Java Session -2

Variable Scope

- **Class Level Scope**

```
public class User {

    private String username;

}
```

- Method Level Scope

```
public static void main(String[] args) {
    int x = 5;
}
```

- **Loop Scope**

```
public static void main(String[] args) {
    for (int x = 0; x < 5; x++) {
        System.out.println("Loop " + x);
    }
}
```

ArrayList Container

- Implements the List interface
- Can grow and shrink as needed
- Ordered collection (i.e. sequence)
- Supports random access

- Online Information

https://docs.oracle.com/javase/tutorial/collections/

ArrayList Container

Instantiation:

List<T> list = new ArrayList>();

Method:

list.add(val);// add value

list.get(index);// index: 0 – (length -1)

list.size();//

list.remove(index);//index or object

Traverse:

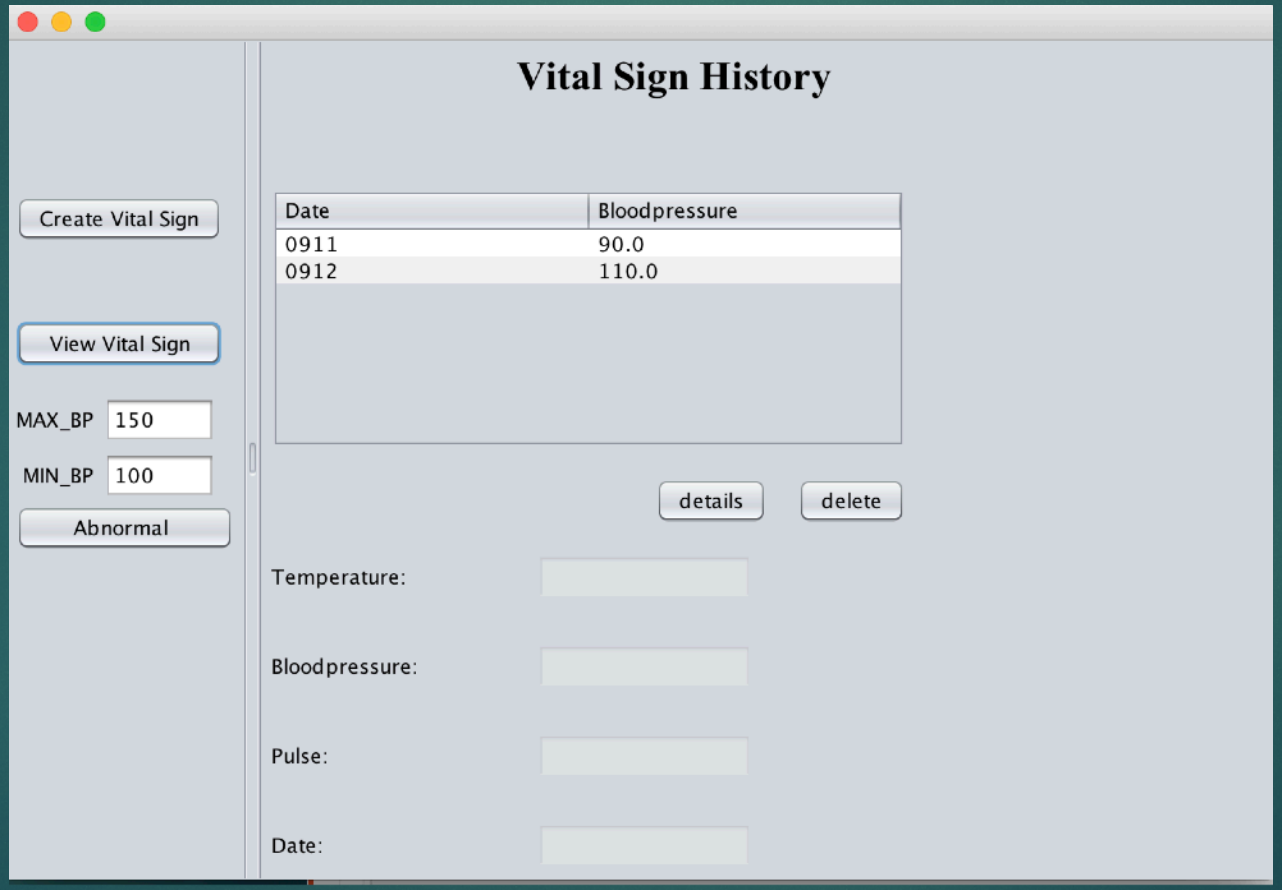
for(T t: lsit) {t.action()}

For(int i=0;i<list.size();i++) {list.get(i).action()}

NullPointerException

- Null pointer exception is thrown when an application attempts to use null in a case where an object is required. These include:
  - Calling the instance method of a null object.
  - Accessing or modifying the field of a null object.
  - Taking the length of null as if it were an array.
  - Accessing or modifying the slots of null as if it were an array.
  - Throwing null as if it were a Throwable value.
  - Applications should throw instances of this class to indicate other illegal uses of the null object.

