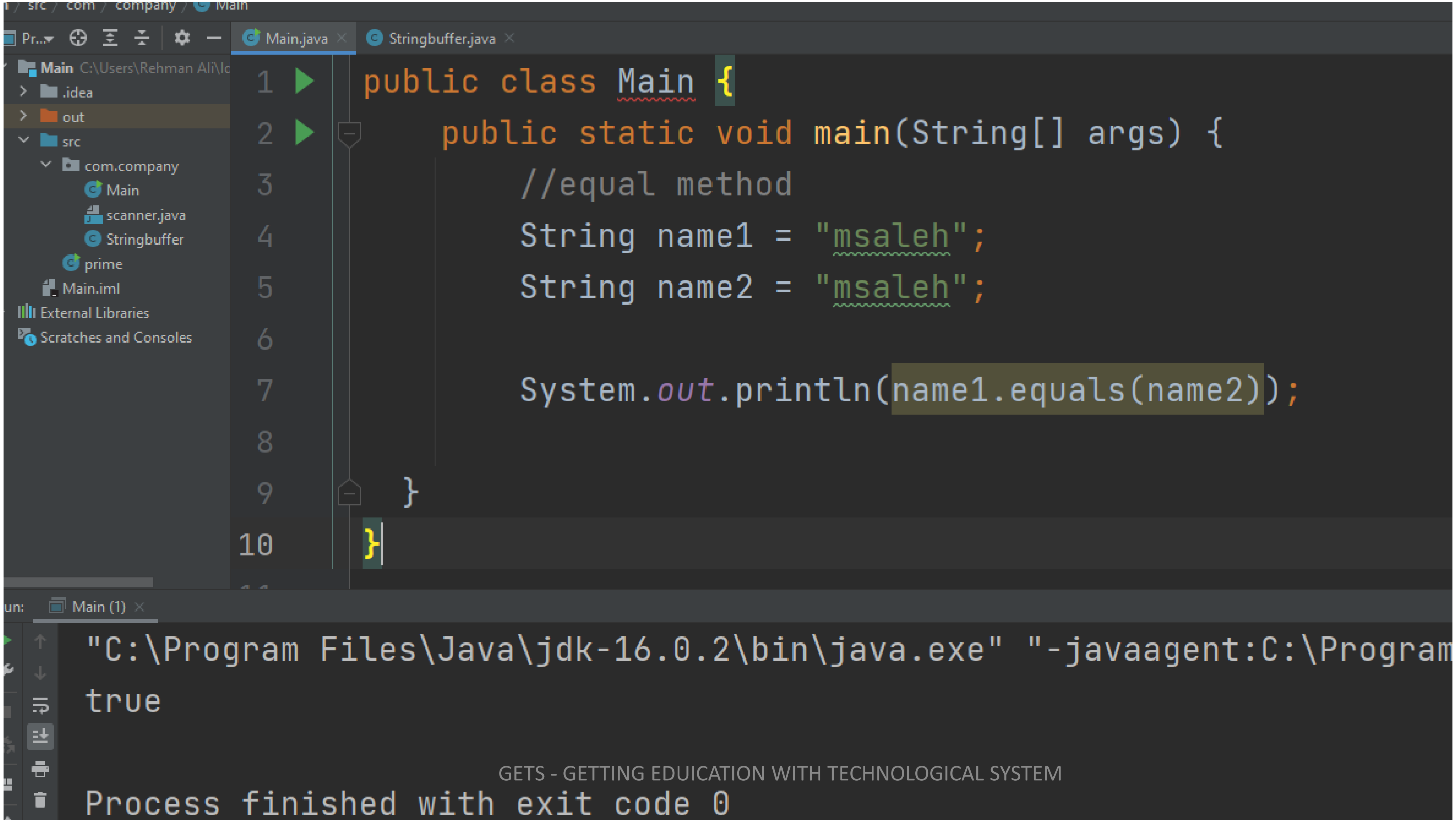
If want to check the contains are same or not



```java
public class Main {
    public static void main(String[] args) {
        //contains check same values or not
        String sentence = "today haseeb will go to larkana for persal work";
        System.out.println(sentence.contains("bhai"));
        //we can also use in boolean variable
        boolean checksentence = sentence.contains("haseeb");
        System.out.println(checksentence);

  }
```

```
"C:\Program Files\Java\jdk-16.0.2\bin\java.exe" "-javaagent:C:\Program Files\JetBrains\Intel
false
true

Process finished with exit code 0
```

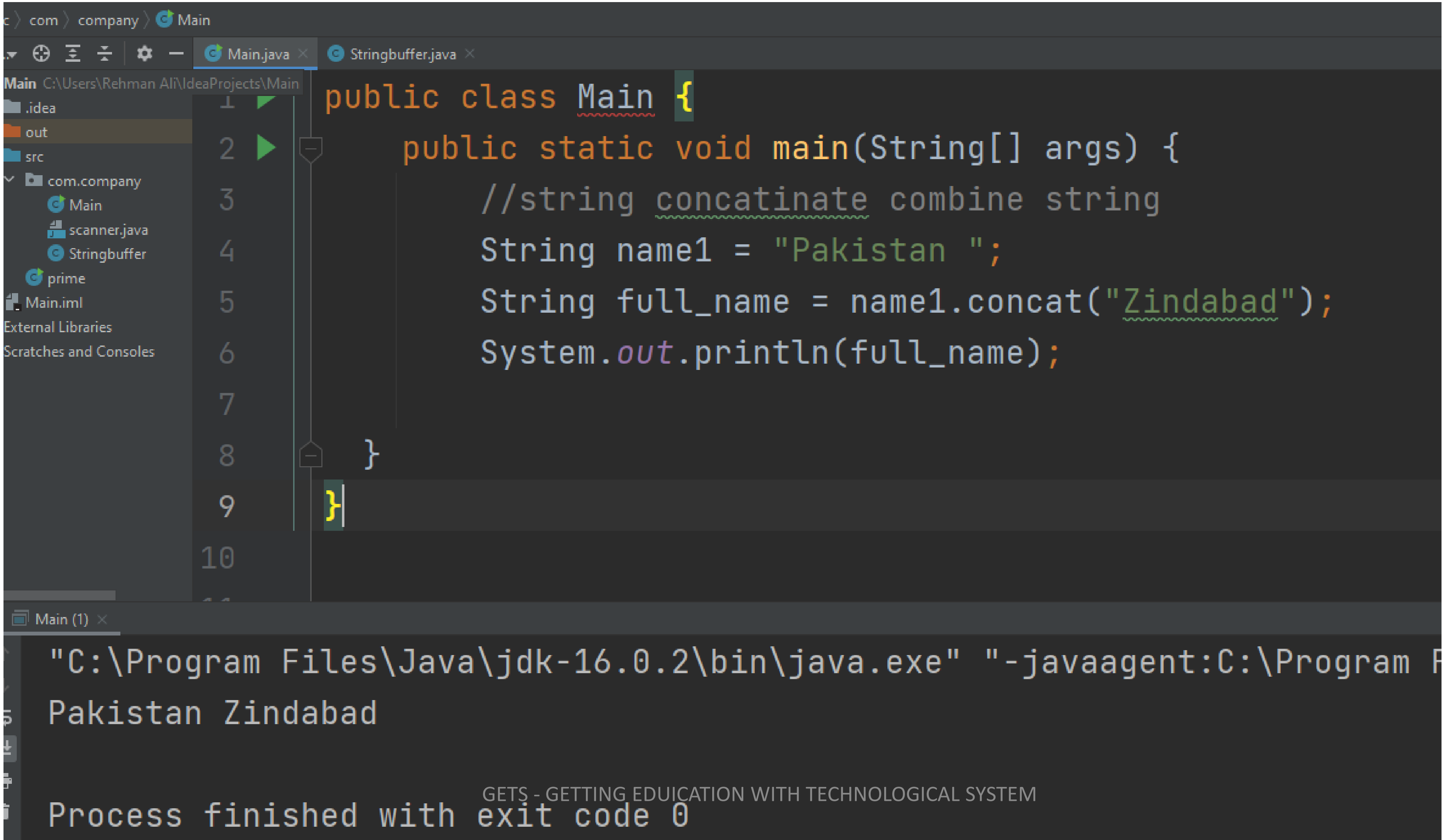
If want to check the string are same using equal method



```java
public class Main {
    public static void main(String[] args) {
        //equal method
        String name1 = "msaleh";
        String name2 = "msaleh";

        System.out.println(name1.equals(name2));

    }
}
```

```
"C:\Program Files\Java\jdk-16.0.2\bin\java.exe" "-javaagent:C:\Program
true

Process finished with exit code 0
```

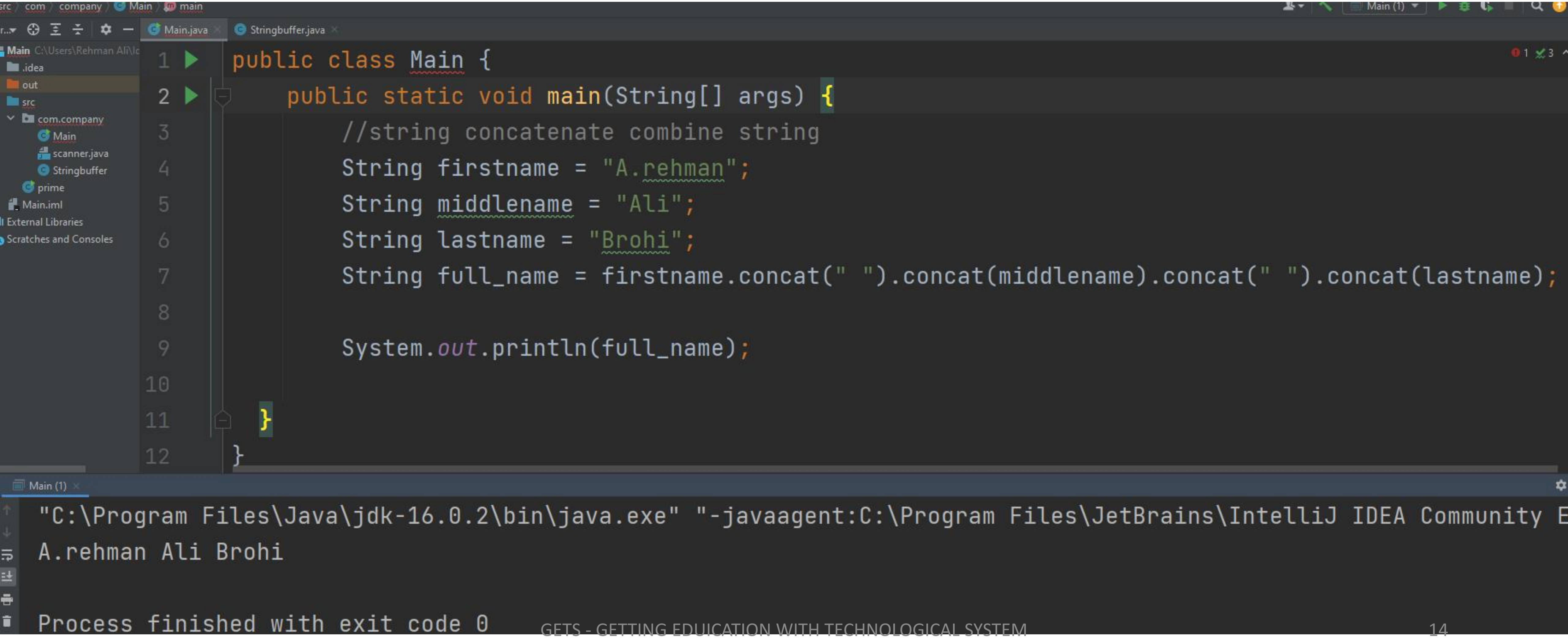
If want to concatenate two String



```java
public class Main {
    public static void main(String[] args) {
        //string concatinate combine string
        String name1 = "Pakistan ";
        String full_name = name1.concat("Zindabad");
        System.out.println(full_name);

    }
}
```

```
"C:\Program Files\Java\jdk-16.0.2\bin\java.exe" "-javaagent:C:\Program F
Pakistan Zindabad

Process finished with exit code 0
```

