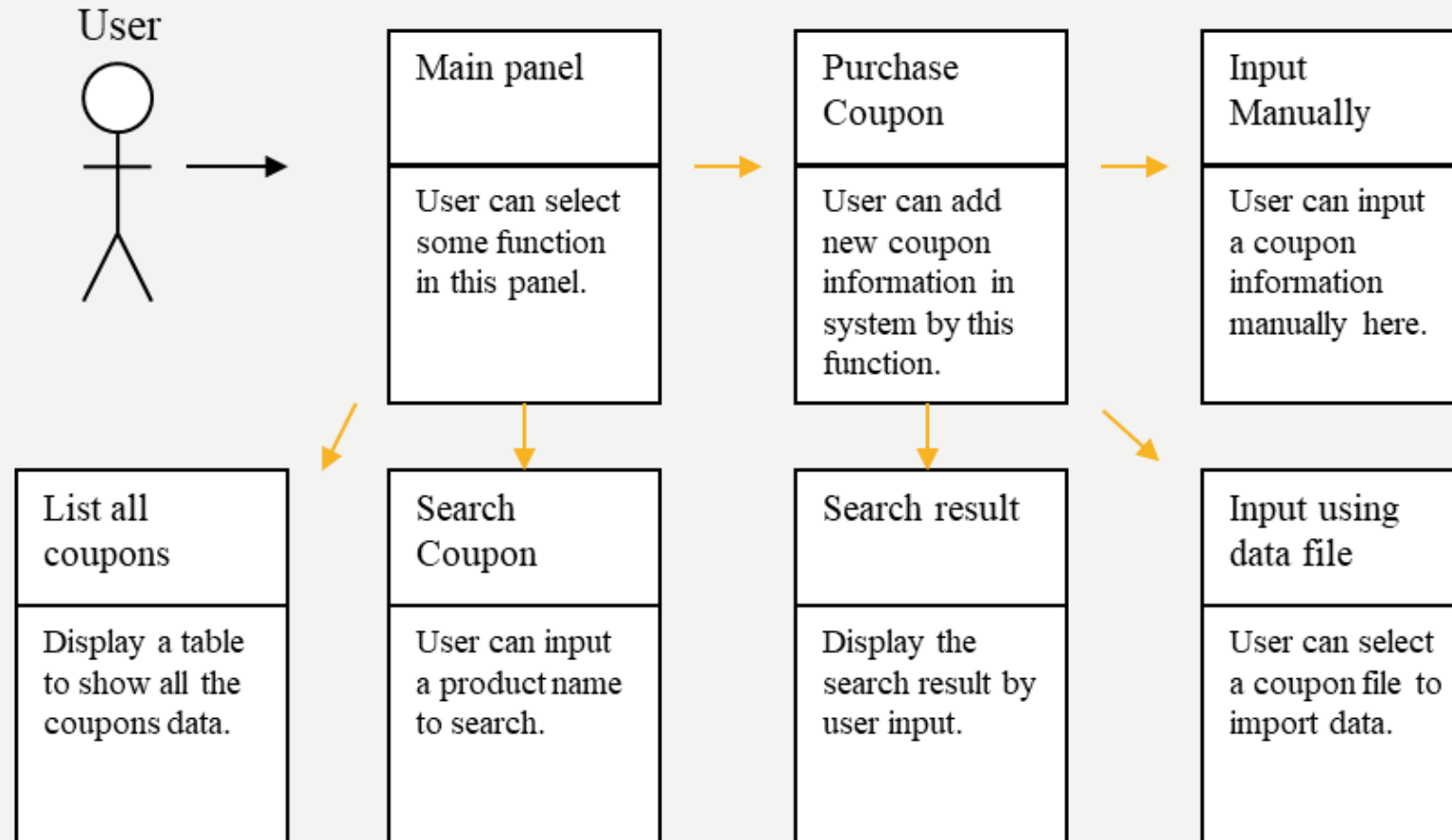


The background of the slide is a light gray gradient with several realistic water droplets of various sizes scattered across it. The droplets have highlights and shadows, giving them a three-dimensional appearance.