Lab2.5 Vital Sign History



Implement relationship

```java
public class VitalSign {
    private double temperature;
    private double bloodPressure;
    private int pulse;
    private String date;
```

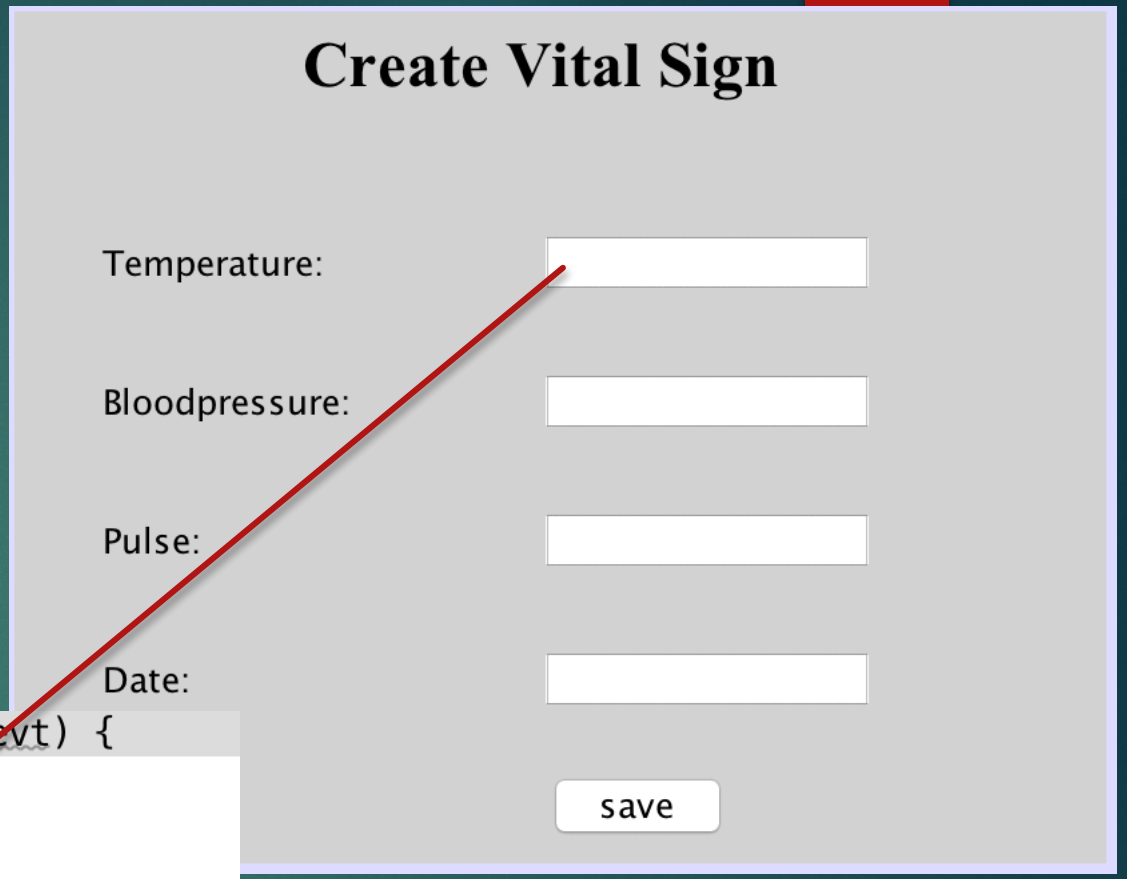
```java
public class VitalSignHistory {
    private List<VitalSign> vitalSignList;

    public VitalSignHistory() {
        this.vitalSignList = new ArrayList<VitalSign>();
    }
    public VitalSign addVitalSign(){
        VitalSign vitalSign = new VitalSign();
        this.vitalSignList.add(vitalSign);
        return vitalSign;
    }
    public void delVitalSign(VitalSign vitalSign){
        this.vitalSignList.remove(vitalSign);
    }

    public List<VitalSign> getVitalSignList (){
        return vitalSignList;
    }
```

```java
private VitalSignHistory vsh;
/**
 * Creates new form MainFrame
 */
public MainFrame() {
    initComponents();
    this.vsh = new VitalSignHistory();
}
```