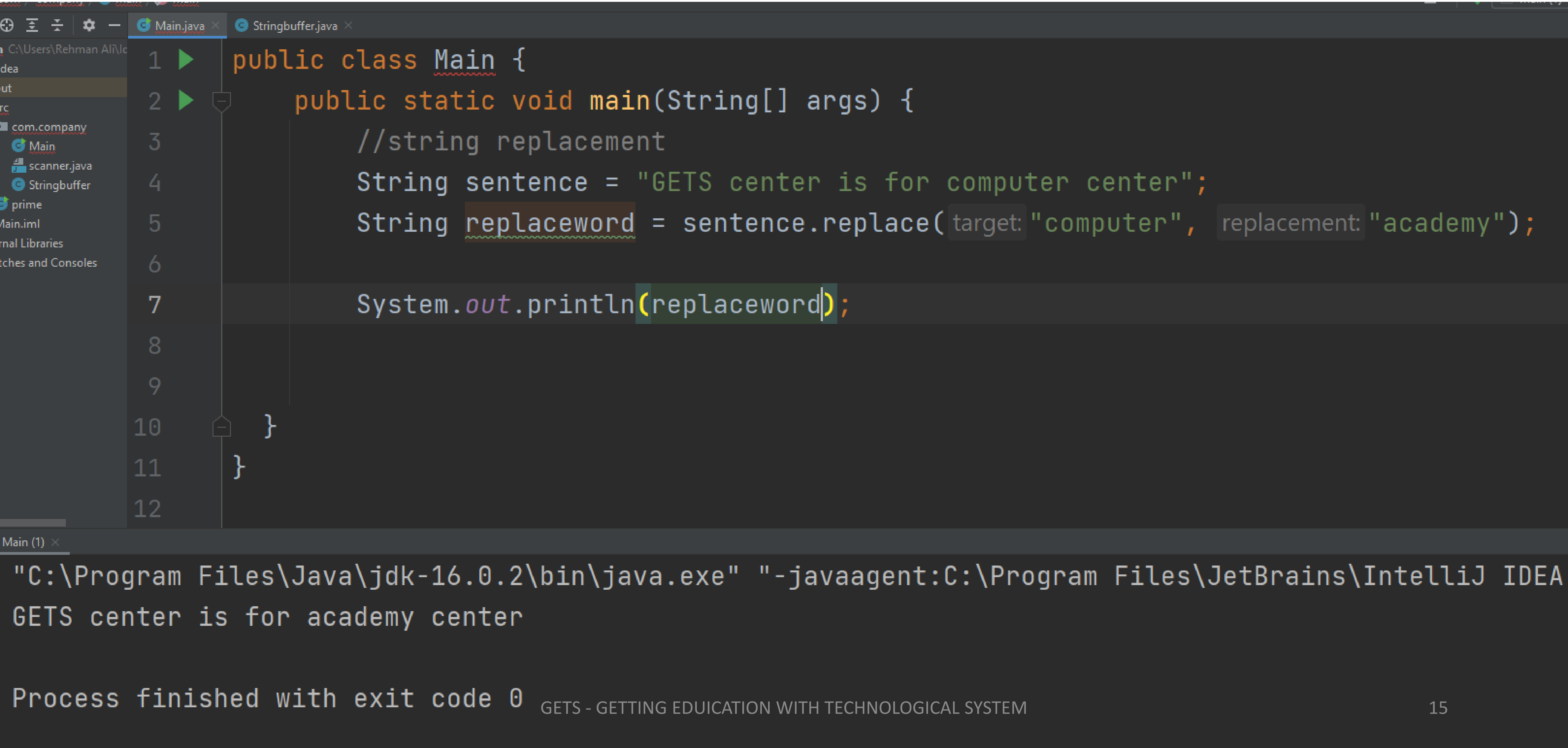
If want to concatenate multiple Strings



```java
public class Main {
    public static void main(String[] args) {
        //string concatenate combine string
        String firstname = "A.rehman";
        String middlename = "Ali";
        String lastname = "Brohi";
        String full_name = firstname.concat(" ").concat(middlename).concat(" ").concat(lastname);

        System.out.println(full_name);

    }
}
```

```
"C:\Program Files\Java\jdk-16.0.2\bin\java.exe" "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA Community E
A.rehman Ali Brohi

Process finished with exit code 0
```

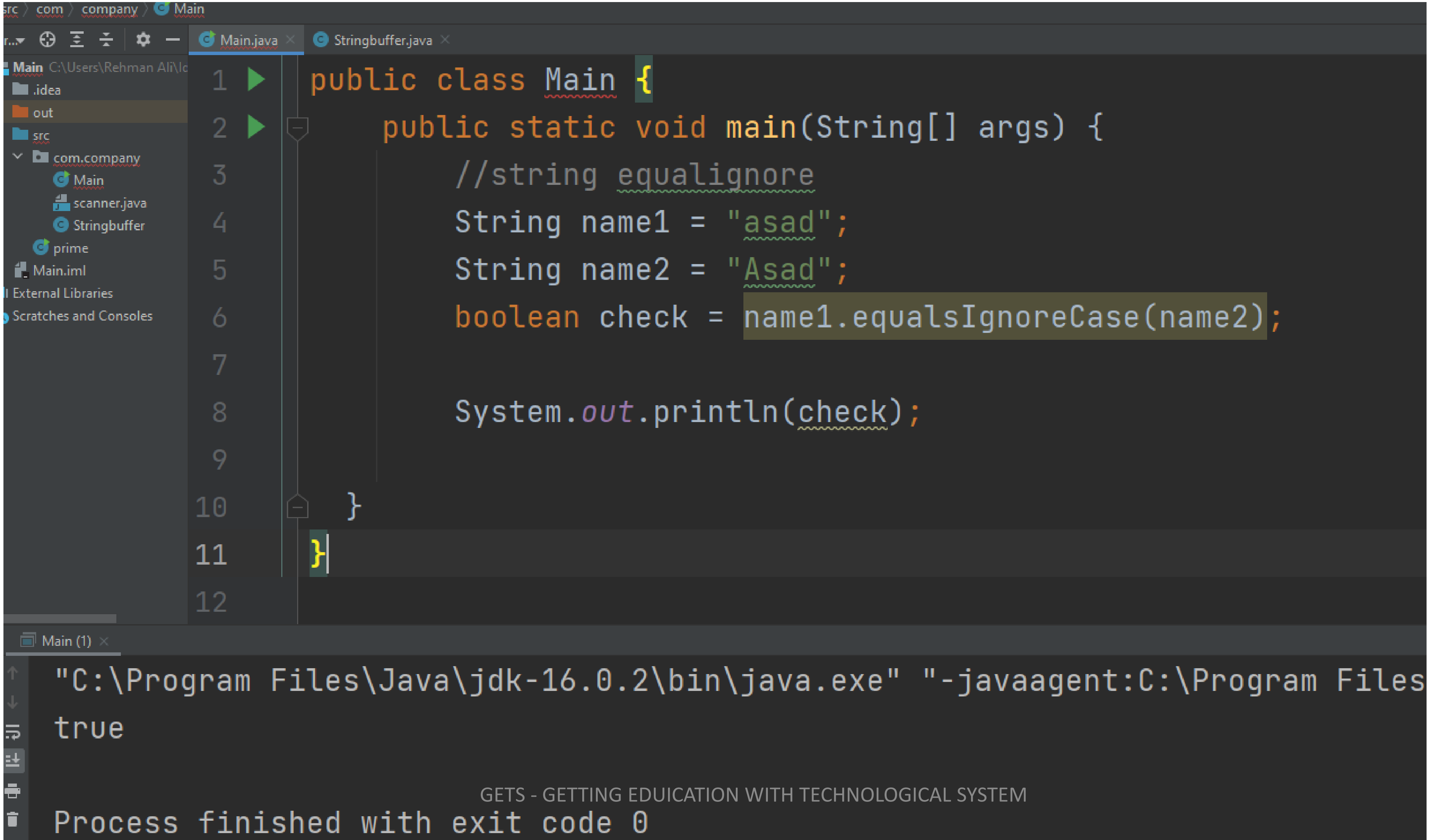
If want to replace word



```java
public class Main {
    public static void main(String[] args) {
        //string replacement
        String sentence = "GETS center is for computer center";
        String replaceword = sentence.replace( target: "computer",  replacement: "academy");

        System.out.println(replaceword);


    }
}
```

```
"C:\Program Files\Java\jdk-16.0.2\bin\java.exe" "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA
GETS center is for academy center

Process finished with exit code 0
```

