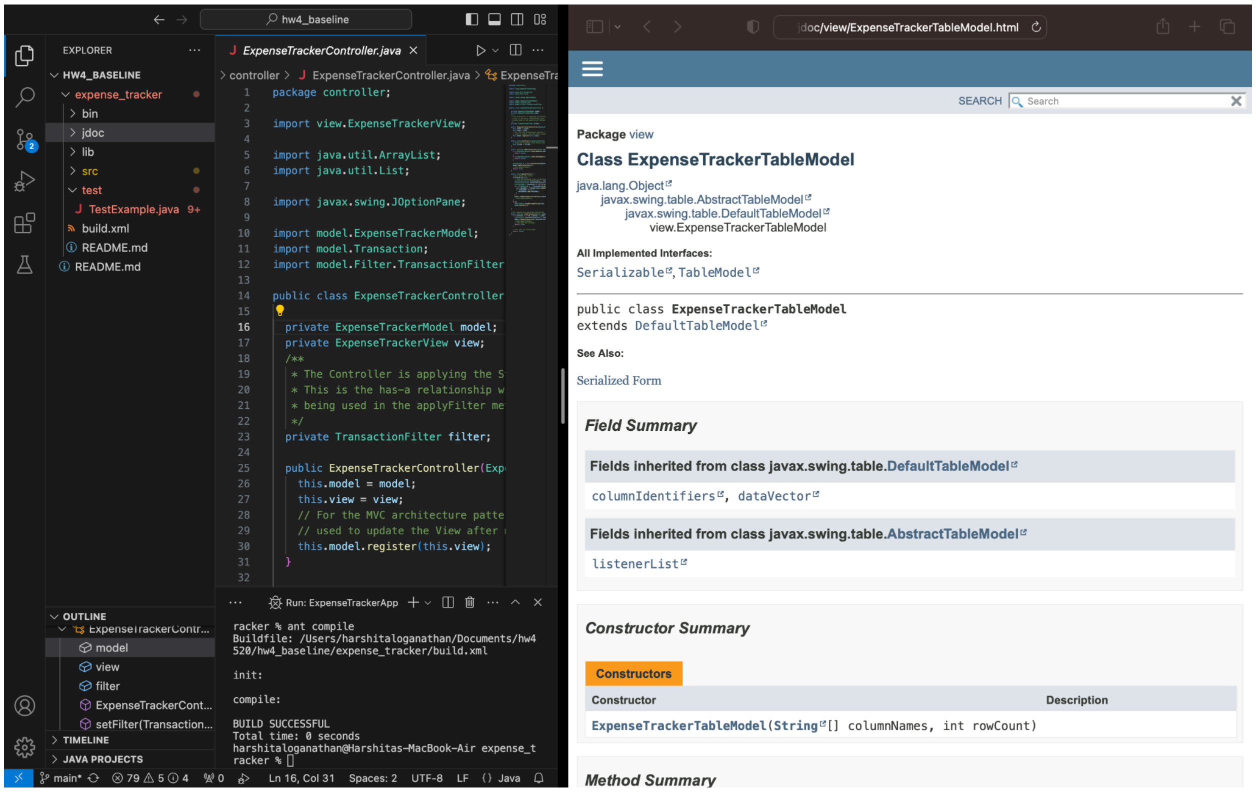
Team: CodeCrafters

Members: Harshita Loganathan, Hemangani Nagarajan
https://github.com/HEMANGANI/hw4_baseline

1. View of the Java API Documentation (e.g., Javadoc or class structure overview)



```java
package controller;

import view.ExpenseTrackerView;

import java.util.ArrayList;
import java.util.List;

import javax.swing.JOptionPane;

import model.ExpenseTrackerModel;
import model.Transaction;
import model.Filter.TransactionFilter

public class ExpenseTrackerController

  private ExpenseTrackerModel model;
  private ExpenseTrackerView view;
  /**
   * The Controller is applying the S
   * This is the has-a relationship w
   * being used in the applyFilter me
   */
  private TransactionFilter filter;

  public ExpenseTrackerController(Exp
    this.model = model;
    this.view = view;
    // For the MVC architecture patte
    // used to update the View after
    this.model.register(this.view);
  }