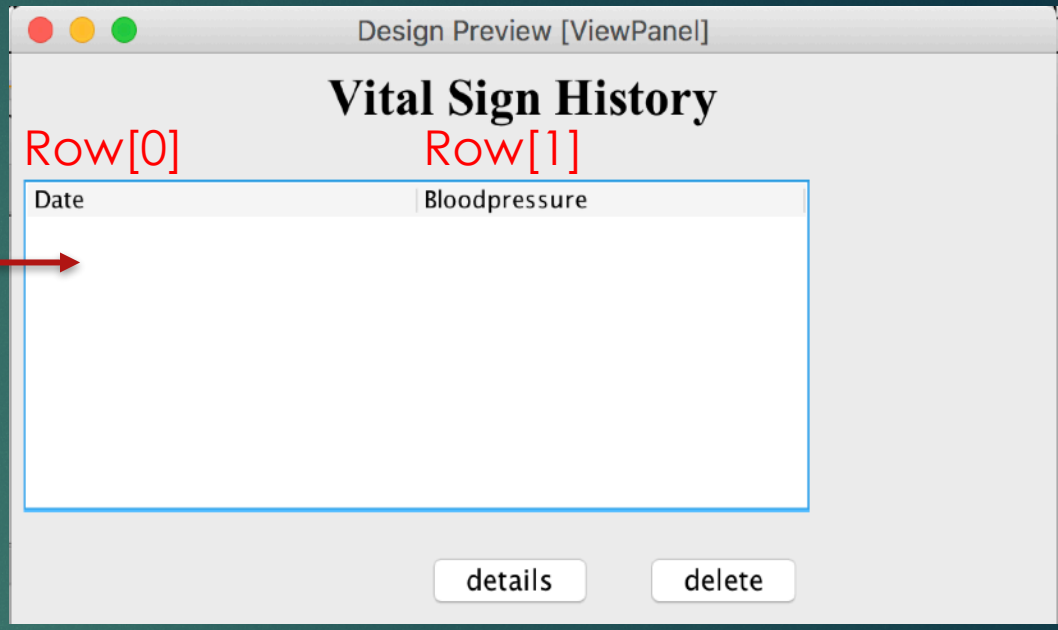
Create Vital Sign




```
private void saveBtnActionPerformed(java.awt.event.ActionEvent evt) {
    // TODO add your handling code here:
    double tmp = Double.parseDouble(tmpTextField.getText());
    double bp = Double.parseDouble(bpTextField.getText());
    int pulse = Integer.parseInt(pulseTextField.getText());
    String date = dateTextField.getText();
    VitalSign vs = vsh.addVitalSign();
    vs.setTemperature(tmp);
    vs.setBloodPressure(bp);
    vs.setPulse(pulse);
    vs.setDate(date);
    JOptionPane.showMessageDialog(null,"Vital Sign Created Successfully");
    resetTxtField();
```