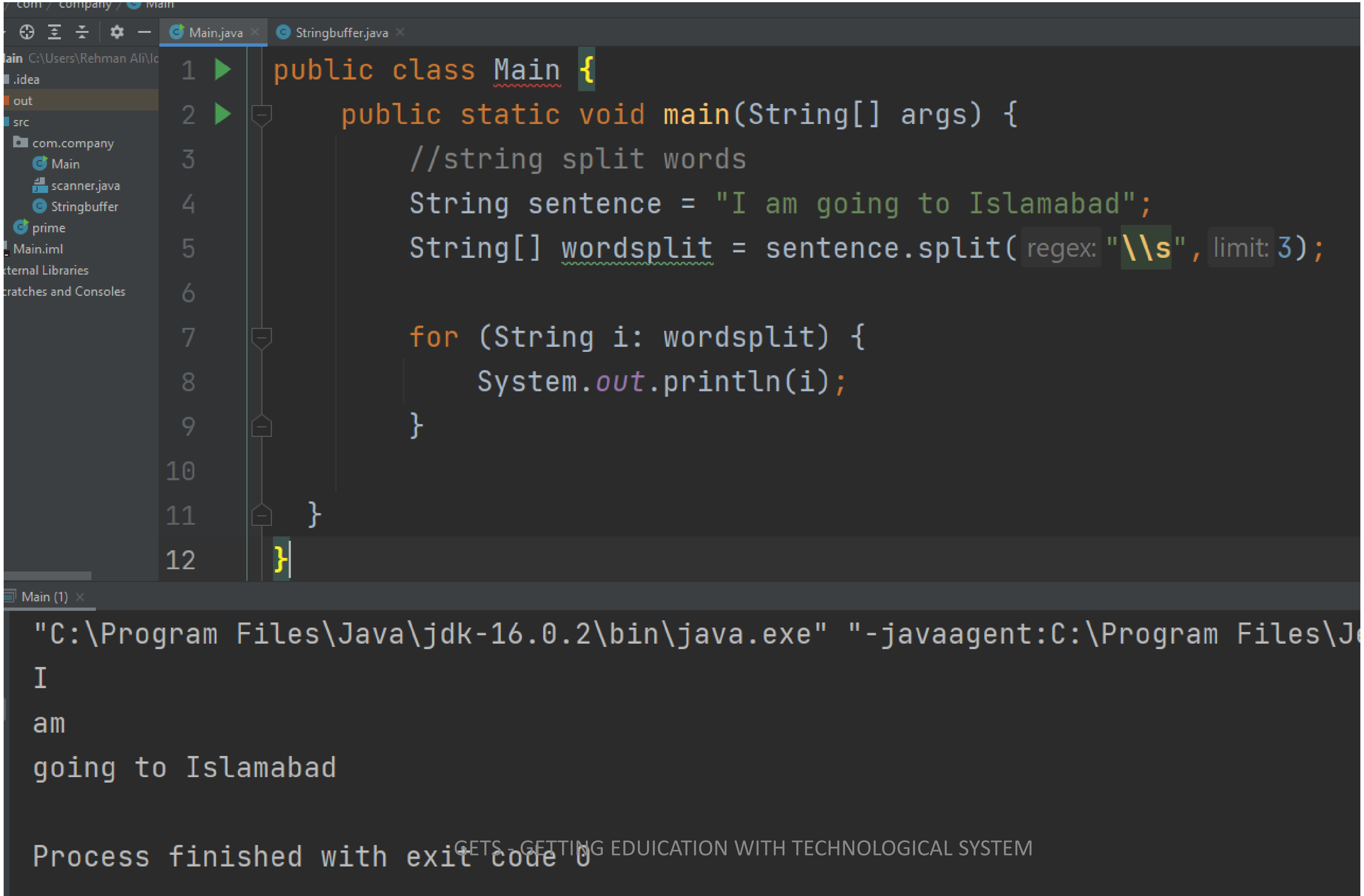
If want to print words but ignore the uppercase or lower



```java
public class Main {
    public static void main(String[] args) {
        //string equalignore
        String name1 = "asad";
        String name2 = "Asad";
        boolean check = name1.equalsIgnoreCase(name2);

        System.out.println(check);

    }
}
```

```
"C:\Program Files\Java\jdk-16.0.2\bin\java.exe" "-javaagent:C:\Program Files
true

Process finished with exit code 0
```

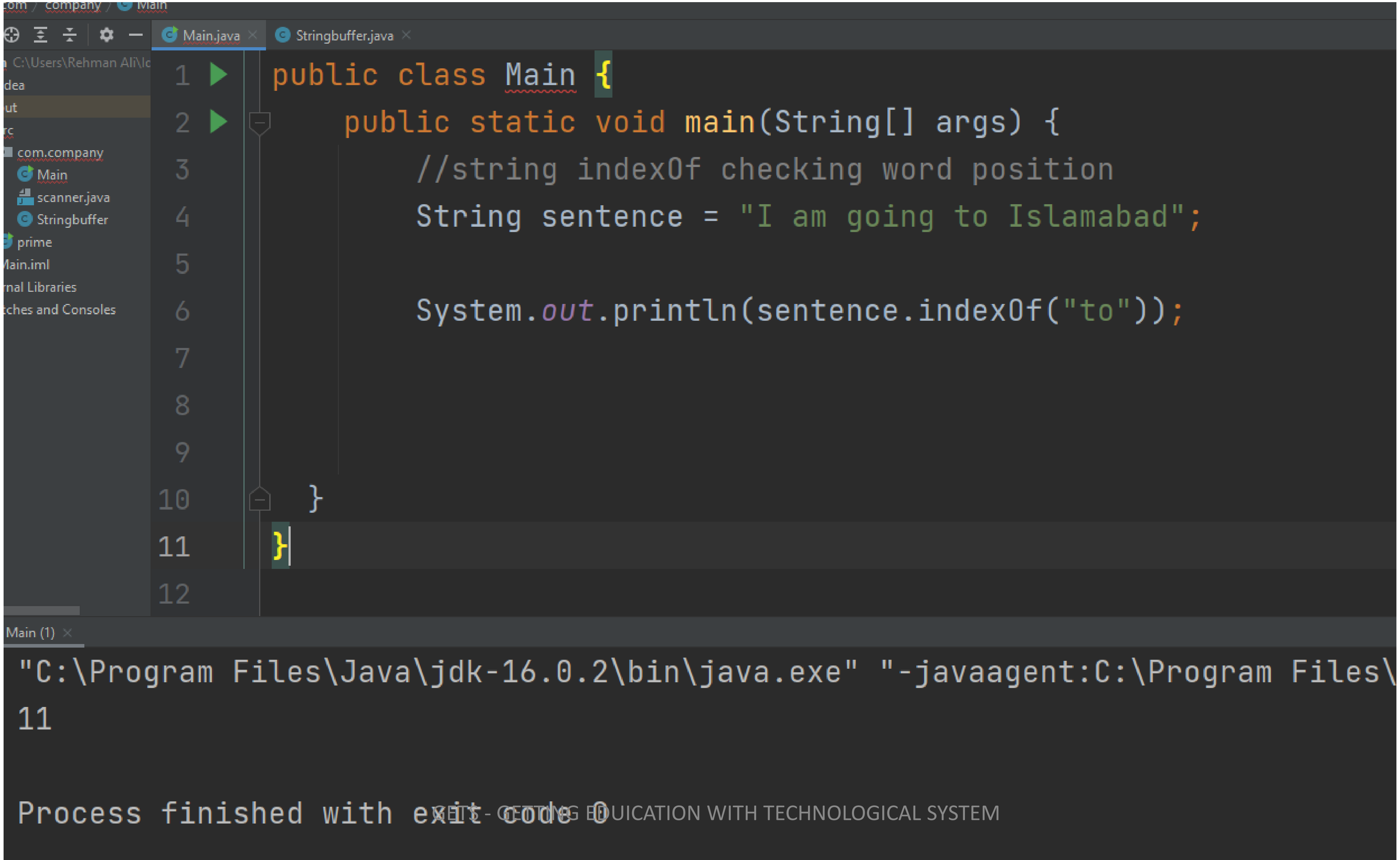
If want to split the words



```java
public class Main {
    public static void main(String[] args) {
        //string split words
        String sentence = "I am going to Islamabad";
        String[] wordsplit = sentence.split( regex: "\\s", limit: 3);

        for (String i: wordsplit) {
            System.out.println(i);
        }

    }
}
```

```
"C:\Program Files\Java\jdk-16.0.2\bin\java.exe" "-javaagent:C:\Program Files\J
I
am
going to Islamabad

Process finished with exit code 0
```

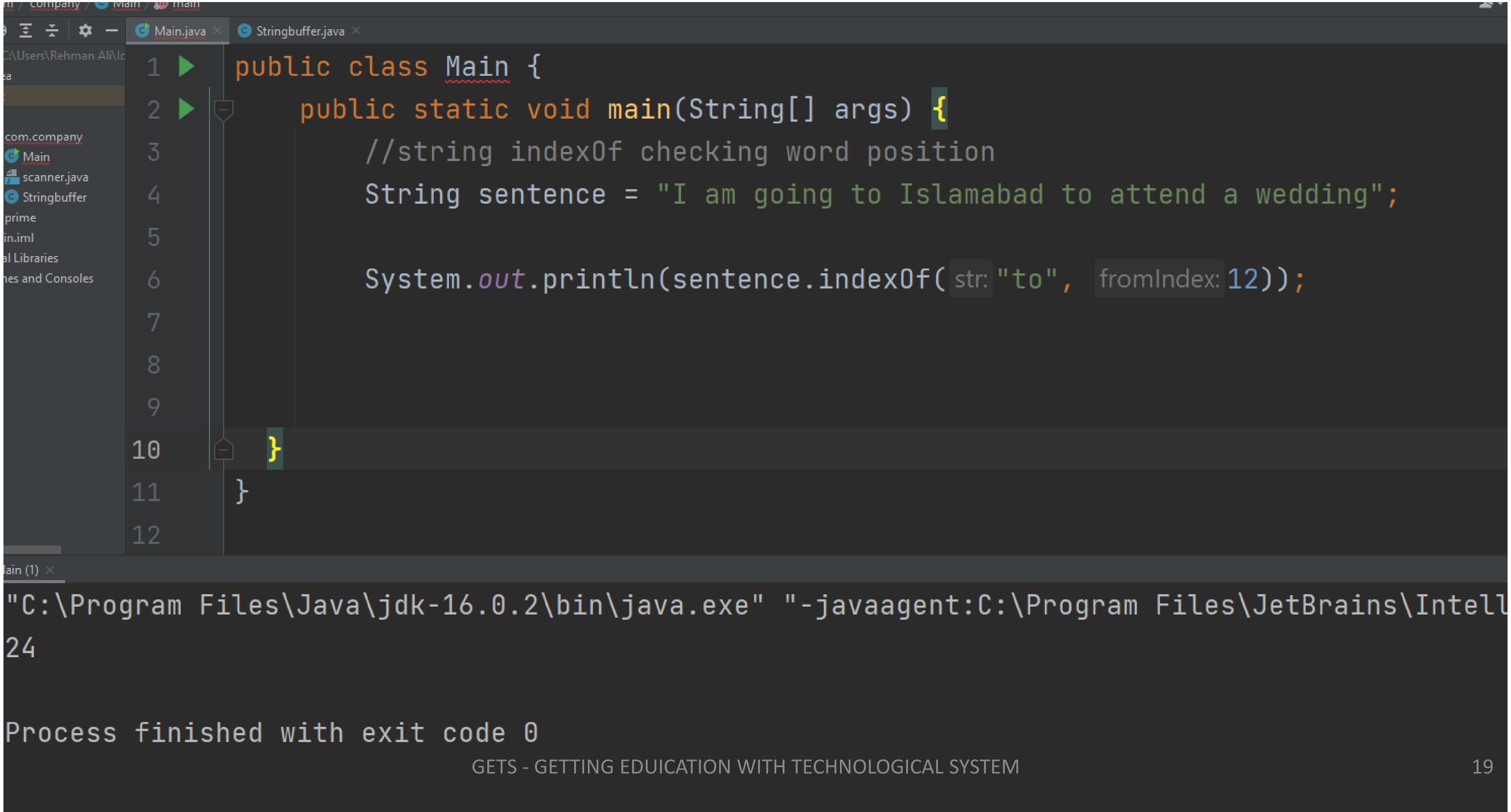
If want to check the position of word using indexOf() method



```java
public class Main {
    public static void main(String[] args) {
        //string indexOf checking word position
        String sentence = "I am going to Islamabad";

        System.out.println(sentence.indexOf("to"));



  }
}