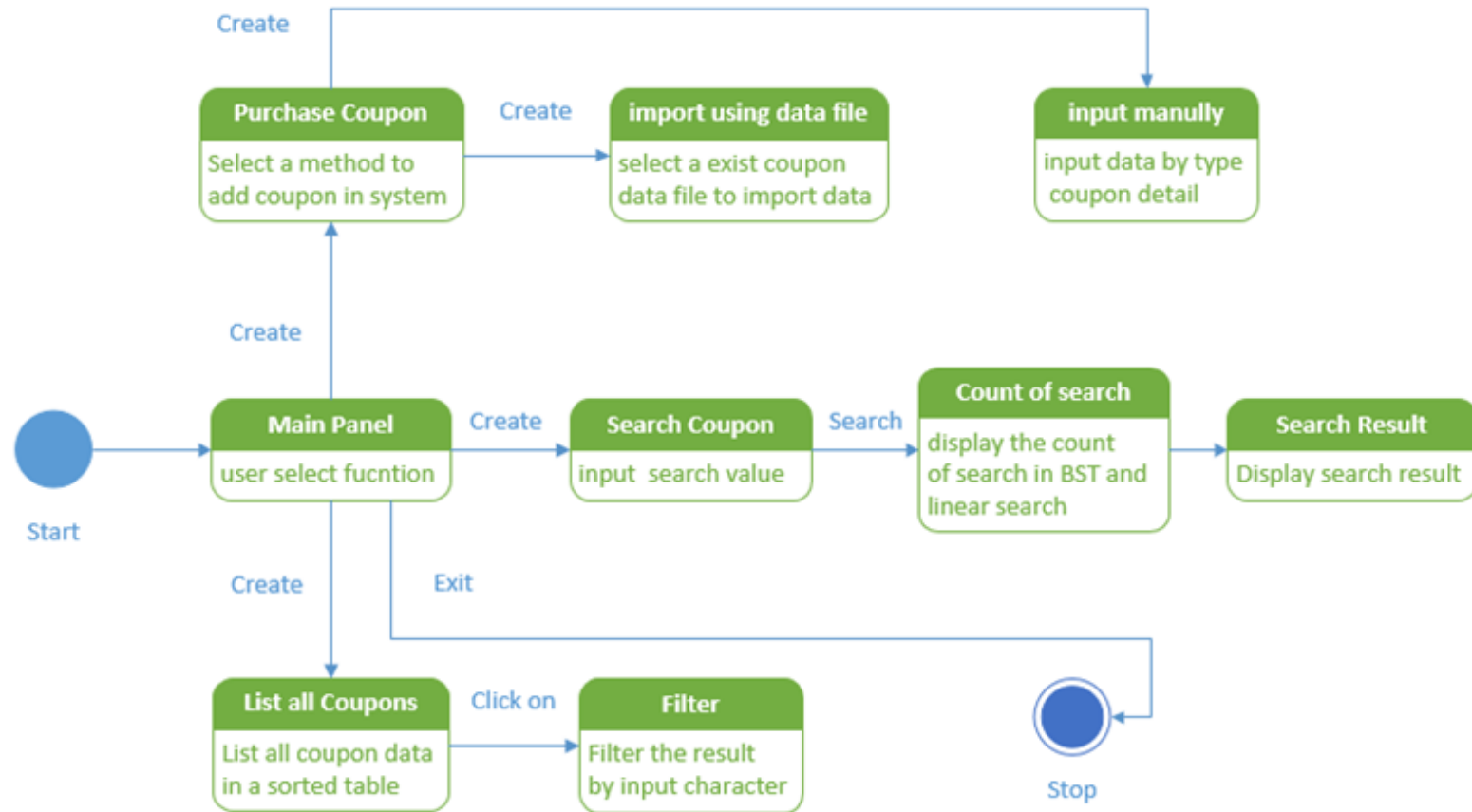
COUPON INVENTORY SYSTEM

HANZHANG LIU

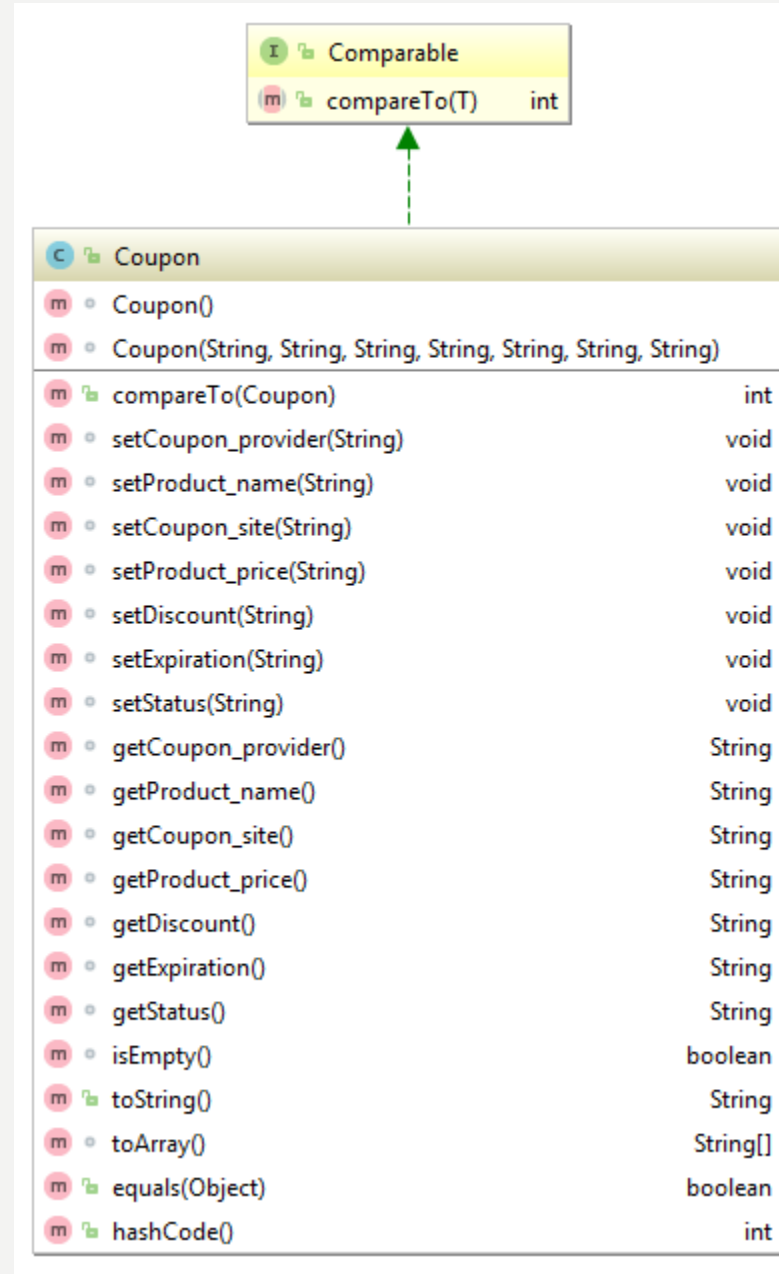
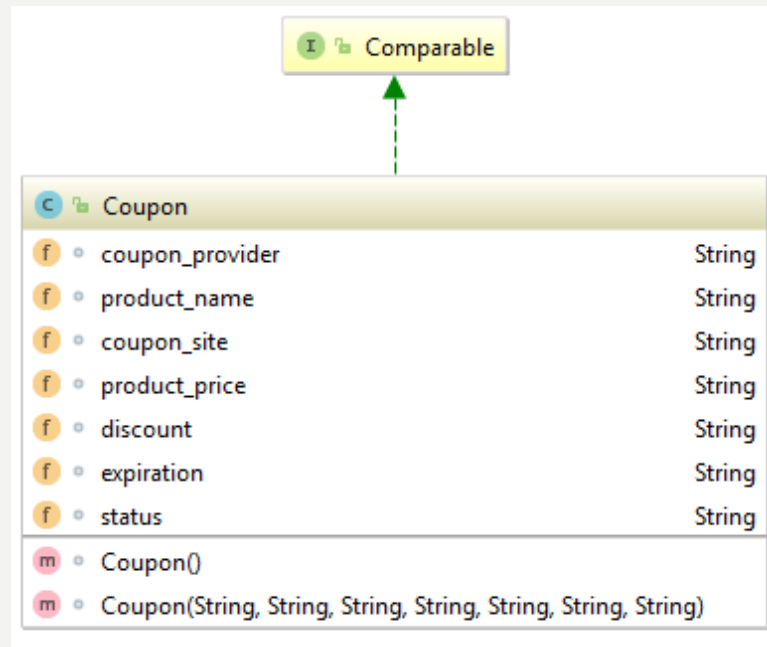
Flow Chart