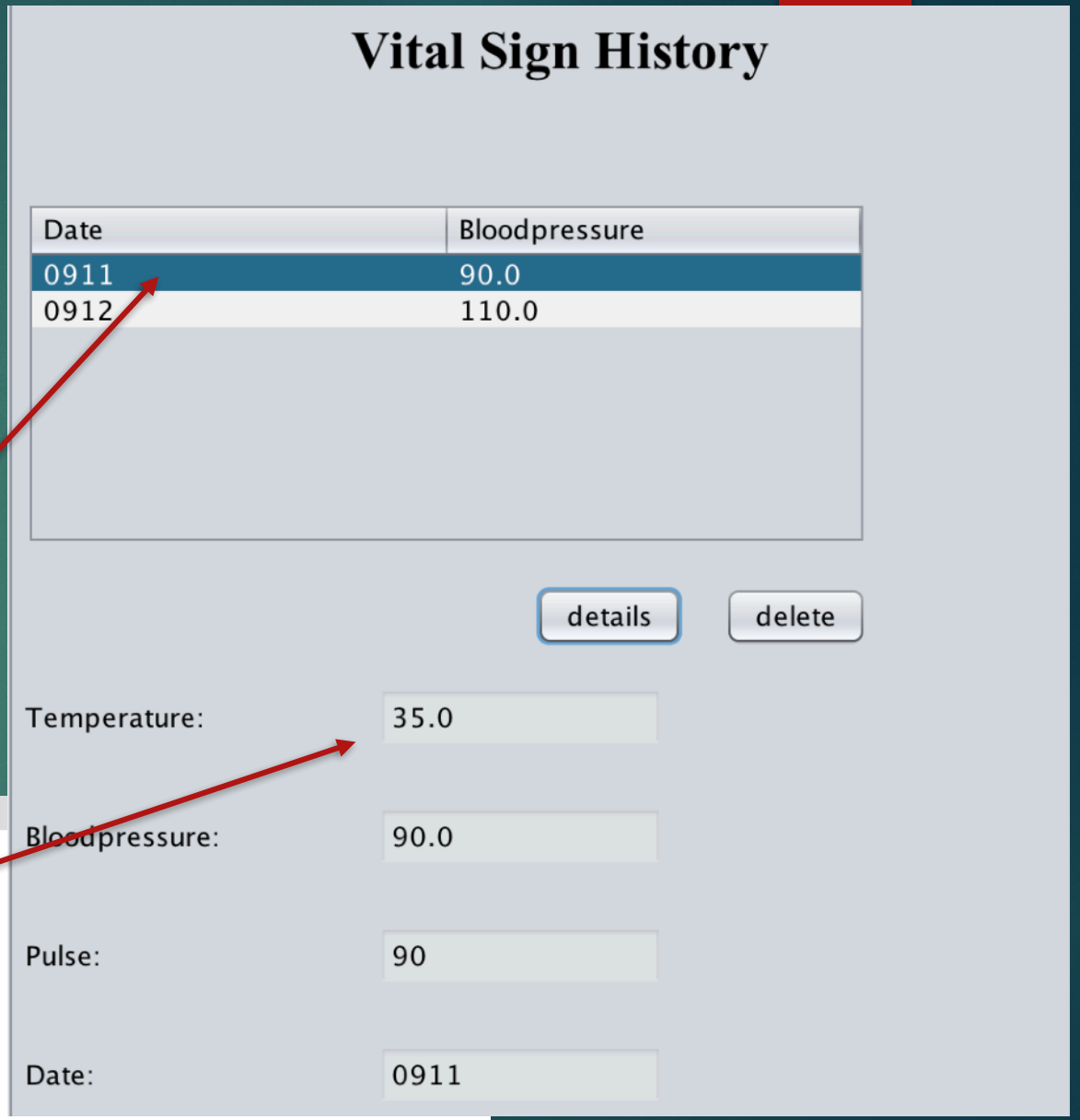
Show vital sign history in JTable

```
private VitalSignHistory vsh;
public ViewPanel(VitalSignHistory vsh) {
    initComponents();
    this.vsh = vsh;
    populateTable();
}
```




```
private void populateTable(){
    DefaultTableModel dtm = (DefaultTableModel) vitalSignTab.getModel();
    dtm.setRowCount(0);
    for (VitalSign vs : vsh.getVitalSignList()){
        Object row[] = new Object [2];
        row[0] = vs;
        row[1] = vs.getBloodPressure();
        dtm.addRow(row);
    }
```