```

```
"C:\Program Files\Java\jdk-16.0.2\bin\java.exe" "-javaagent:C:\Program Files\
11

Process finished with exit code 0
```

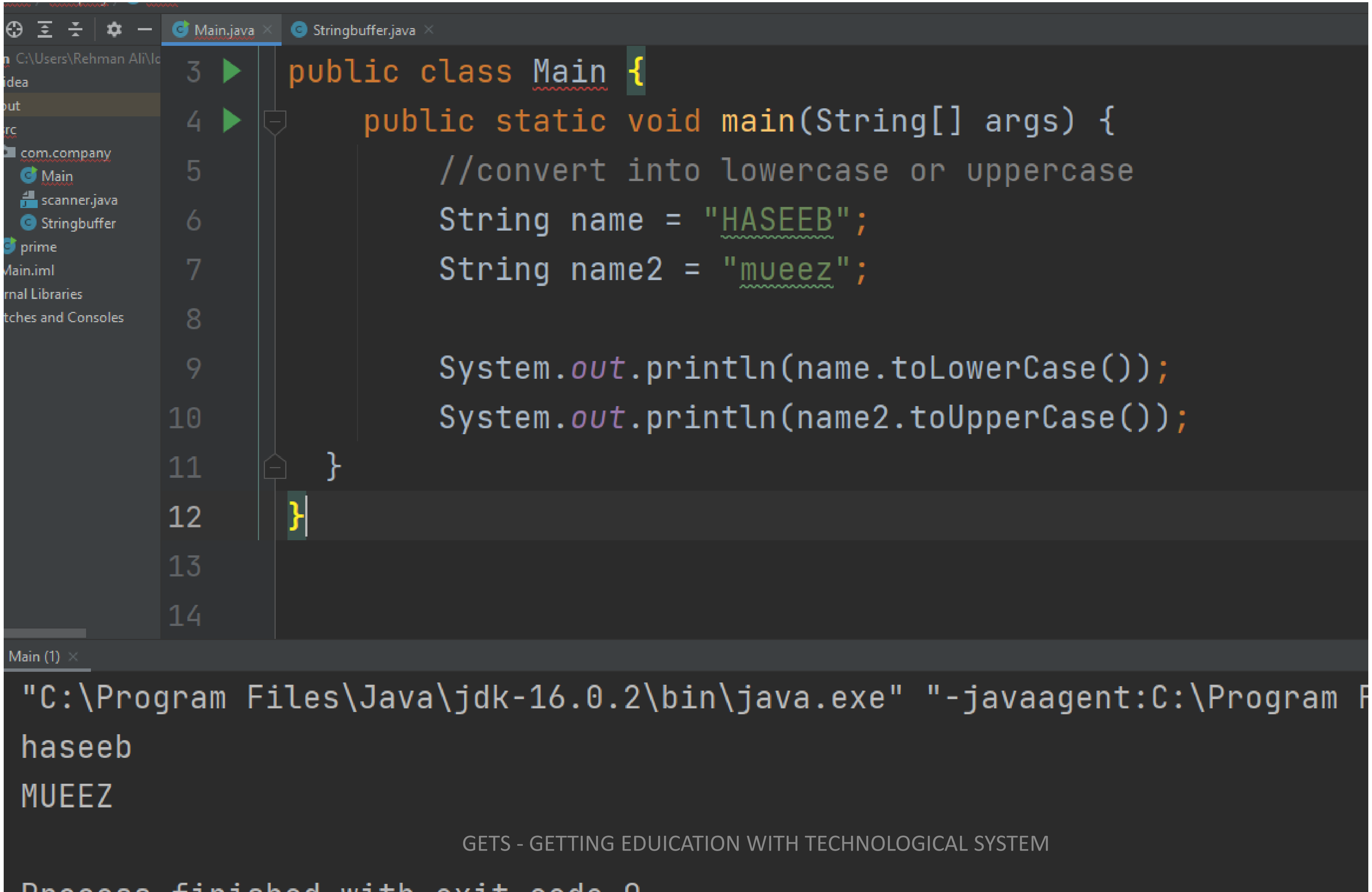
If same word appear multiple times



```java
public class Main {
    public static void main(String[] args) {
        //string indexOf checking word position
        String sentence = "I am going to Islamabad to attend a wedding";

        System.out.println(sentence.indexOf( str: "to",  fromIndex: 12));



    }
}
```

```
"C:\Program Files\Java\jdk-16.0.2\bin\java.exe" "-javaagent:C:\Program Files\JetBrains\Intell
24

Process finished with exit code 0
```

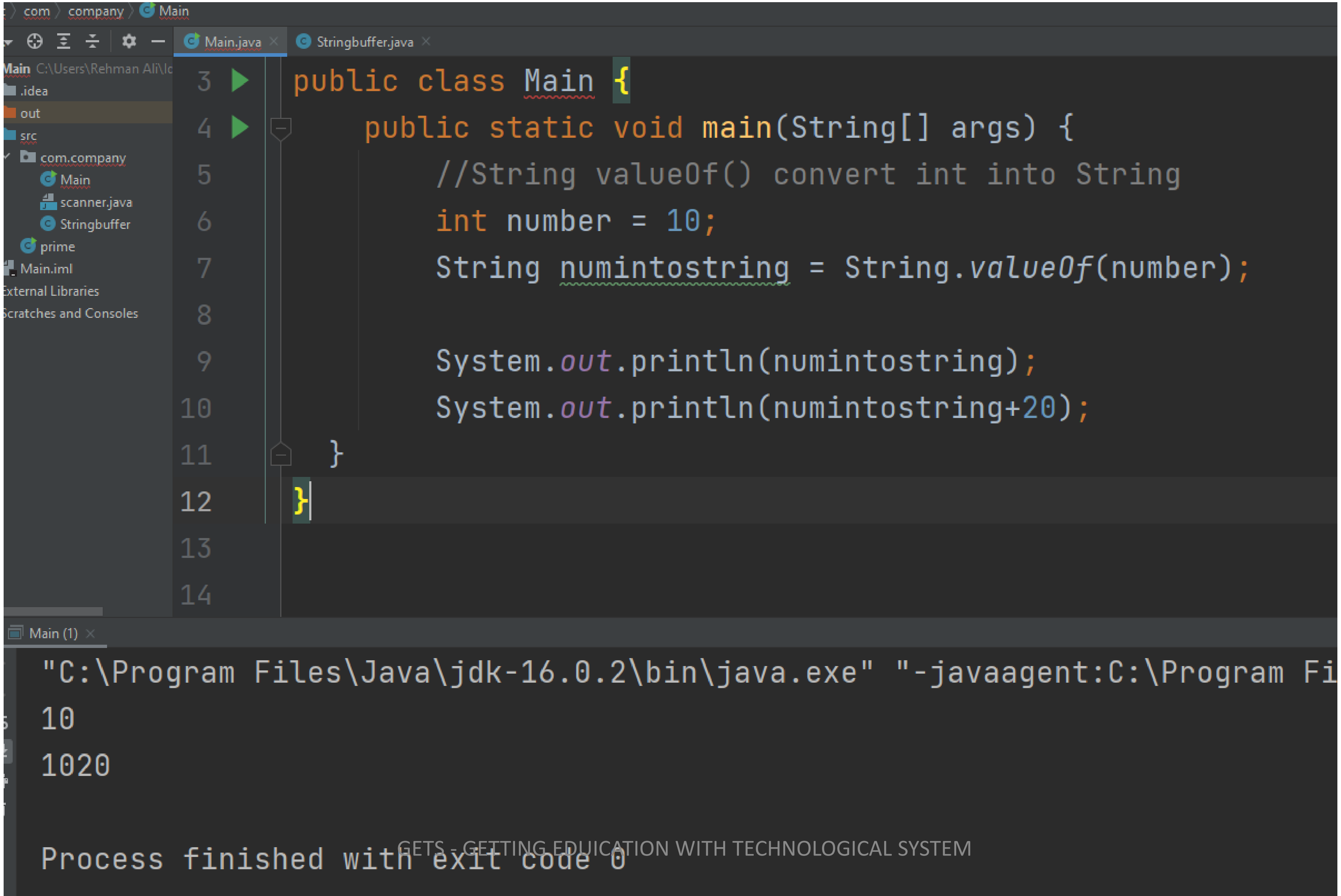
If want to change words into upper or lower case



```java
public class Main {
    public static void main(String[] args) {
        //convert into lowercase or uppercase
        String name = "HASEEB";
        String name2 = "mueez";

        System.out.println(name.toLowerCase());
        System.out.println(name2.toUpperCase());
    }
}
```

```
"C:\Program Files\Java\jdk-16.0.2\bin\java.exe" "-javaagent:C:\Program F
haseeb
MUEEZ

Process finished with exit code 0
```