State transition



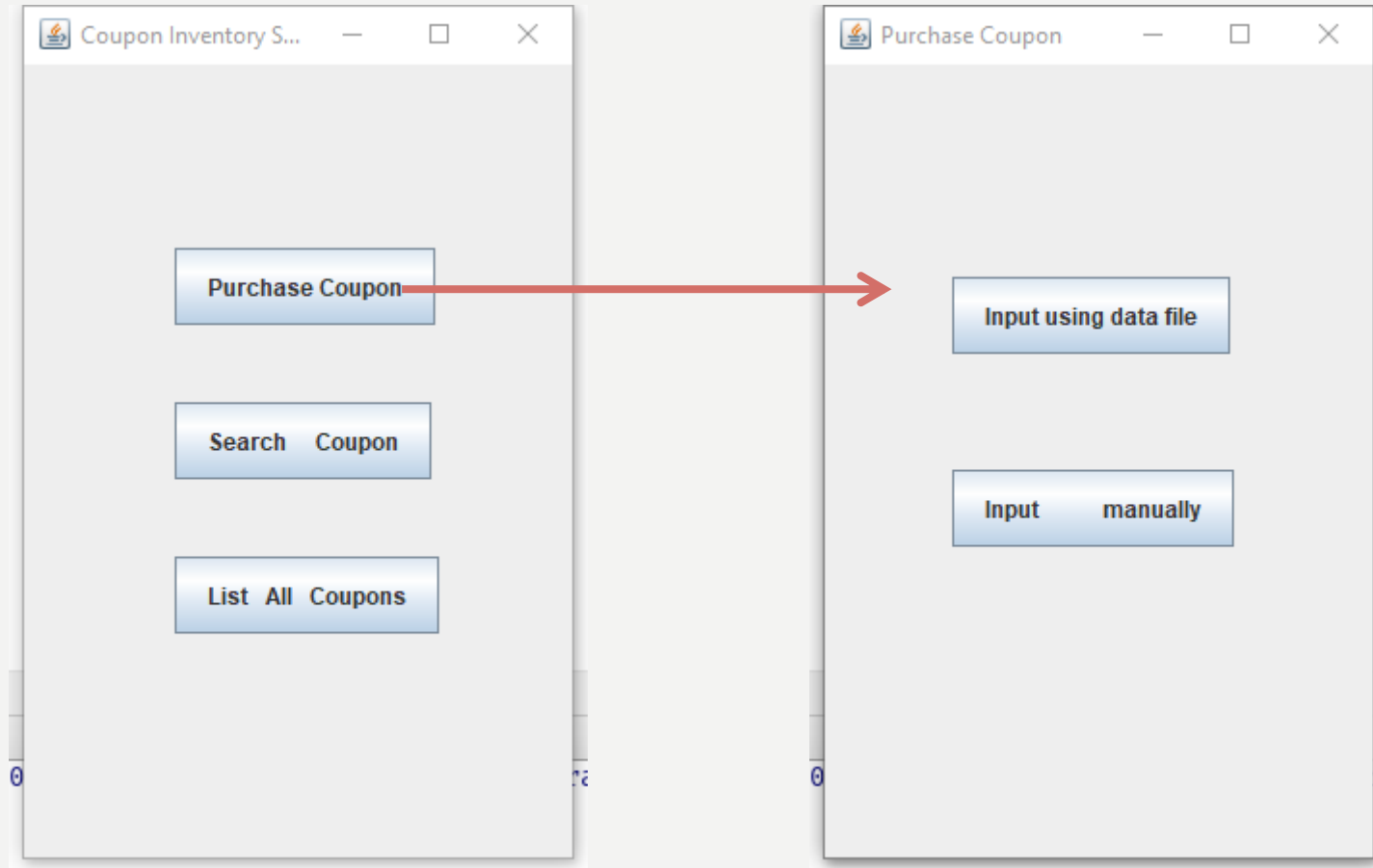
Coupon class



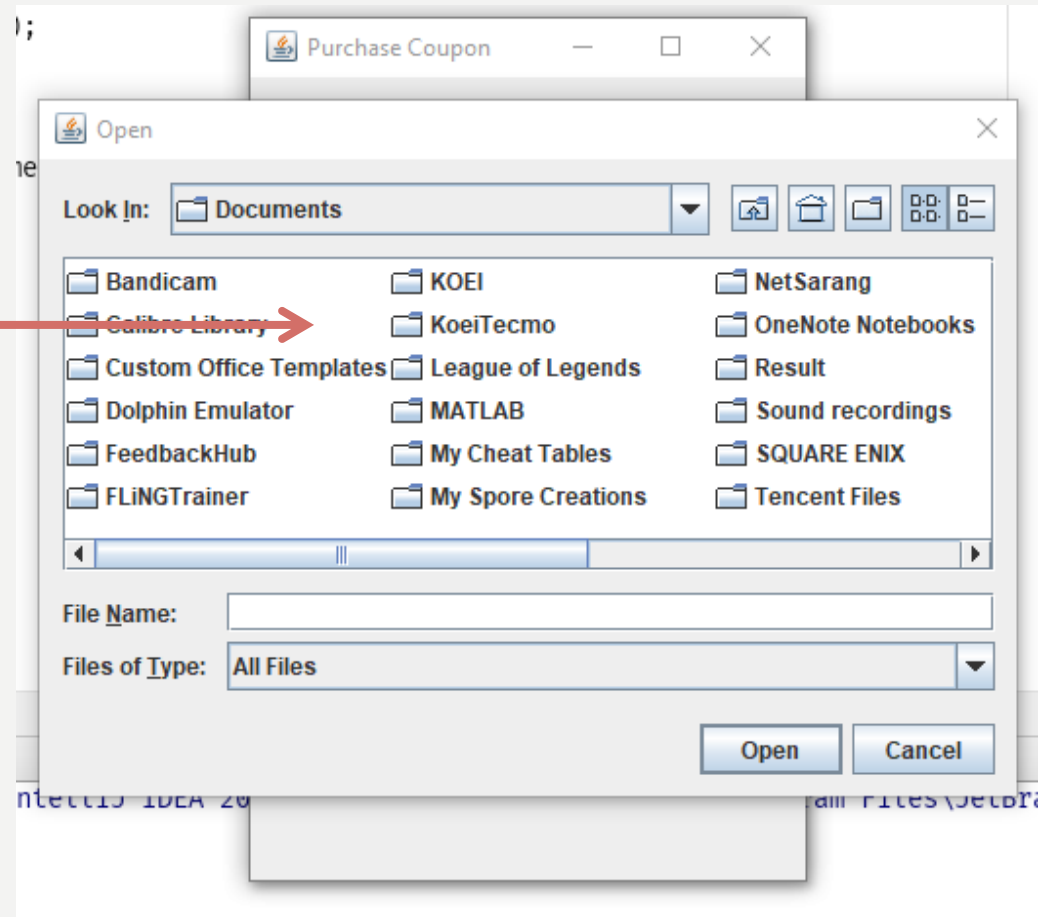
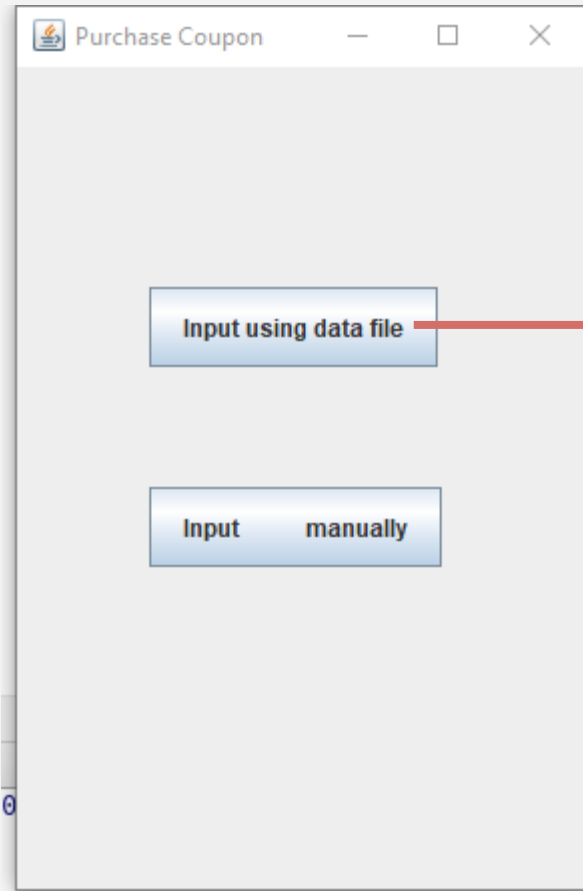
Function overview

- Purchase Coupon
 - Import using data file
 - Input manually
- Search coupon
- List all coupons
 - Filter character
- Create coupon list*

Purchase Coupon



Purchase Coupon



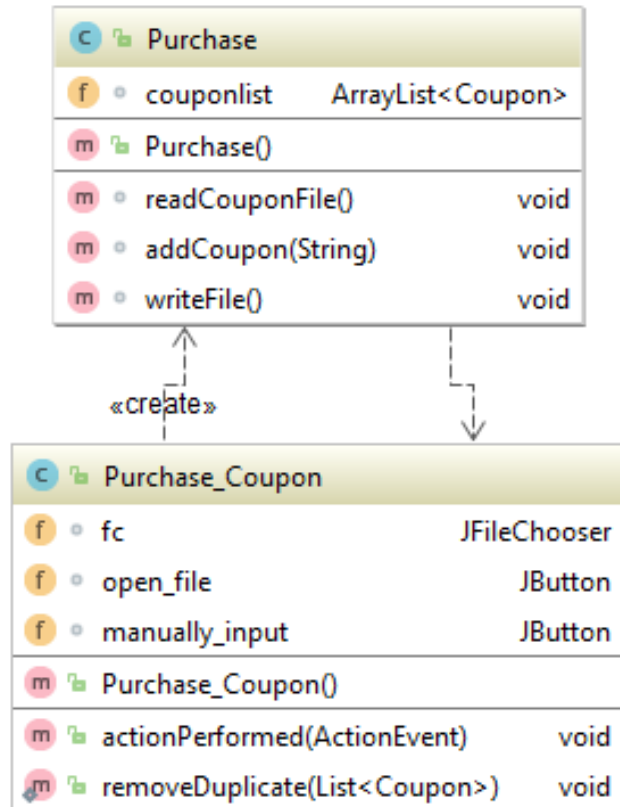
Purchase Coupon

The image displays a software interface for purchasing coupons. On the left, a window titled "Purchase Coupon" contains two buttons: "Input using data file" and "Input manually". A red arrow points from the "Input manually" button to a secondary dialog box on the right titled "Purchase a new Coupon".

The "Purchase a new Coupon" dialog box contains the following fields and controls:

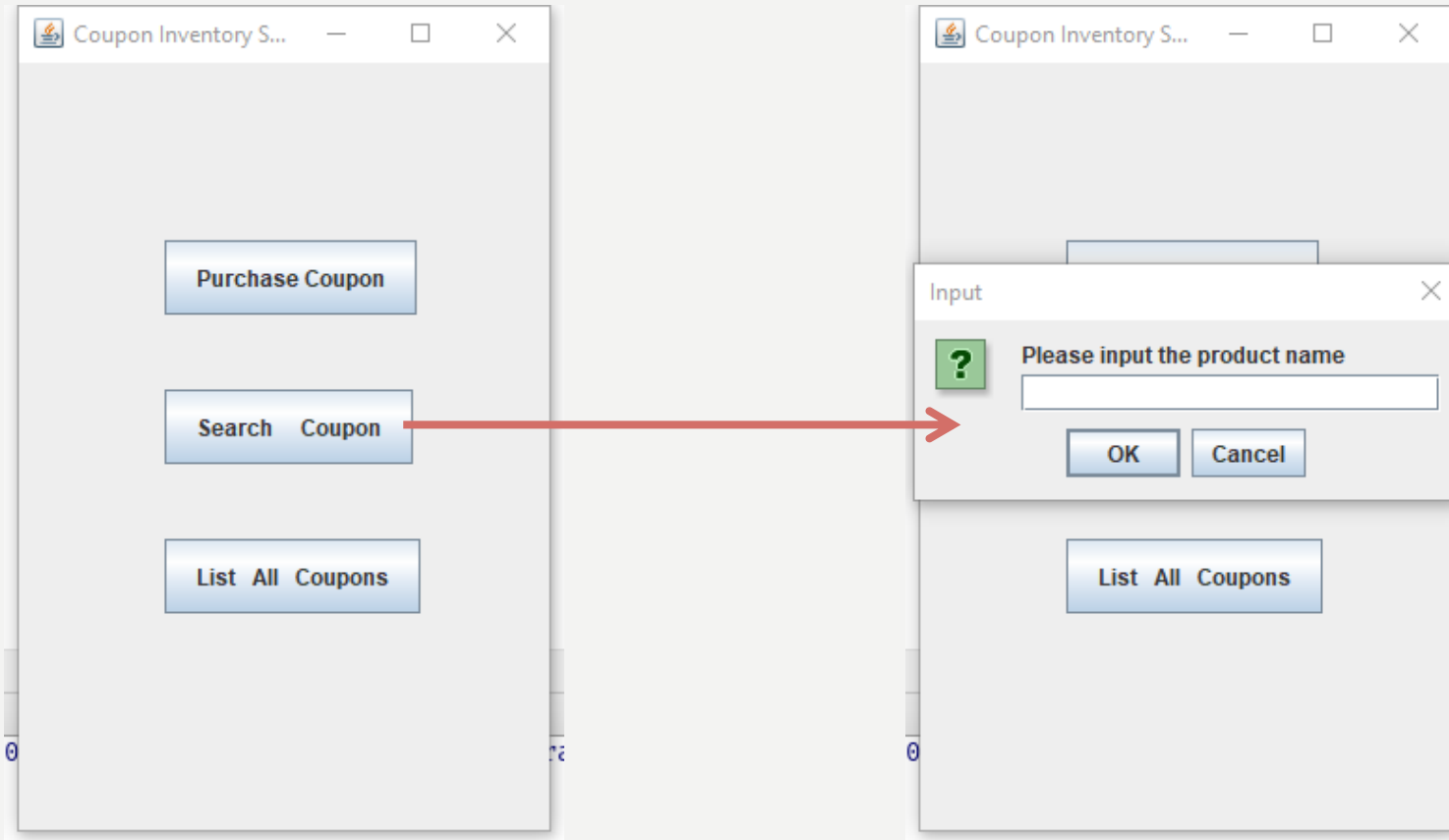
- Name of Coupon Provider:** Text input field.
- Product Name:** Text input field.
- Price of Product:** Text input field.
- Discount rate (range between 5% to 80%):** Text input field.
- Expiration Period (range between 0 to 365):** Text input field.
- Coupon site:** Text input field.
- Status:** Dropdown menu with "Unused" selected.
- Buttons:** "OK" and "Cancel".

Purchase Coupon

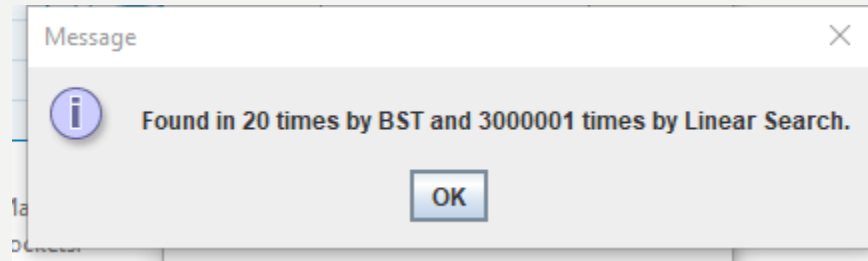


```
//check the input value
if(coupon.isEmpty()) {
    JOptionPane.showMessageDialog( parentComponent: null, message: "Input Nothing"
    break yes;
}
if (value1.matches( regex: "[\\s]*") || value1 == null) {
    value1 = " ";
    coupon.coupon_site = value6;
}
else if (!value1.matches( regex: "^.{1,20}$")){
    JOptionPane.showMessageDialog( parentComponent: null, message: "Input error!\\n
    break yes;
}
if (!value2.matches( regex: "^.{1,20}$") || value1 == null){
    JOptionPane.showMessageDialog( parentComponent: null, message: "Input error!\\n
    break yes;
}
if (!value3.matches( regex: "^\\d+(\\.\\d+)?$") || value1 == null){
    JOptionPane.showMessageDialog( parentComponent: null, message: "Input error!\\n
    break yes;
}
if (!value4.matches( regex: "^\\d{1,2}$") ||
    Integer.parseInt(value4)<5 ||
    Integer.parseInt(value4)>80){
    JOptionPane.showMessageDialog( parentComponent: null, message: "Input error!\\n
    break yes;
}
if (!value5.matches( regex: "^\\d{1,3}$") ||
    Integer.parseInt(value5)<0 ||
    Integer.parseInt(value5)>365){
```

Search coupon



Search coupon



A Windows-style window titled "Search Result" with standard minimize, maximize, and close buttons in the title bar. It contains a table with 8 columns: provider, product, price, discount, expiration, status, final price, and website. The first row of data shows a coupon from "Bigger" for a "cup" with a price of "\$5", a 40% discount, an expiration of "20", a status of "Unused", a final price of "\$3.0", and a website of "www.bigg...". The rest of the table area is empty.

provider	product	price	discount	expiration	status	final price	website
Bigger	cup	\$5	40%	20	Unused	\$3.0	www.bigg...