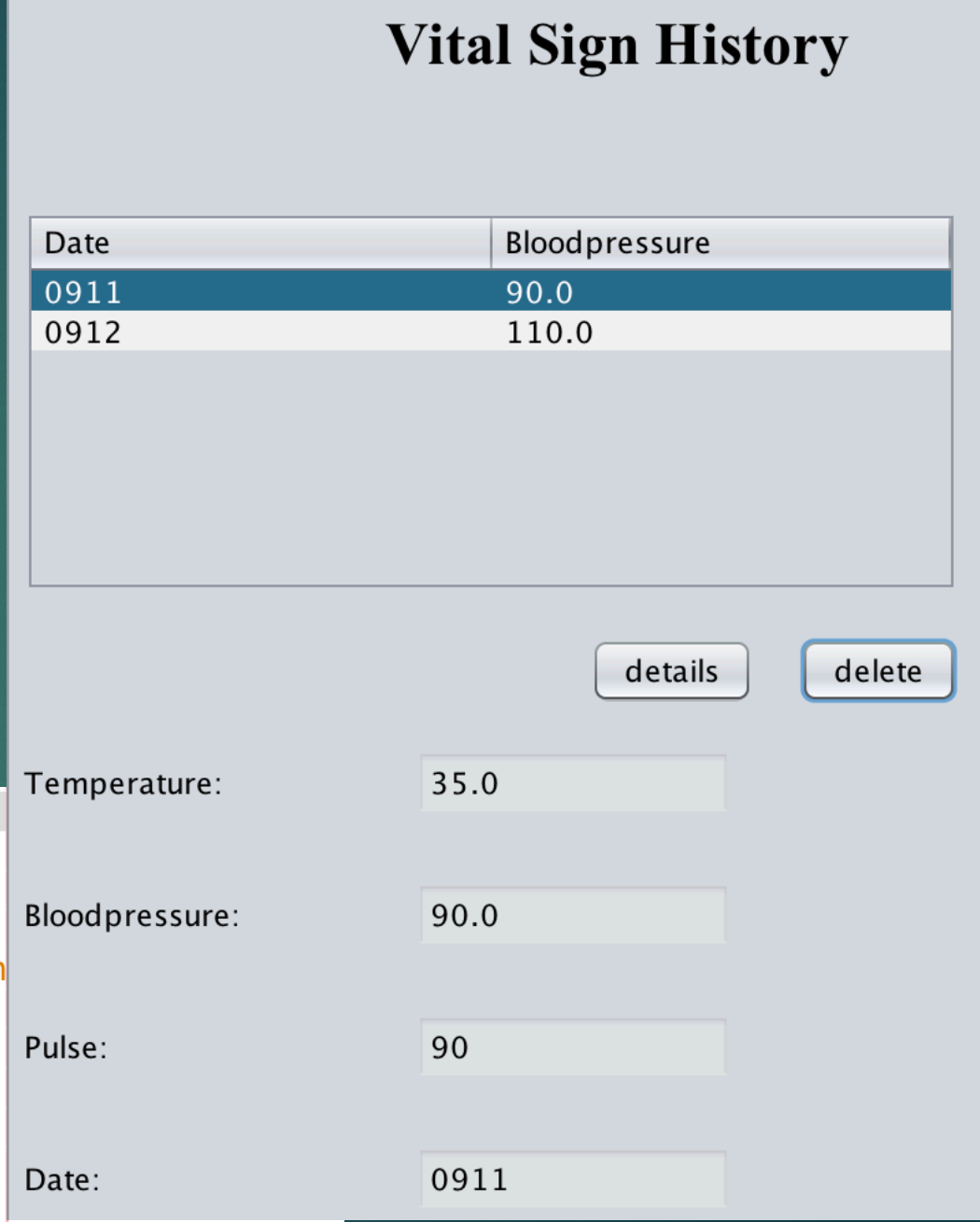
View Detail



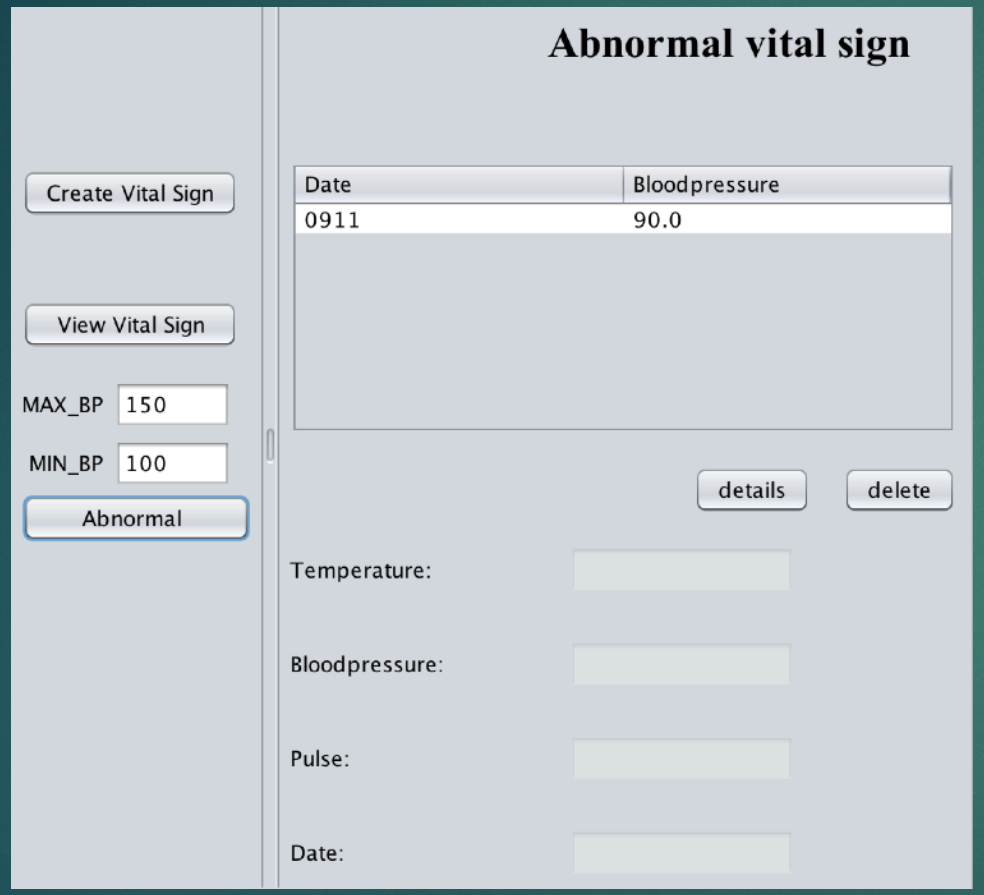

```
private void viewDetailActionPerformed(java.awt.event.ActionEvent evt) {
    // TODO add your handling code here:
    int selectedRow = vitalSignTab.getSelectedRow();
    if (selectedRow>=0){
        VitalSign vs = (VitalSign) vitalSignTab.getValueAt(selectedRow, 0);
        bpTextField.setText(String.valueOf(vs.getBloodPressure()));
        dateTextField.setText(vs.getDate());
        pulseTextField.setText(String.valueOf(vs.getPulse()));
        tmpTextField.setText(String.valueOf(vs.getTemperature()));
    }else {
        JOptionPane.showMessageDialog(null, "Please select a specific vital sign", "Alert", JOptionPane.ERR
    }
```

Delete vital sign

```
private void deleteActionPerformed(java.awt.event.ActionEvent evt) {
    // TODO add your handling code here:
    int selectedRow = vitalSignTab.getSelectedRow();
    if (selectedRow>=0){
        int dialogRes = JOptionPane.showConfirmDialog(null, "This vital sign
        if(dialogRes == JOptionPane.YES_OPTION){
        VitalSign vs = (VitalSign) vitalSignTab.getValueAt(selectedRow,0);
        vsh.delVitalSign(vs);
        populateTable();
        resetTextField();
        }
    }else{
