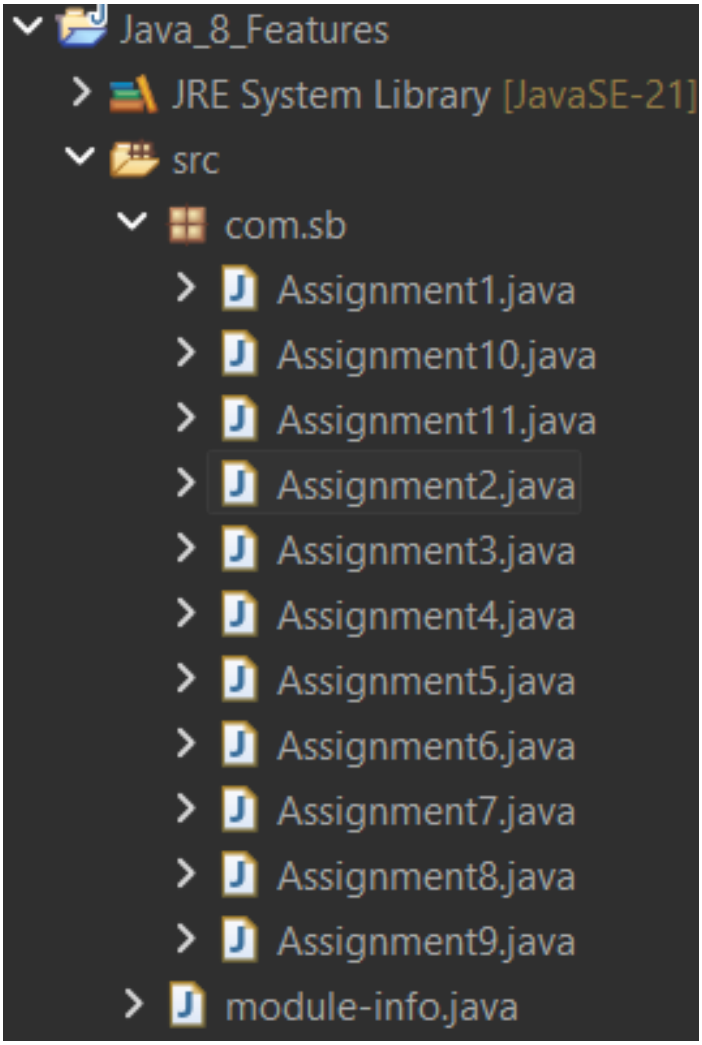
Java 8 Features:

Project Structure:



Codes & Their Outputs:

Assignment1.java

```java
package com.sb;
import java.util.*;

public class Assignment1 {

    public static void main(String[] args) {
            List<String> names = Arrays.asList("Virat", "ABD", "Smith", "
            names.sort((a, b) -> a.compareTo(b));
            System.out.println("Sorted Names: " + names);
        }
}

```

Console

```
<terminated> Assignment1 [Java Application] C:\spring-tools-for-eclipse-4\sts-4.31.0.RELEASE\plugins\org.eclipse.justj.openjdk.hotspot
Sorted Names: [ABD, Devid, KLRahul, Smith, Virat]
```

Assignment2.java

```java
package com.sb;

interface addnumber{

    int add1(int a,int b);
}

public class Assignment2 {

    public static void main(String[] args) {

    addnumber a1=(a,b)->a+b;
    System.out.println(a1.add1(4, 9));

    }

}
```

Console

```
<terminated> Assignment2 [Java Application] C:\spring-tools-for-eclipse-4\sts-4.31.0.RELEASE\plugins\org.eclipse.justj.openjdk.hotspot
13
```

Assignment3.java

```java
package com.sb;

interface MessagePrinter{
    void print(String message);
}

public class Assignment3 {
    public static void printMessage(MessagePrinter printer) {
        printer.print("Hello, Java!");
    }

    public static void main(String[] args) {
        printMessage(msg -> System.out.println(msg));
    }
}
```

Console

```
<terminated> Assignment3 [Java Application] C:\spring-tools-for-eclipse-4\sts-4.31.0.RELEASE\plugins\org.eclipse.justj.openjdk.hotspot
Hello, Java!
```

Assignment4.java

```java
package com.sb;


interface Power {
    void turnOn();
    default void showStatus() {
        System.out.println("Power is ON");
    }
}

public class Assignment4 implements Power {
    public void turnOn() {
        System.out.println("Turning on...");
    }

    public static void main(String[] args) {
        Power p = new Assignment4();
        p.turnOn();
        p.showStatus();
    }
}
```

