# Debugging Notes

## 1.

### Bug description:

The system cannot list all the coupon data after user input a new coupon information manually.

### Error information:

```
java.lang.ArrayIndexOutOfBoundsException: 6

	at Purchase.addCoupon(Purchase.java:99)

	at Purchase.readCouponFile(Purchase.java:86)

	at Purchase.main(Purchase.java:73)
```

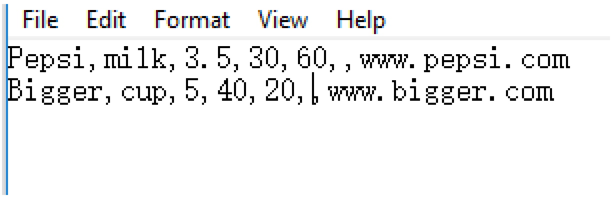
### Test code:

Write a test code to examine the input result.

```
void addCoupon(String lineToParse){
   String[] tokens = lineToParse.split(",");
   for(int i=0;i< tokens.length;i++)
      System.out.println(i+" "+tokens[i]);

   Coupon nextCoupon = new
Coupon(tokens[0],tokens[1],tokens[2],tokens[3],tokens[4],tokens[5],tokens[6]);
   couponlist.add(nextCoupon);
}
```

### Reason:

By the test code I found there are no status data in the input result.



```
Pepsi,milk,3.5,30,60,,www.pepsi.com
Bigger,cup,5,40,20,,www.bigger.com
```

### Solution:

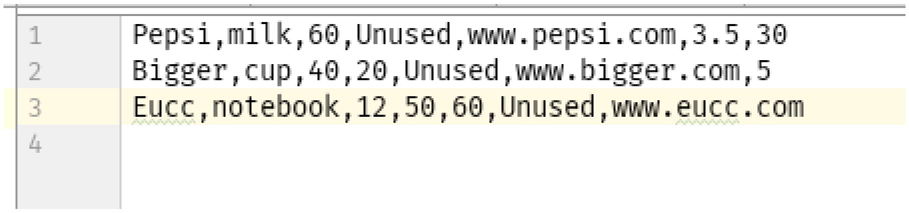
Add the status output to toString() method in the Coupon class.

```
public String toString(){

return(coupon_provider+","+product_name+","+product_price+","+discount+","+expiration+","+status+","+coupon_site);
}
```

## 2.

### Bug description:

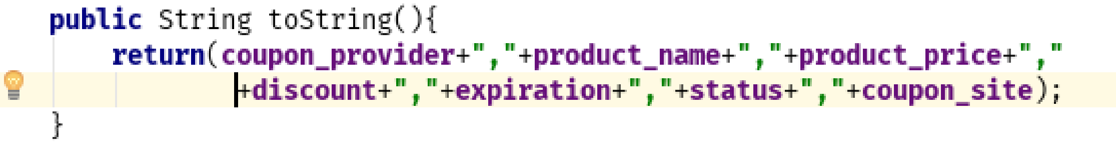
Read coupon information form data and rewrite it cause some data order changed.



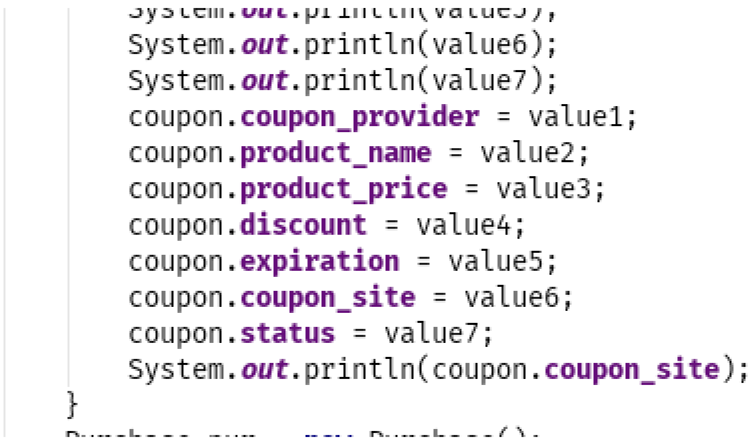
```
Pepsi,milk,60,Unused,www.pepsi.com,3.5,30
Bigger,cup,40,20,Unused,www.bigger.com,5
Eucc,notebook,12,50,60,Unused,www.eucc.com

```

### Reason:

The information sequence in toString() method is different from the input panel.