```

```
racker % ant compile
Buildfile: /Users/harshitaloganathan/Documents/hw4
520/hw4_baseline/expense_tracker/build.xml

init:

compile:

BUILD SUCCESSFUL
Total time: 0 seconds
harshitaloganathan@Harshitas-MacBook-Air expense_t
racker % 
```

Package view

Class ExpenseTrackerTableModel

java.lang.Object
  javax.swing.table.AbstractTableModel
    javax.swing.table.DefaultTableModel
      view.ExpenseTrackerTableModel

All Implemented Interfaces:

`Serializable`, `TableModel`

```
public class ExpenseTrackerTableModel
extends DefaultTableModel
```

See Also:

Serialized Form

Field Summary

Fields inherited from class javax.swing.table.DefaultTableModel

`columnIdentifiers`, `dataVector`

Fields inherited from class javax.swing.table.AbstractTableModel

`listenerList`

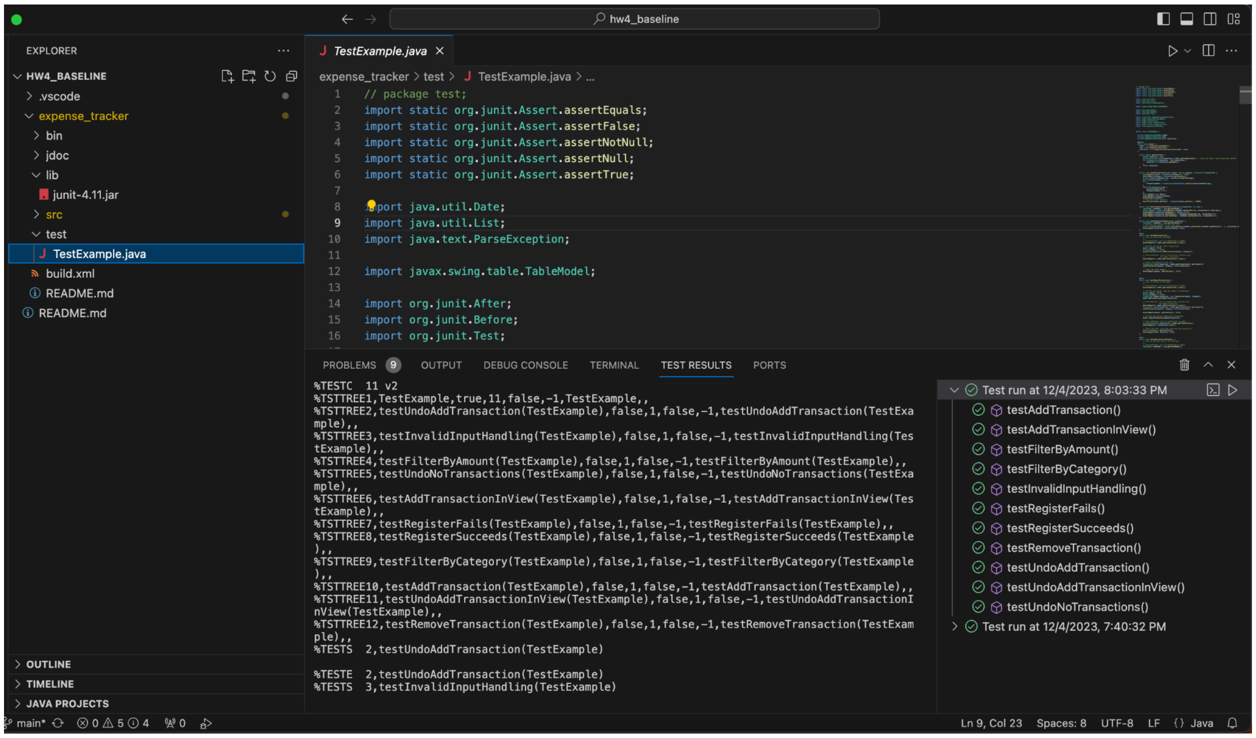
Constructor Summary

Constructors

Constructor	Description
`ExpenseTrackerTableModel(String[] columnNames, int rowCount)`	