Search coupon

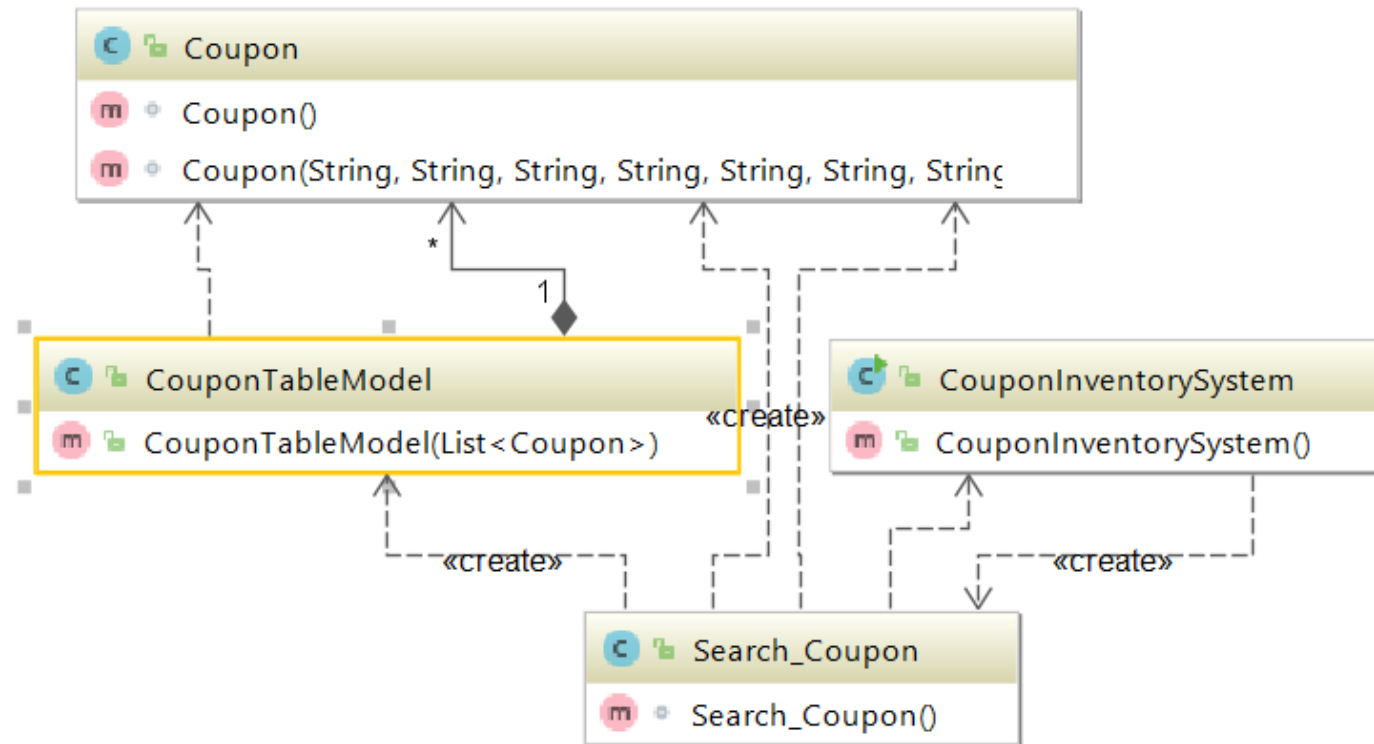


Table display

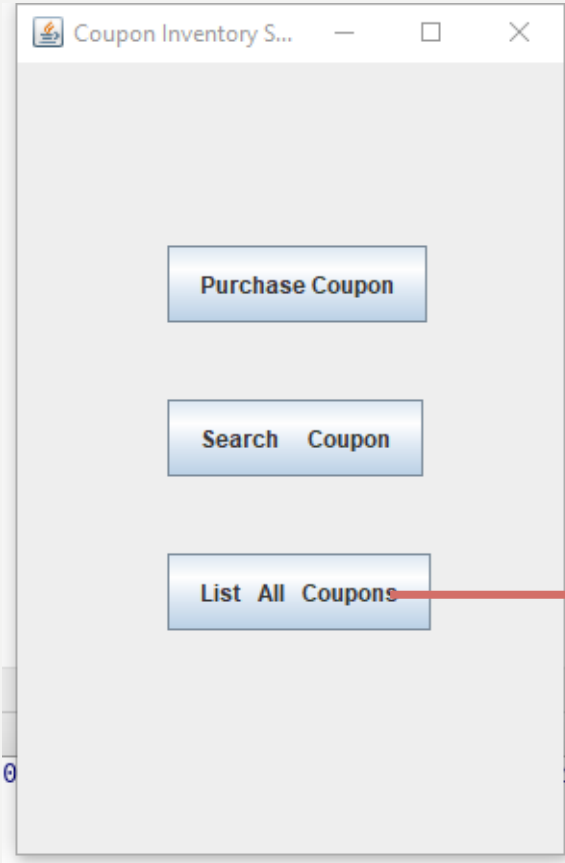
CouponTableModel		
COLUMN_coupon_provider	int	
COLUMN_PRODUCT	int	
COLUMN_PRICE	int	
COLUMN_DISCOUNT	int	
COLUMN_EXPIRATION	int	
COLUMN_STATUS	int	
COLUMN_WEBSITE	int	
COLUMN_discount_price	int	
columnNames	String[]	
listCoupons	List<Coupon>	
CouponTableModel(List<Coupon>)		
getColumnName(int)	String	
getColumnClass(int)	Class<?>	
getValueAt(int, int)	Object	
rowCount	int	
columnCount	int	

```
//print result list
JFrame frame = new JFrame( title: "Search Result");
String columns[] =
    {"provider", "product", "price", "discount", "expiration", "status", "website"};

TableModel model = new CouponTableModel(result) {
    public Class getColumnClass(int column) {
        Class returnValue;
        if ((column >= 0) && (column < getColumnCount())) {
            returnValue = getValueAt( rowIndex: 0, column).getClass();
        } else {
            returnValue = Object.class;
        }
        return returnValue;
    }
};

final JTable table = new JTable(model);
final TableRowSorter<TableModel> sorter = new TableRowSorter<~>(model);
table.setRowSorter(sorter);
JScrollPane pane = new JScrollPane(table);
frame.add(pane, BorderLayout.CENTER);
frame.setSize( width: 600, height: 500);
frame.setVisible(true);
CouponInventorySystem.setFrameCenter(frame);
```