Console

```
<terminated> Assignment4 [Java Application] C:\spring-tools-for-eclipse-4\sts-4.31.0.RELEASE\plugins\org.eclipse.justj.openjdk.hotspot
Turning on...
Power is ON
```

Assignment5.java

```java
package com.sb;
import java.util.Arrays;
import java.util.List;
import java.util.stream.Collectors;

public class Assignment5 {
    public static void main(String[] args) {
        List<String> names = Arrays.asList("Abd", "Loki", "Jwssie", "Aandrew");
        List<String> result = names.stream()
                                   .filter(name -> name.startsWith("A"))
                                   .collect(Collectors.toList());
        System.out.println(result);
    }
}
```

Console

```
<terminated> Assignment5 [Java Application] C:\spring-tools-for-eclipse-4\sts-4.31.0.RELEASE\plugins\org.eclipse.justj.openjd
[Abd, Aandrew]
```

Assignment6.java

```java
package com.sb;

import java.util.Arrays;
import java.util.List;

public class Assignment6 {
    public static void main(String[] args) {
        List<String> names = Arrays.asList("Sunny", "Sanket", "Sam", "Aryan");
        long count = names.stream()
                          .filter(name -> name.length() > 5)
                          .count();
        System.out.println("Names longer than 5 chars: " + count);
    }
}

```

Console

```
<terminated> Assignment6 [Java Application] C:\spring-tools-for-eclipse-4\sts-4.31.0.RELEASE\plugins\org.eclipse.justj.openjd
Names longer than 5 chars: 1
```

Assignment7.java

```java
package com.sb;

import java.util.Arrays;
import java.util.List;
import java.util.stream.Collectors;

public class Assignment7 {
    public static void main(String[] args) {
        List<Integer> numbers = Arrays.asList(1, 2, 3, 4, 5, 6);
        List<Integer> evens = numbers.stream()
                                     .filter(n -> n % 2 == 0)
                                     .collect(Collectors.toList());
        System.out.println(evens);
    }
}

```

Console

```
<terminated> Assignment7 [Java Application] C:\spring-tools-for-eclipse-4\sts-4.31.0.RELEASE\plugins\org.eclipse.justj.openjd
[2, 4, 6]
```

Assignment8.java

```java
package com.sb;

import java.util.Arrays;
import java.util.List;
import java.util.stream.Collectors;

public class Assignment8 {
    public static void main(String[] args) {
        List<String> cities = Arrays.asList("Pune", "HYD", "Bombay");
        String result = cities.stream()
                              .collect(Collectors.joining(", "));
        System.out.println("Cities: " + result);
    }
}

```

Console

```
<terminated> Assignment8 [Java Application] C:\spring-tools-for-eclipse-4\sts-4.31.0.RELEASE\plugins\org.eclipse.justj.openjd
Cities: Pune, HYD, Bombay
```

Assignment9.java

```java
package com.sb;

import java.util.Arrays;
import java.util.List;

public class Assignment9 {
    public static void main(String[] args) {
        List<Integer> nums = Arrays.asList(9, 8, 7, 6, 5);
        nums.parallelStream().forEach(n -> System.out.println("Square: " + (n * n)));
    }
}
```

Console

```
<terminated> Assignment9 [Java Application] C:\spring-tools-for-eclipse-4\sts-4.31.0.RELEASE\plugins\org.eclipse.justj
Square: 49
Square: 64
Square: 81
Square: 36
Square: 25
```

Assignment10.java

```java
package com.sb;

import java.util.Arrays;
import java.util.List;
import java.util.Map;
import static java.util.stream.Collectors.*;

public class Assignment10 {
    public static void main(String[] args) {
        List<String> names = Arrays.asList("John", "Lily", "Alex", "Harry", "Devid");
        Map<String, Long> frequency = names.stream()
                                           .collect(groupingBy(name -> name, counting()));
        System.out.println(frequency);
    }
}
```

Console

```
<terminated> Assignment10 [Java Application] C:\spring-tools-for-eclipse-4\sts-4.31.0.RELEASE\plugins\
{Alex=1, Harry=1, John=1, Devid=1, Lily=1}
```

Assignment11.java

```java
package com.sb;

import java.util.Arrays;
import java.util.List;

public class Assignment11 {
    public static void main(String[] args) {
        List<String> names = Arrays.asList("Sanket", "Sai", "Raj", "Aryan", "Vaish");
        names.sort((a, b) -> a.compareTo(b));
        System.out.println("Sorted Names: " + names);
    }
}
```

Console

```
<terminated> Assignment11 [Java Application] C:\spring-tools-for-eclipse-4\sts-4.31.0.RELEASE\plugins\
Sorted Names: [Aryan, Raj, Sai, Sanket, Vaish]
```