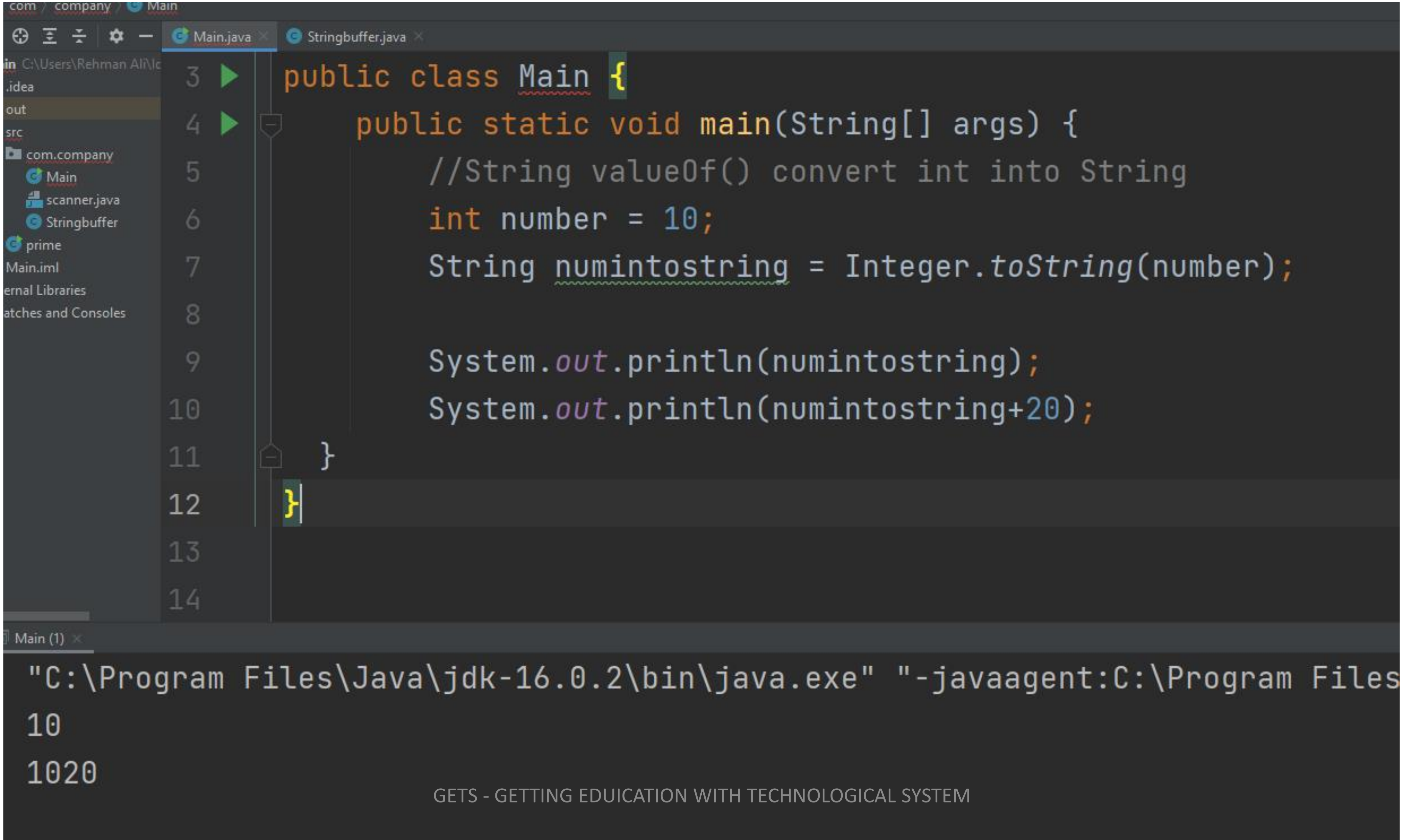
If want to convert int into String using valueOf() method



```java
public class Main {
    public static void main(String[] args) {
        //String valueOf() convert int into String
        int number = 10;
        String numintostring = String.valueOf(number);

        System.out.println(numintostring);
        System.out.println(numintostring+20);
    }
}
```

```
"C:\Program Files\Java\jdk-16.0.2\bin\java.exe" "-javaagent:C:\Program Fi
10
1020

Process finished with exit code 0
```

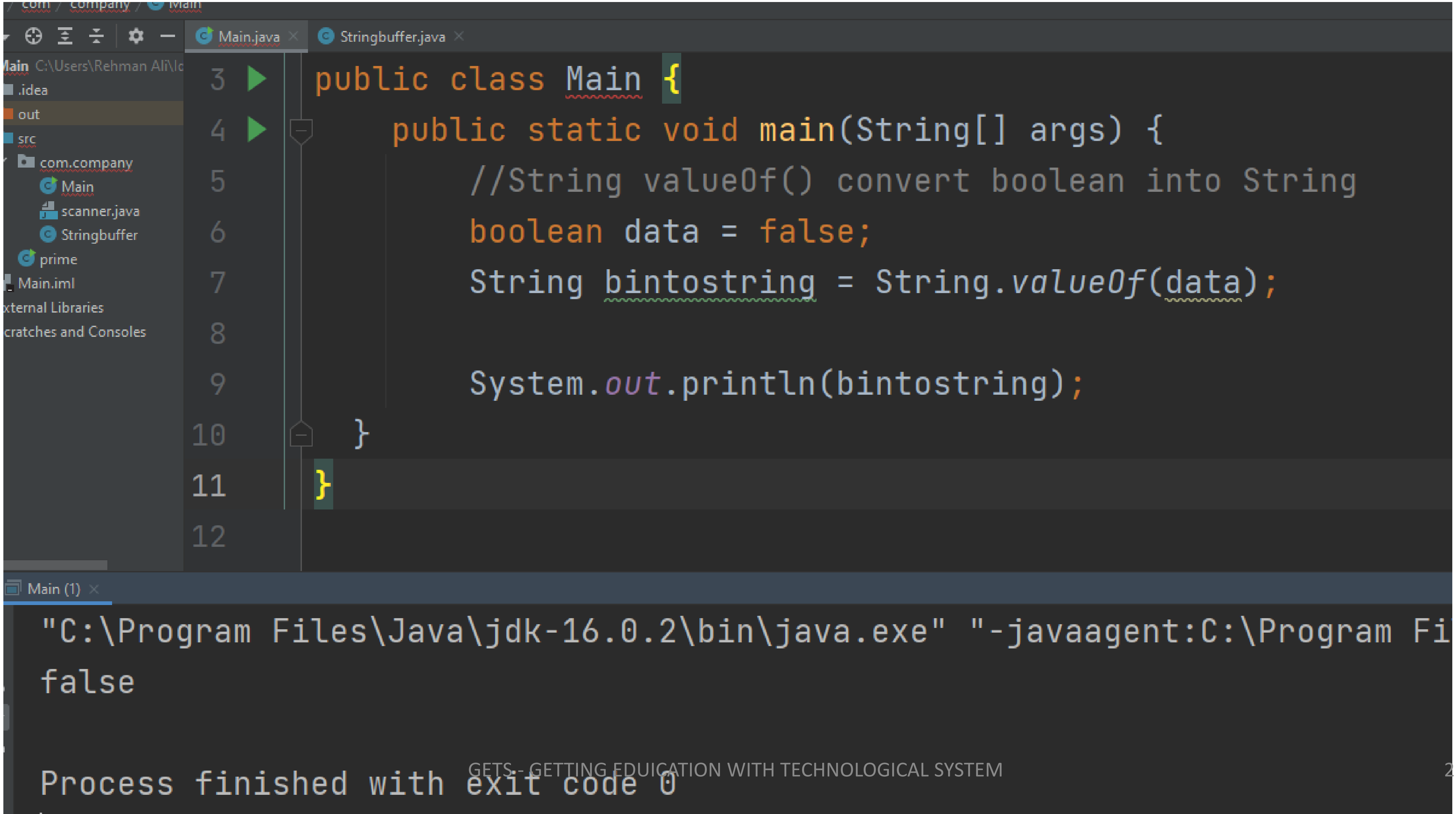
If want to convert int into String using toString() method



```java
public class Main {
    public static void main(String[] args) {
        //String valueOf() convert int into String
        int number = 10;
        String numintostring = Integer.toString(number);

        System.out.println(numintostring);
        System.out.println(numintostring+20);
    }
}
```

```
"C:\Program Files\Java\jdk-16.0.2\bin\java.exe" "-javaagent:C:\Program Files
10
1020
```

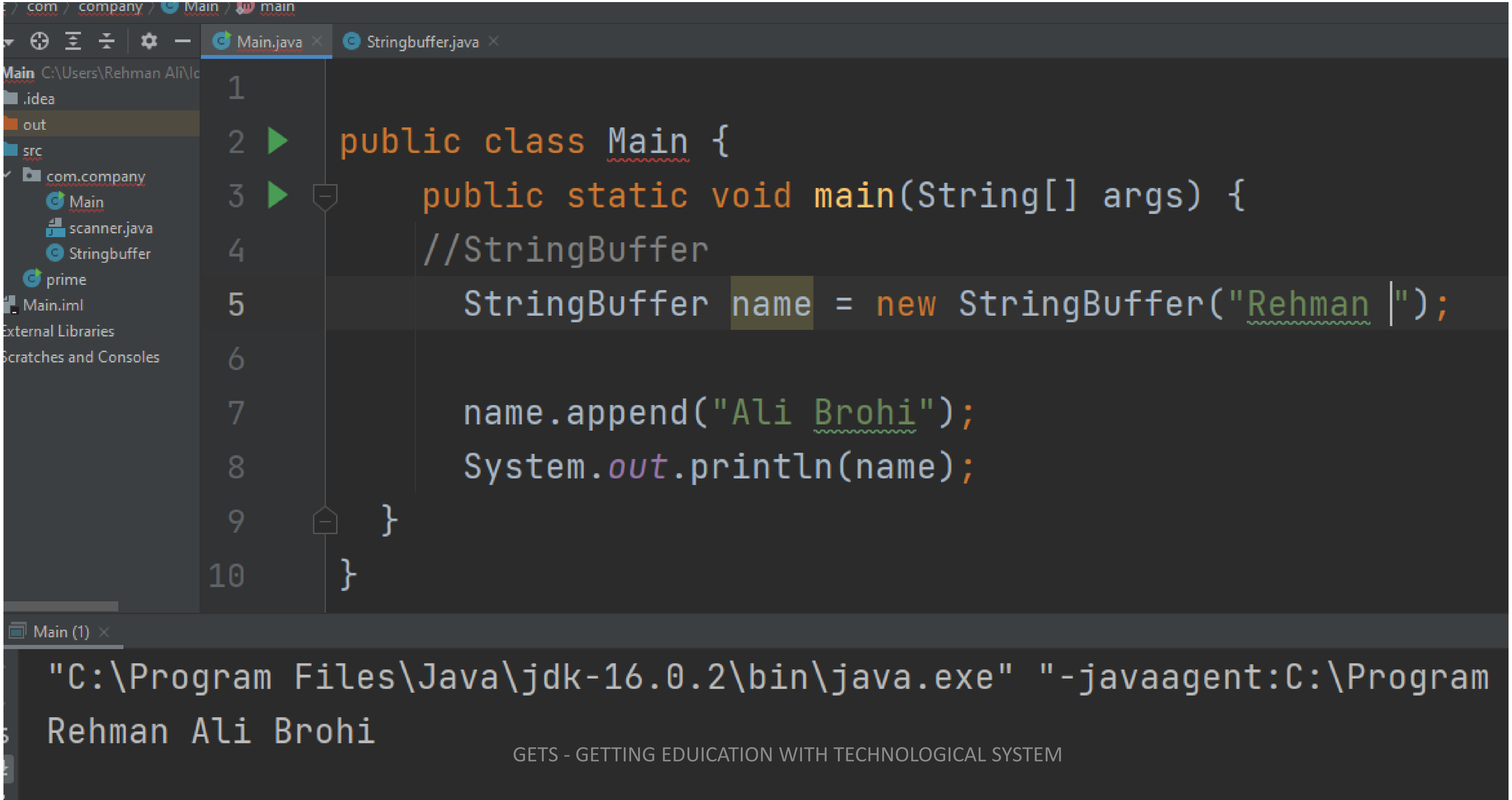
If want to convert Boolean into String using valueOf() method



```java
public class Main {
    public static void main(String[] args) {
        //String valueOf() convert boolean into String
        boolean data = false;
        String bintostring = String.valueOf(data);

        System.out.println(bintostring);
    }
}
```

```
"C:\Program Files\Java\jdk-16.0.2\bin\java.exe" "-javaagent:C:\Program Fi
false

Process finished with exit code 0
```