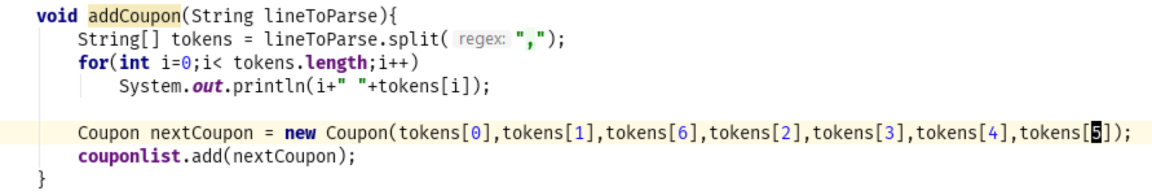
```
public String toString(){
    return(coupon_provider+","+product_name+","+product_price+","
            +discount+","+expiration+","+status+","+coupon_site);
}
```



```
        System.out.println(value5);
        System.out.println(value6);
        System.out.println(value7);
        coupon.coupon_provider = value1;
        coupon.product_name = value2;
        coupon.product_price = value3;
        coupon.discount = value4;
        coupon.expiration = value5;
        coupon.coupon_site = value6;
        coupon.status = value7;
        System.out.println(coupon.coupon_site);
    }
    Purchase pur = new Purchase();
```

### Solution:

Change the write sequence in the addCoupon() method.

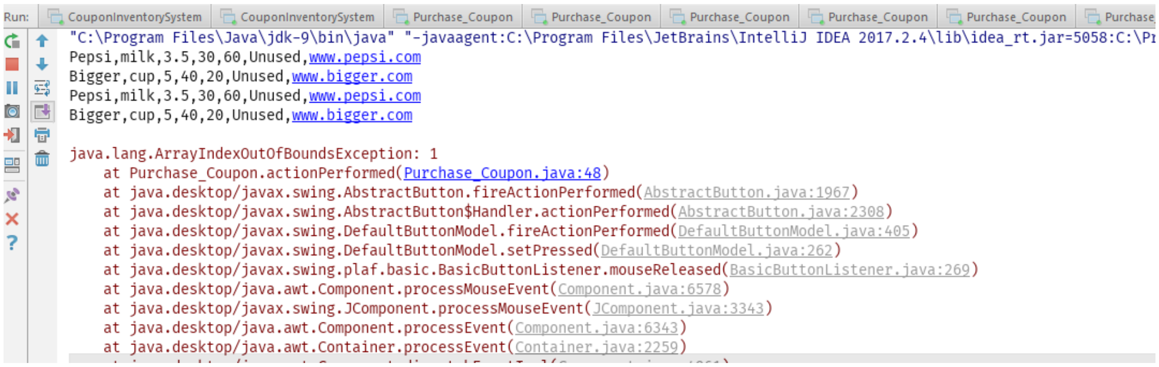


```
void addCoupon(String lineToParse){
    String[] tokens = lineToParse.split( regex: ",");
    for(int i=0;i< tokens.length;i++)
        System.out.println(i+" "+tokens[i]);

    Coupon nextCoupon = new Coupon(tokens[0],tokens[1],tokens[6],tokens[2],tokens[3],tokens[4],tokens[5]);
    couponlist.add(nextCoupon);
}
```

# 3.

## Bug description:

When input data using a data file, sometimes it occur an ArrayIndexOutOFBoundException error.



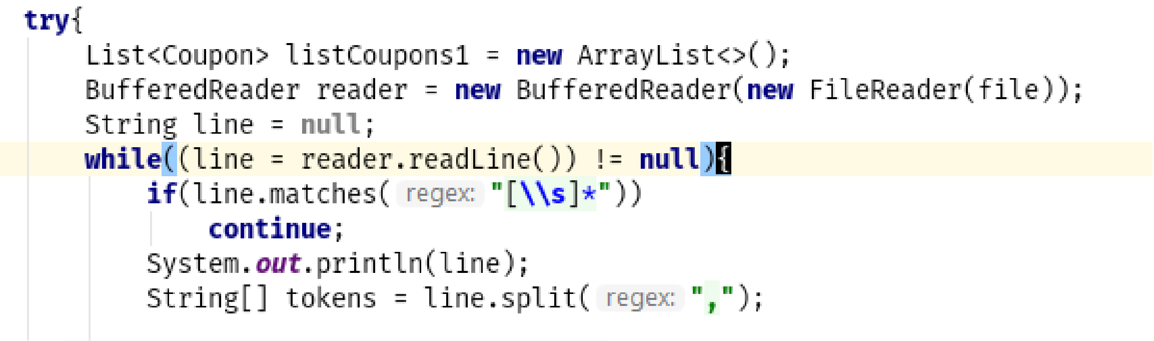
```
"C:\Program Files\Java\jdk-9\bin\java" "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA 2017.2.4\lib\idea_rt.jar=5058:C:\Pr
Pepsi,milk,3.5,30,60,Unused,www.pepsi.com
Bigger,cup,5,40,20,Unused,www.bigger.com
Pepsi,milk,3.5,30,60,Unused,www.pepsi.com
Bigger,cup,5,40,20,Unused,www.bigger.com

java.lang.ArrayIndexOutOfBoundsException: 1
    at Purchase_Coupon.actionPerformed(Purchase_Coupon.java:48)
    at java.desktop/javax.swing.AbstractButton.fireActionPerformed(AbstractButton.java:1967)
    at java.desktop/javax.swing.AbstractButton$Handler.actionPerformed(AbstractButton.java:2308)
    at java.desktop/javax.swing.DefaultButtonModel.fireActionPerformed(DefaultButtonModel.java:405)
    at java.desktop/javax.swing.DefaultButtonModel.setPressed(DefaultButtonModel.java:262)
    at java.desktop/javax.swing.plaf.basic.BasicButtonListener.mouseReleased(BasicButtonListener.java:269)
    at java.desktop/java.awt.Component.processMouseEvent(Component.java:6578)
    at java.desktop/javax.swing.JComponent.processMouseEvent(JComponent.java:3343)
    at java.desktop/java.awt.Component.processEvent(Component.java:6343)
    at java.desktop/java.awt.Container.processEvent(Container.java:2259)
```