List all coupons



List Coupons

Value: Filter

provider	product	price	discount	expiration	status	final price	website
CFMYZ	AABVHBJZ	\$911.6427	56%	291	Used	\$401.12277	www.CFM...
ZCHKC	AACLSYSD	\$629.47235	59%	343	Unused	\$258.08368	www.ZCH...
IHZQM	AACNOEYR	\$692.3807	37%	217	Used	\$436.19983	www.IHZQ...
PSWFN	AACVGPWO	\$529.1095	51%	267	Used	\$259.26367	www.PSW...
BONLJ	AADGJNEI	\$929.1499	79%	265	Used	\$195.12146	www.BON...
MEHCD	AADSOJ TJ	\$128.54869	23%	99	Unused	\$98.98249	www.MEH...
ZIFML	AADVZIOA	\$463.0197	79%	117	Unused	\$97.23413	www.ZIFM...
BNCZM	AAFQHTMH	\$452.36163	57%	99	Unused	\$194.5155	www.BNC...
HXYNF	AAFUUYIV	\$965.2802	70%	37	Unused	\$289.58408	www.HXY...
BUXKT	AAGXOYJA	\$18.982431	80%	175	Used	\$3.7964861	www.BUX...
RYJKP	AAHPSIHX	\$158.52441	7%	227	Used	\$147.4277	www.RYJ...
UGRKT	AAIISNDG	\$834.1925	73%	358	Used	\$225.23196	www.UGR...
ZXVUN	AAJDVHGZ	\$920.9578	54%	340	Used	\$423.6406	www.ZXV...
BXCIC	AAKDITWQ	\$331.14746	19%	342	Unused	\$268.22943	www.BXCI...
KFOBB	AAKGJQLK	\$784.8675	18%	160	Unused	\$643.5913	www.KFO...
BCFXR	AAKHEML	\$947.52637	5%	248	Used	\$900.15	www.BCF...
ZFCDD	AAAMRTFS	\$219.41435	8%	110	Unused	\$201.8612	www.ZFC...
XJVQT	AAKPWCLN	\$474.24762	59%	231	Used	\$194.44154	www.XJV...
YIBHT	AAKRRAYH	\$140.67279	23%	269	Unused	\$108.31805	www.YIBH...
VLFL	AAKUTKRF	\$184.54605	5%	277	Used	\$175.31874	www.VLFL...
HJKQS	AAMXDIJC	\$79.78536	41%	262	Used	\$47.073368	www.HJK...
LFLEP	AAPZDSHT	\$287.28647	41%	124	Used	\$169.49902	www.LFL...
VHLSJ	AAQDCCFF	\$928.3744	48%	111	Unused	\$482.75467	www.VHL...
BUDBC	AARTCFPY	\$943.5189	78%	150	Used	\$207.57419	www.BUD...
PDHSH	AASOYBW	\$110.7665	70%	278	Unused	\$33.22998	www.PDH...
NCAKC	AASUAODG	\$763.2435	11%	79	Unused	\$679.28674	www.NCA...

Filter

List Coupons

Value: Filter

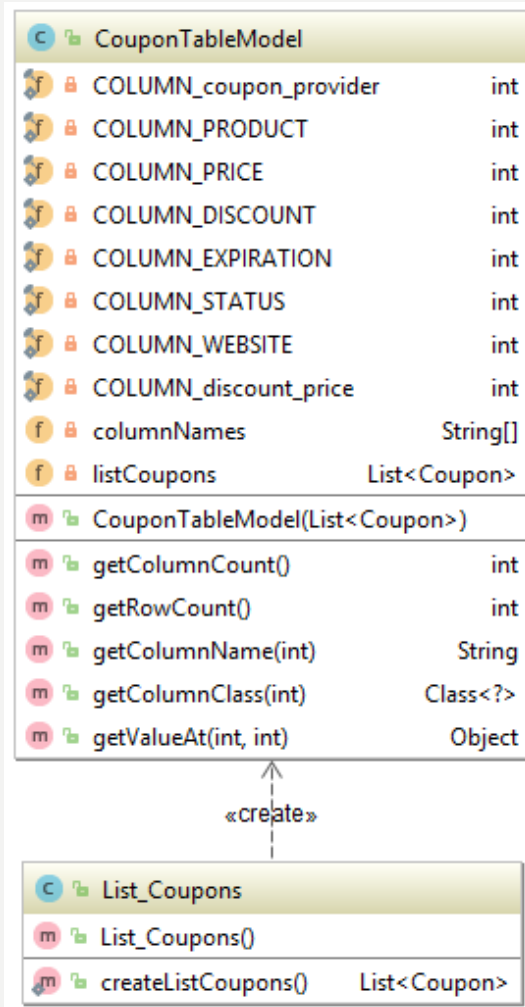
provider	product	price	discount	expiration	status	final price	website
CFMYZ	AABVHBJZ	\$911.6427	56%	291	Used	\$401.12277	www.CFM...
ZCHKC	AACLSYSD	\$629.47235	59%	343	Unused	\$258.08368	www.ZCH...
IHZQM	AACNOEYR	\$692.3807	37%	217	Used	\$436.19983	www.IHZQ...
PSWFN	AACVGPWO	\$529.1095	51%	267	Used	\$259.26367	www.PSW...
BONLJ	AADGJNEI	\$929.1499	79%	265	Used	\$195.12146	www.BON...
MEHCD	AADSOJTJ	\$128.54869	23%	99	Unused	\$98.98249	www.MEH...
ZIFML	AADVZIOA	\$463.0197	79%	117	Unused	\$97.23413	www.ZIFM...
BNCZM	AAFQHTMH	\$452.36163	57%	99	Unused	\$194.5155	www.BNC...
HXYNF	AAFUUYIV	\$965.2802	70%	37	Unused	\$289.58408	www.HXY...
BUXKT	AAGXOYJA	\$18.982431	80%	175	Used	\$3.7964861	www.BUX...
RYJKP	AAHPSIHX	\$158.52441	7%	227	Used	\$147.4277	www.RYJ...
UGRKT	AAIISNDG	\$834.1925	73%	358	Used	\$225.23196	www.UGR...
ZXVUN	AAJDVHGZ	\$920.9578	54%	340	Used	\$423.6406	www.ZXV...
BXCIC	AAKDITWQ	\$331.14746	19%	342	Unused	\$268.22943	www.BXCI...
KFOBB	AAKGJQLK	\$784.8675	18%	160	Unused	\$643.5913	www.KFO...
BCFXR	AAKHEMLL	\$947.52637	5%	248	Used	\$900.15	www.BCF...
ZFCDD	AAKMRTFS	\$219.41435	8%	110	Unused	\$201.8612	www.ZFC...
XJVQT	AAKPWCLN	\$474.24762	59%	231	Used	\$194.44154	www.XJV...
YIBHT	AAKRRAYH	\$140.67279	23%	269	Unused	\$108.31805	www.YIBH...
VLFLF	AAKUTKRF	\$184.54605	5%	277	Used	\$175.31874	www.VLFL...
HJKQS	AAMXDIJC	\$79.78536	41%	262	Used	\$47.073368	www.HJK...
LFLEP	AAPZDSHT	\$287.28647	41%	124	Used	\$169.49902	www.LFL...
VHLSJ	AAQDCCFF	\$928.3744	48%	111	Unused	\$482.75467	www.VHL...
BUDBC	AARTCFPY	\$943.5189	78%	150	Used	\$207.57419	www.BUD...
PDHSH	AASOYBWV	\$110.7665	70%	278	Unused	\$33.22998	www.PDH...
NCAKC	AASUAODG	\$763.2435	11%	79	Unused	\$679.28674	www.NCA...