        JOptionPane.showMessageDialog(null, "Please select a specific vital sign to delete", "
    }
```



Find the Abnormal Vital Signs



```java
private void abnBtnActionPerformed(java.awt.event.ActionEvent evt) {
    // TODO add your handling code here:
    String maxbpString = maxTxt.getText();
    String minbpString = minTxt.getText();
    double maxbp = maxbpString.equals("") ? Double.MAX_VALUE : Double.parseDouble(maxbpString);
    double minbp = minbpString.equals("") ? Double.MIN_VALUE : Double.parseDouble(minbpString);
    AbnormalPanel abnormalPanel = new AbnormalPanel(vsh, maxbp, minbp);
    jSplitPanel.setRightComponent(abnormalPanel);
}
```

Main JFrame

```java
private void populateTable() {
    DefaultTableModel dtm = (DefaultTableModel) vitalSignTab.getModel();
    dtm.setRowCount(0);
    for (VitalSign vs : vsh.getAbnormalList(maxbp, minbp)) {

        Object row[] = new Object[2];
        row[0] = vs;
        row[1] = vs.getBloodPressure();
        dtm.addRow(row);

    }

}
```

Abnormal Jpanel

```java
public List<VitalSign> getAbnormalList(double maxbp,double minbp){
    List<VitalSign> abnList = new ArrayList<>();

    for(VitalSign vs:vitalSignList){
        if(vs.getBloodPressure()>maxbp || vs.getBloodPressure()<minbp){
            abnList.add(vs);
        }
    }
    return abnList;
}
```