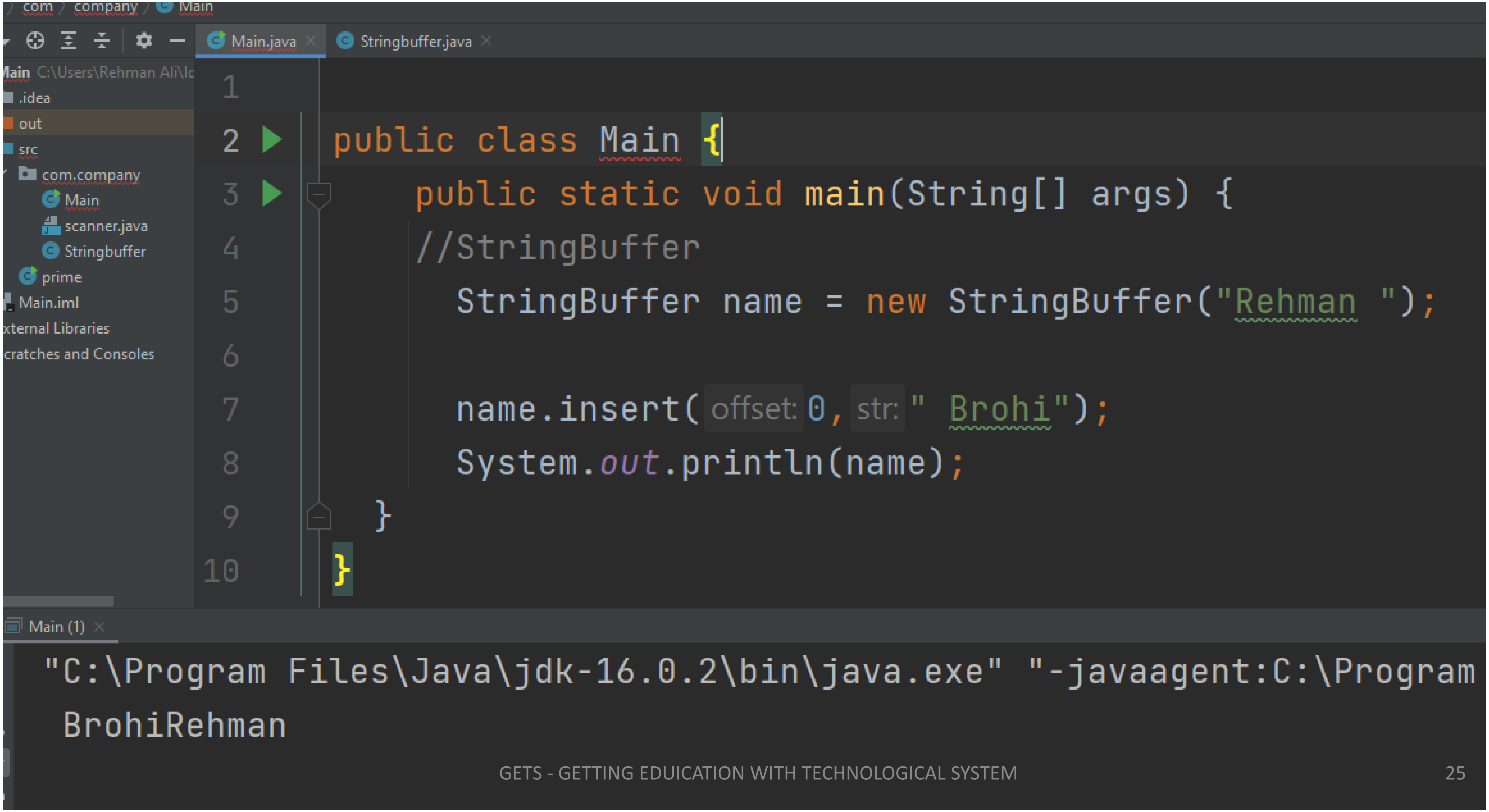
StringBuffer using append() method



```
public class Main {
    public static void main(String[] args) {
    //StringBuffer
      StringBuffer name = new StringBuffer("Rehman ");

      name.append("Ali Brohi");
      System.out.println(name);
  }
}
```

```
"C:\Program Files\Java\jdk-16.0.2\bin\java.exe" "-javaagent:C:\Program
Rehman Ali Brohi
```

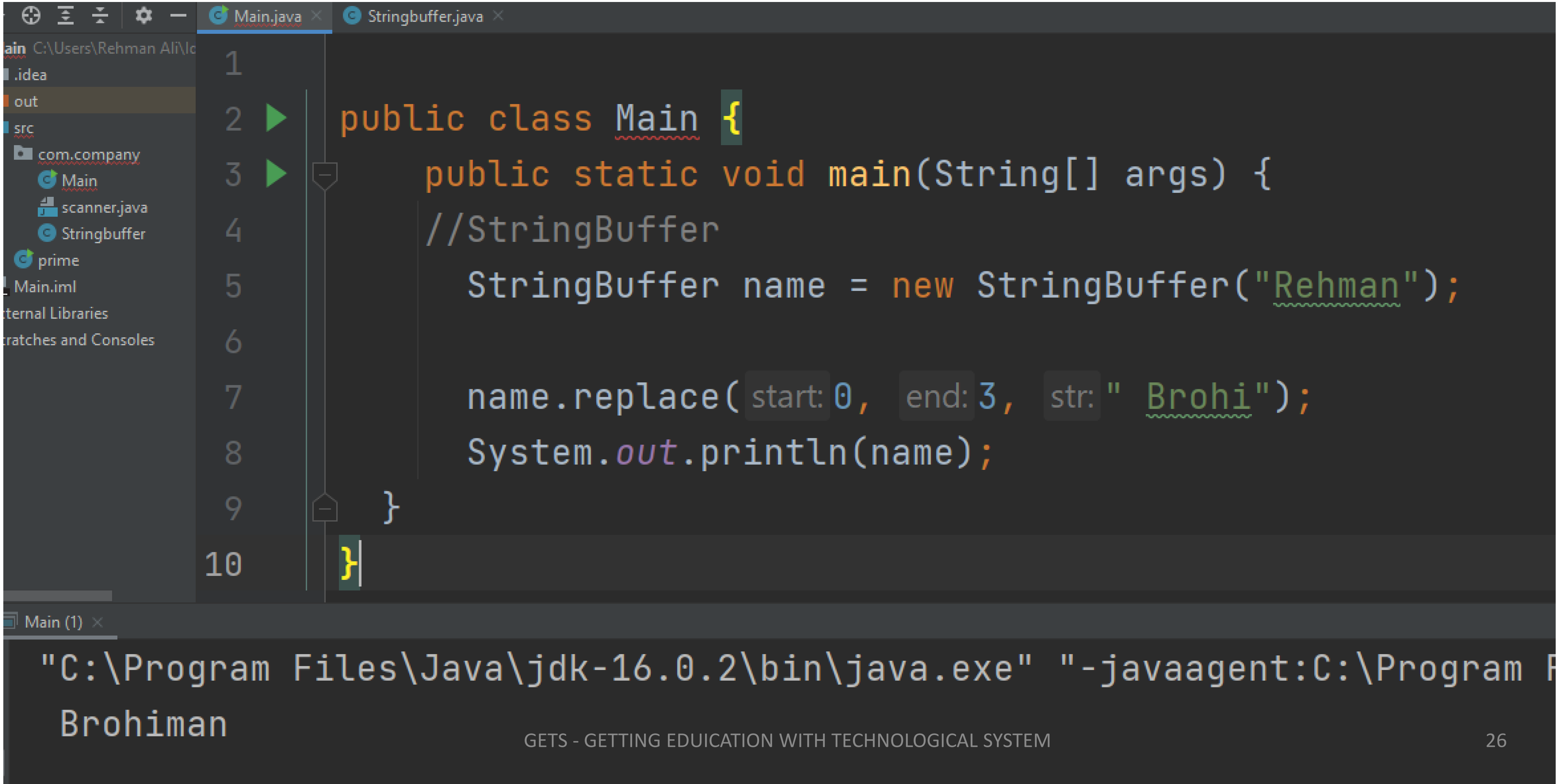
StringBuffer with insert() method



```
public class Main {
    public static void main(String[] args) {
    //StringBuffer
      StringBuffer name = new StringBuffer("Rehman ");

      name.insert( offset: 0, str: " Brohi");
      System.out.println(name);
  }
}
```

```
"C:\Program Files\Java\jdk-16.0.2\bin\java.exe" "-javaagent:C:\Program
 BrohiRehman
```