List Coupons

Value: monkey Filter

provider	product	price	discount	expiration	status	final price	website
monkey	cap	\$11	30%	50	Unused	\$7.7	www.mon...
monkey	gloves	\$13	40%	10	Unused	\$7.8	www.mon...

Coupons table and filter



```
final JTable table = new JTable(model);
final TableRowSorter<TableModel> sorter = new TableRowSorter<>(model);
table.setRowSorter(sorter);
JScrollPane pane = new JScrollPane(table);
frame.add(pane, BorderLayout.CENTER);
JPanel panel = new JPanel(new BorderLayout());
JLabel label = new JLabel(text: "Value: ");
panel.add(label, BorderLayout.WEST);
final JTextField filterText = new JTextField("");
panel.add(filterText, BorderLayout.CENTER);
JButton button = new JButton(text: "Filter");
button.addActionListener(new ActionListener()
{
    public void actionPerformed(ActionEvent e)
    {
        String text = filterText.getText();
        if (text.length() == 0)
        {
            sorter.setRowFilter(null);
        }
        else
        {
            sorter.setRowFilter(RowFilter.regexFilter(text));
        }
    }
});
panel.add(button, BorderLayout.EAST);
frame.add(panel, BorderLayout.NORTH);
frame.setSize(width: 600, height: 500);
frame.setVisible(true);
CouponInventorySystem.setFrameCenter(frame);
```


Create coupon list

```
public static void main(String[] args) {  
    CouponCreation cc = new CouponCreation();  
    ArrayList<Coupon> couponList = new ArrayList<>();  
    for (int i = 0; i < 300000; i++) {  
        couponList.add(cc.newCoupon());  
    }  
    String fileName = "list.txt";  
    try {  
        cc.writeFile(fileName, couponList);  
    }  
    catch (IOException e) {  
        System.out.println("Wrong Insertion!");  
    }  
}
```

29981	YMWKV, JZVHJXKC, 875.3349, 19, 290, Unused, www.YMWKV.com
29982	NIDMQ, DCIPLIZX, 863.68555, 51, 300, Unused, www.NIDMQ.com
29983	ASTHZ, WACHHQ00, 400.58414, 82, 12, Used, www.ASTHZ.com
29984	IYADF, VMYNXSXB, 532.6241, 72, 137, Unused, www.IYADF.com
29985	PKAKH, JECNPOB, 322.2051, 50, 186, Unused, www.PKAKH.com
29986	HTECU, ONKRQTHI, 528.42096, 44, 151, Used, www.HTECU.com
29987	MRMRU, HPYQRTMP, 691.15717, 65, 176, Used, www.MRMRU.com
29988	KYZFE, ZNKVSBNW, 218.1267, 81, 50, Used, www.KYZFE.com
29989	MZCIB, WFQMCVZE, 988.5055, 8, 145, Unused, www.MZCIB.com
29990	NXBVL, WTYIALFD, 535.3457, 59, 224, Used, www.NXBVL.com
29991	SSMAI, JGOYYERV, 74.97353, 59, 270, Unused, www.SSMAI.com
29992	NWTBZ, AEMBRRQF, 429.34464, 80, 304, Used, www.NWTBZ.com
29993	LQQID, OPKARZAK, 974.0083, 11, 313, Unused, www.LQQID.com
29994	VVBGC, WILFFHLV, 627.42346, 72, 358, Unused, www.VVBGC.com

Coupon class

```
@Override
//rewrite the equals method for remove duplicate coupon.
public boolean equals(Object o) {
    if (this == o) return true;
    if (o == null || getClass() != o.getClass()) return false;

    Coupon coupon = (Coupon) o;

    if (coupon_provider != null ? !coupon_provider.equals(coupon.coupon_provider) : coupon.coupon_provider != null)
        return false;
    if (!product_name.equals(coupon.product_name)) return false;
    if (coupon_site != null ? !coupon_site.equals(coupon.coupon_site) : coupon.coupon_site != null) return false;
    if (!product_price.equals(coupon.product_price)) return false;
    if (!discount.equals(coupon.discount)) return false;
    if (expiration != null ? !expiration.equals(coupon.expiration) : coupon.expiration != null) return false;
    return status != null ? status.equals(coupon.status) : coupon.status == null;
}

@Override
//rewrite the hashCode method for remove duplicate coupon.
public int hashCode() {
    int result = coupon_provider != null ? coupon_provider.hashCode() : 0;
    result = 31 * result + product_name.hashCode();
    result = 31 * result + (coupon_site != null ? coupon_site.hashCode() : 0);
    result = 31 * result + product_price.hashCode();
    result = 31 * result + discount.hashCode();
    result = 31 * result + (expiration != null ? expiration.hashCode() : 0);
    result = 31 * result + (status != null ? status.hashCode() : 0);
    return result;
}
```

Remove Duplicate method

```
public static void removeDuplicate(List<Coupon> arlList)
{
    HashSet h = new HashSet(arlList);
    arlList.clear();
    arlList.addAll(h);
}
```

```
public List_Coupons() {
    JFrame frame = new JFrame( title: "List Coupons");
    String columns[] =
        { "provider", "product", "price", "discount", "expiration", "status", "website" };
    List<Coupon> listCoupons = createListCoupons();
    Purchase_Coupon.removeDuplicate(listCoupons);
    Collections.sort(listCoupons);
}
```



THANK YOU