## Reason:

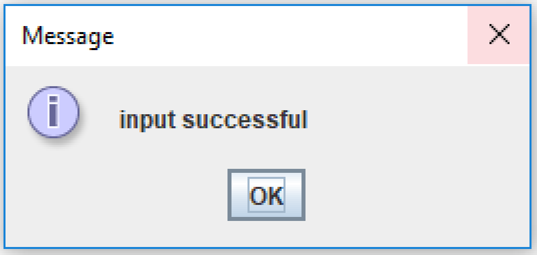
The input file have more than one blank lines in the end.

## Solution:

Add a examine function to ignore the blank line.



```
try{
    List<Coupon> listCoupons1 = new ArrayList<>();
    BufferedReader reader = new BufferedReader(new FileReader(file));
    String line = null;
    while((line = reader.readLine()) != null){
        if(line.matches( regex: "[\\s]*"))
            continue;
        System.out.println(line);
        String[] tokens = line.split( regex: ",");
```

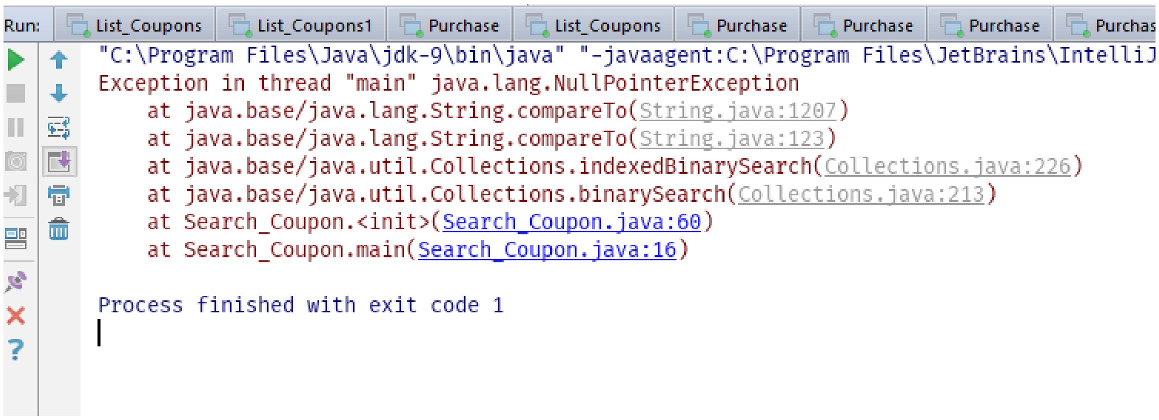


input successful

## 4.

### Bug description:

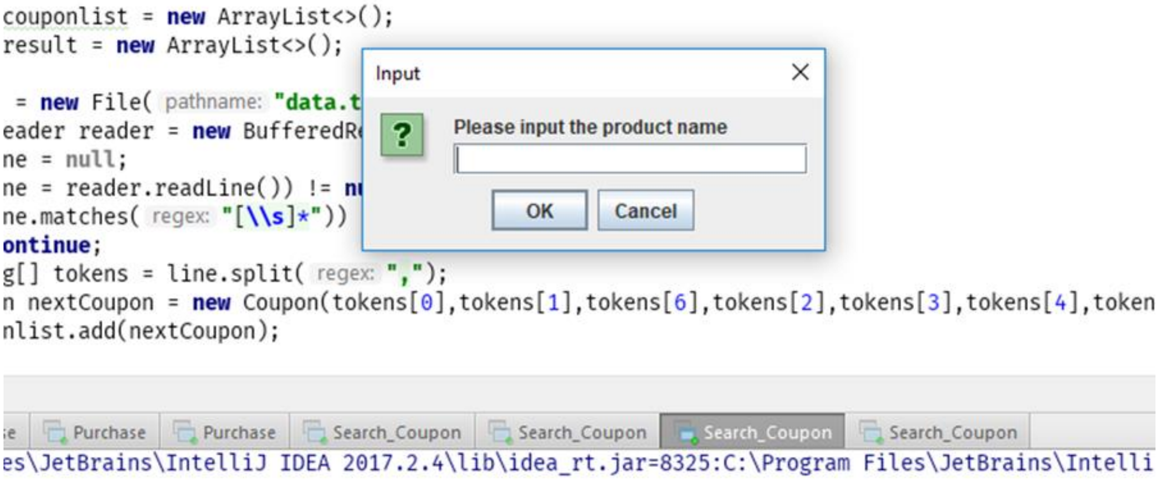
Error when cancel the search function.



```
"C:\Program Files\Java\jdk-9\bin\java" "-javaagent:C:\Program Files\JetBrains\IntelliJ
Exception in thread "main" java.lang.NullPointerException
    at java.base/java.lang.String.compareTo(String.java:1207)
    at java.base/java.lang.String.compareTo(String.java:123)
    at java.base/java.util.Collections.indexedBinarySearch(Collections.java:226)
    at java.base/java.util.Collections.binarySearch(Collections.java:213)
    at Search_Coupon.<init>(Search_Coupon.java:60)
    at Search_Coupon.main(Search_Coupon.java:16)