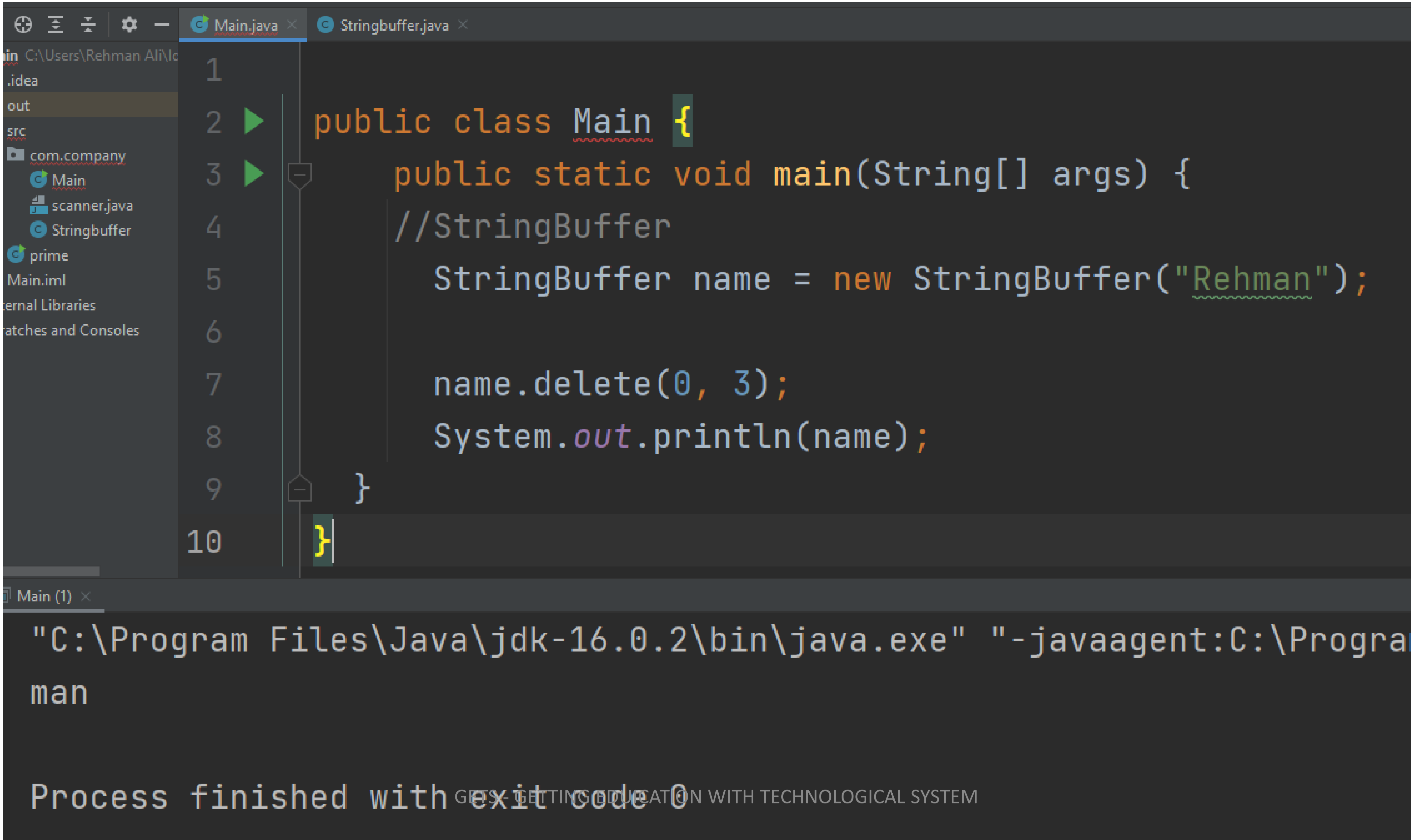
StringBuffer with replace() method



```java

public class Main {
    public static void main(String[] args) {
    //StringBuffer
      StringBuffer name = new StringBuffer("Rehman");

      name.replace( start: 0,  end: 3,  str: " Brohi");
      System.out.println(name);
  }
}
```

```
"C:\Program Files\Java\jdk-16.0.2\bin\java.exe" "-javaagent:C:\Program F
 Brohiman
```

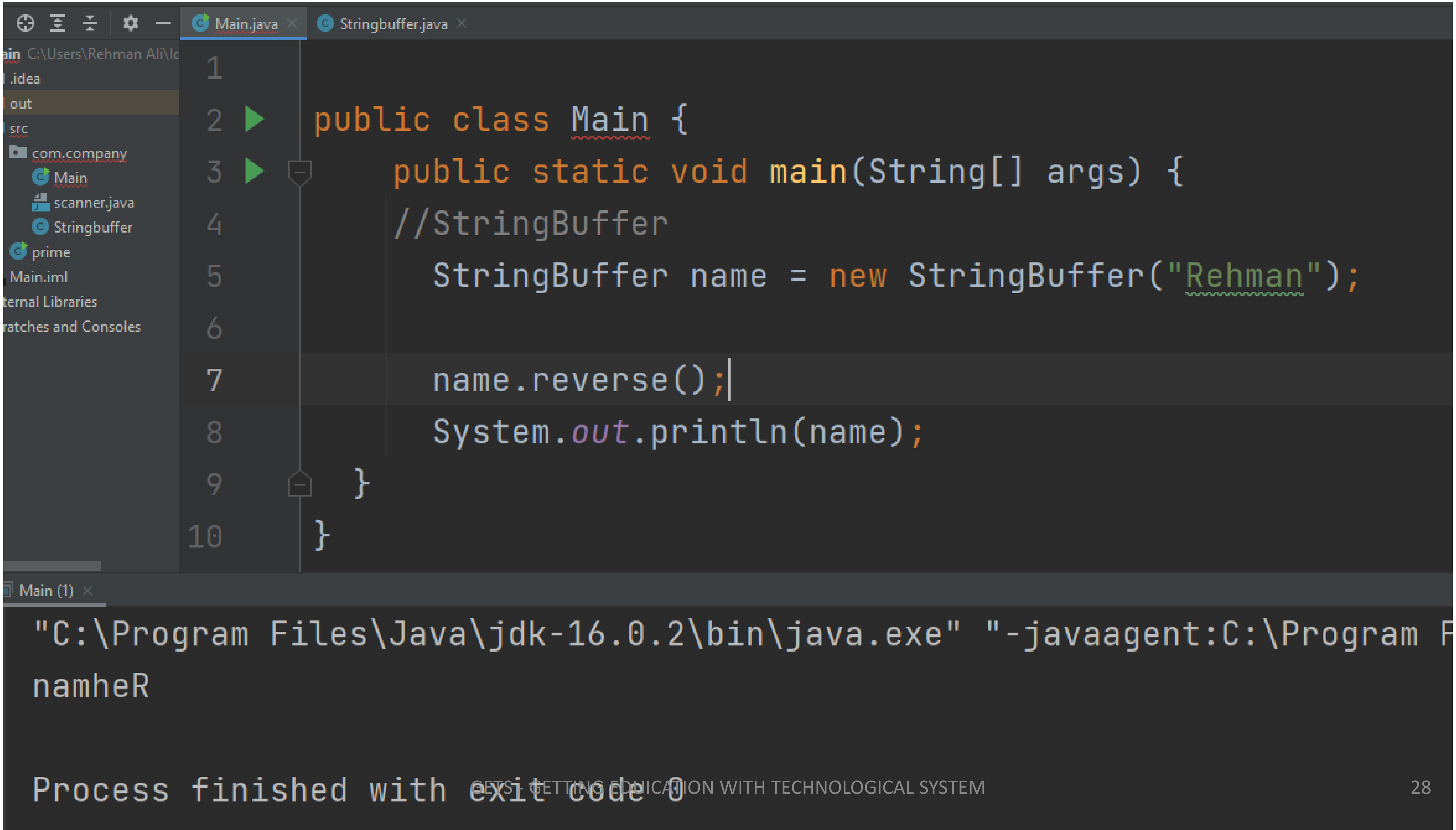
StringBuffer with delete() method



```java

public class Main {
    public static void main(String[] args) {
    //StringBuffer
      StringBuffer name = new StringBuffer("Rehman");

      name.delete(0, 3);
      System.out.println(name);
  }
}
```

```
"C:\Program Files\Java\jdk-16.0.2\bin\java.exe" "-javaagent:C:\Progra
man

Process finished with exit code 0
```

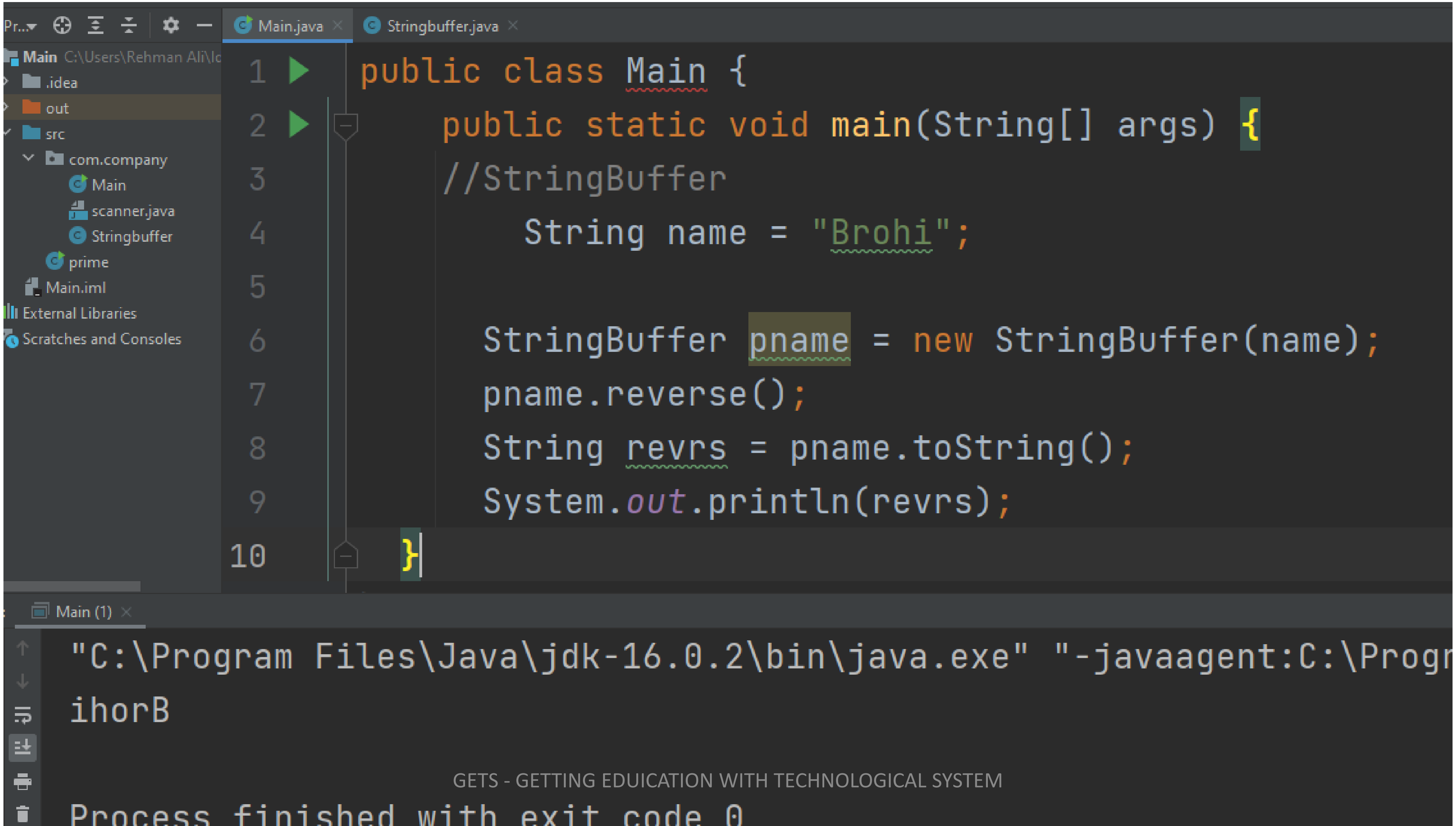
StringBuffer with reverse() mehod



```java

public class Main {
    public static void main(String[] args) {
    //StringBuffer
      StringBuffer name = new StringBuffer("Rehman");

      name.reverse();
      System.out.println(name);
  }
}
```

```
"C:\Program Files\Java\jdk-16.0.2\bin\java.exe" "-javaagent:C:\Program F
namheR

Process finished with exit code 0
```