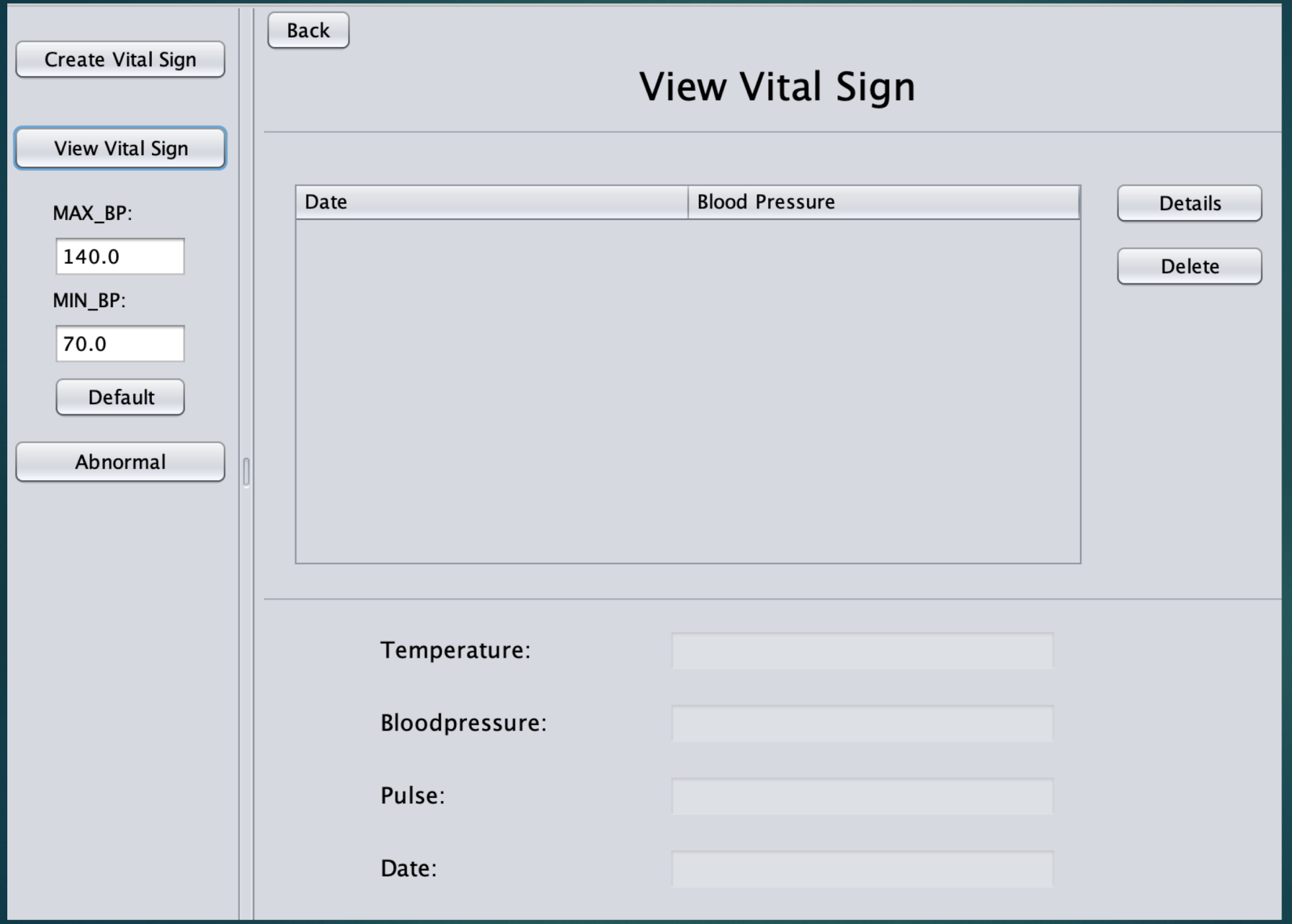
VitalsignHistory

Homework

- Finish the Vital Sign application according to the video (lab2.5)
- Implement the functionality of finding the abnormal vital signs and display them. You can have your own criteria.

  For example: blood pressure > 140 or blood pressure < 70 is abnormal.
- Bonus: (5 points)
  Try to use card layout to switch your create/view/abnormal panel. You will also need a back button.

Due Date: Saturday, Feb. 2nd, at 11:59 pm.


Back
Create Vital Sign
View Vital Sign
View Vital Sign
MAX_BP:
140.0
MIN_BP:
70.0
Default
Abnormal
Date
Blood Pressure
Details
Delete
Temperature:
Bloodpressure:
Pulse:
Date:

Bonus