Process finished with exit code 1
```

### Reason:

The system didn't check the retrun value when the user click “ok” or “cancel” button.

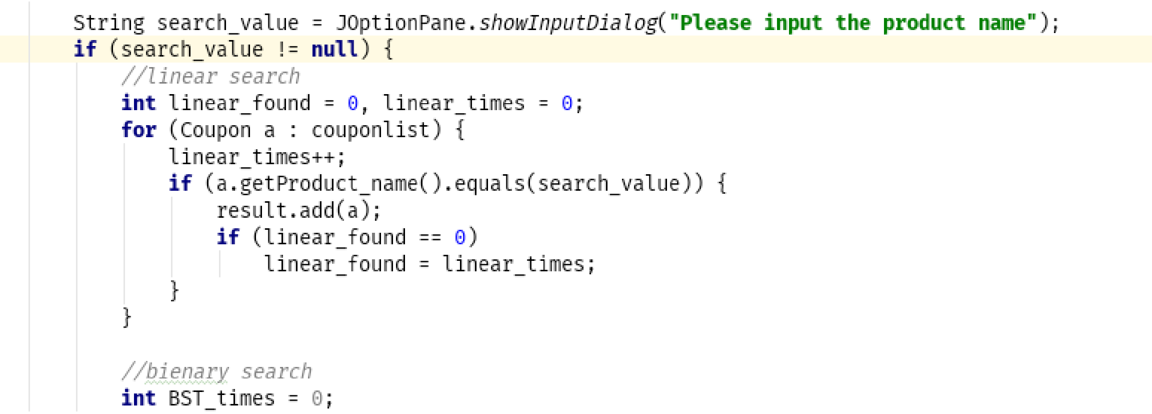


```
couponlist = new ArrayList<>();
result = new ArrayList<>();

 = new File( pathname: "data.t
eader reader = new BufferedRe
ne = null;
ne = reader.readLine()) != nu
ne.matches( regex: "[\\s]*"))
ontinue;
g[] tokens = line.split( regex: ",");
n nextCoupon = new Coupon(tokens[0],tokens[1],tokens[6],tokens[2],tokens[3],tokens[4],token
nlist.add(nextCoupon);
```

```
es\JetBrains\IntelliJ IDEA 2017.2.4\lib\idea_rt.jar=8325:C:\Program Files\JetBrains\Intelli
```

## Solution:

Add an examine function to check the input value after the JOptionPane.showInputDialog();



```
String search_value = JOptionPane.showInputDialog("Please input the product name");
if (search_value != null) {
    //linear search
    int linear_found = 0, linear_times = 0;
    for (Coupon a : couponlist) {
        linear_times++;
        if (a.getProduct_name().equals(search_value)) {
            result.add(a);
            if (linear_found == 0)
                linear_found = linear_times;
        }
    }

    //bienary search
    int BST_times = 0;
```