StringBuffer with reverse() mehod in string singular



```java
public class Main {
    public static void main(String[] args) {
    //StringBuffer
        String name = "Brohi";

      StringBuffer pname = new StringBuffer(name);
      pname.reverse();
      String revrs = pname.toString();
      System.out.println(revrs);
  }
```

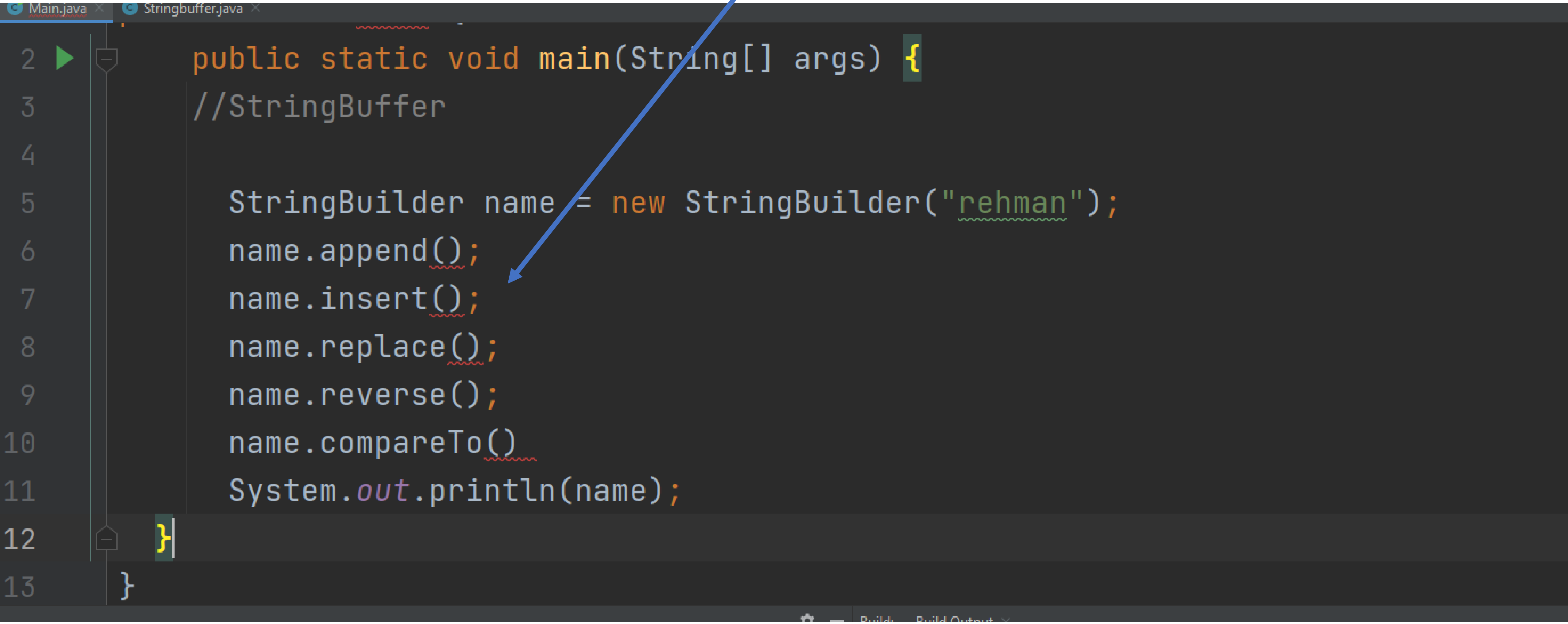
```
"C:\Program Files\Java\jdk-16.0.2\bin\java.exe" "-javaagent:C:\Progr
ihorB

Process finished with exit code 0
```

What is Different Between **StringBuffer** VS **StringBuilder**

StringBuffer is less efficient than StringBuilder

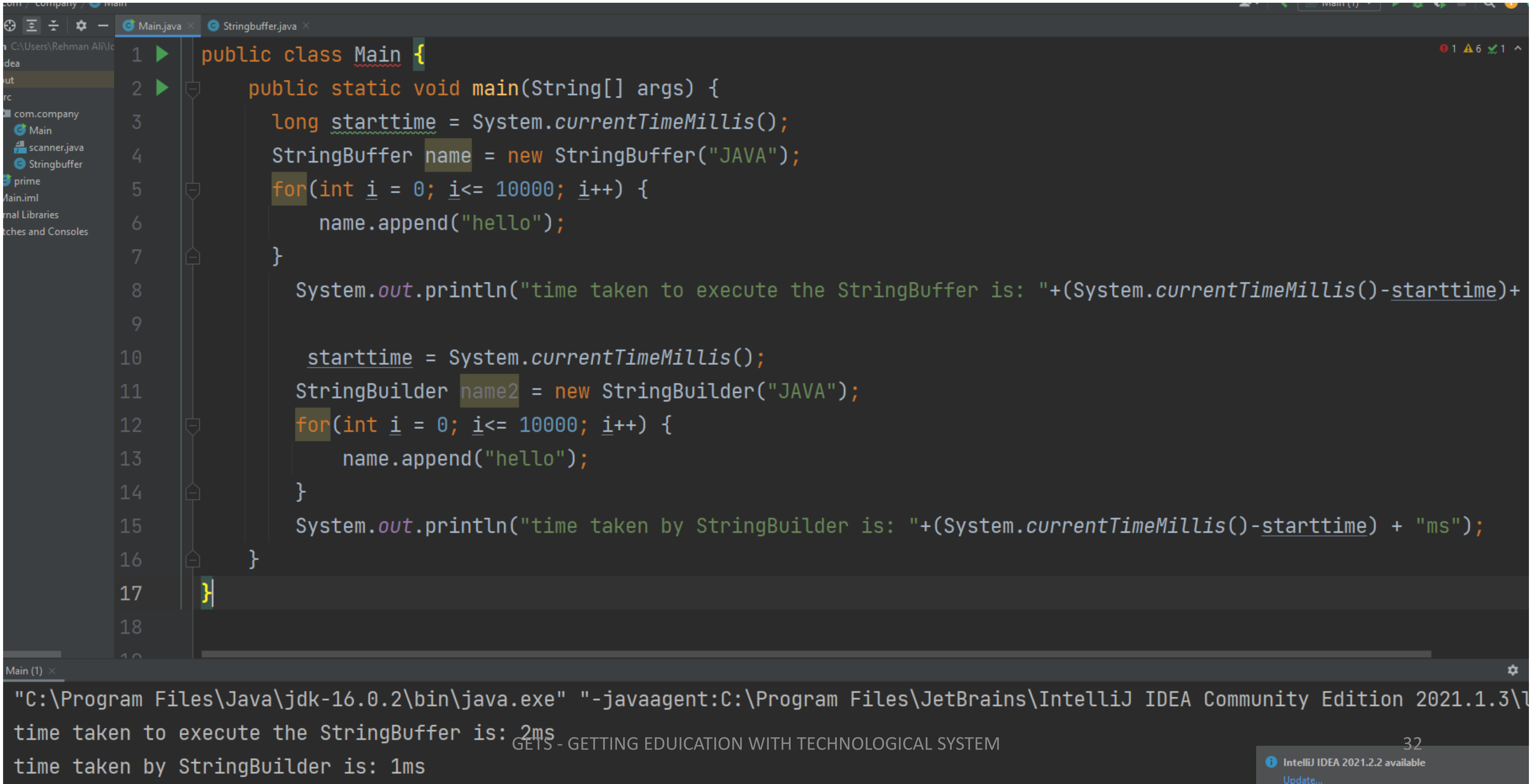
StringBuilder is more efficient than StringBuffer.

You can use all method in **StringBuilder**



```java
    public static void main(String[] args) {
    //StringBuffer

      StringBuilder name = new StringBuilder("rehman");
      name.append();
      name.insert();
      name.replace();
      name.reverse();
      name.compareTo()
      System.out.println(name);
  }
}
```

In this program we will use differentiate time



```java
public class Main {
  public static void main(String[] args) {
   long starttime = System.currentTimeMillis();
   StringBuffer name = new StringBuffer("JAVA");
   for(int i = 0; i<= 10000; i++) {
     name.append("hello");
   }
    System.out.println("time taken to execute the StringBuffer is: "+(System.currentTimeMillis()-starttime)+

     starttime = System.currentTimeMillis();
    StringBuilder name2 = new StringBuilder("JAVA");
    for(int i = 0; i<= 10000; i++) {
      name.append("hello");
    }
    System.out.println("time taken by StringBuilder is: "+(System.currentTimeMillis()-starttime) + "ms");
  }
}
```

```
"C:\Program Files\Java\jdk-16.0.2\bin\java.exe" "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA Community Edition 2021.1.3\l
time taken to execute the StringBuffer is: 2ms
time taken by StringBuilder is: 1ms
```