Method Summary

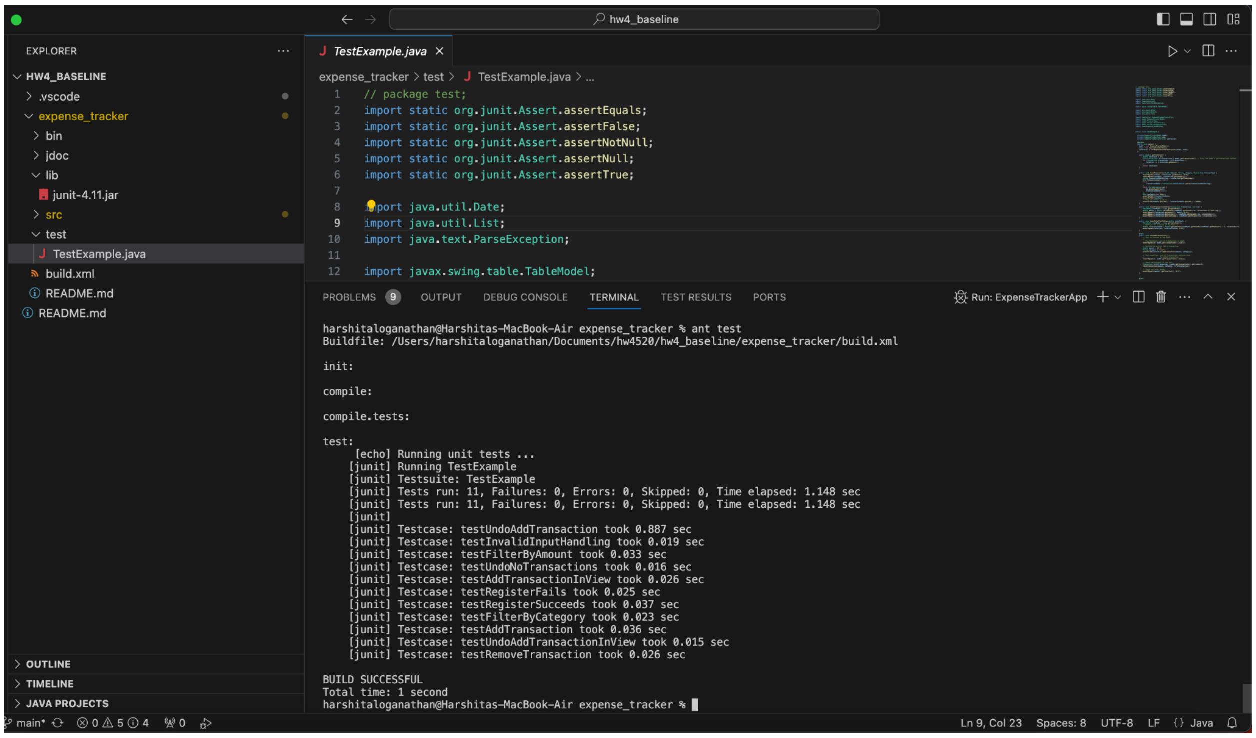
2. JUnit test runner showing all of our test cases passing



```java
// package test;
import static org.junit.Assert.assertEquals;
import static org.junit.Assert.assertFalse;
import static org.junit.Assert.assertNotNull;
import static org.junit.Assert.assertNull;
import static org.junit.Assert.assertTrue;

import java.util.Date;
import java.util.List;
import java.text.ParseException;

import javax.swing.table.TableModel;

import org.junit.After;
import org.junit.Before;
import org.junit.Test;
```

```
%TESTC  11 v2
%TSTTREE1,TestExample,true,11,false,-1,TestExample,,
%TSTTREE2,testUndoAddTransaction(TestExample),false,1,false,-1,testUndoAddTransaction(TestExa
mple),,
%TSTTREE3,testInvalidInputHandling(TestExample),false,1,false,-1,testInvalidInputHandling(Tes
tExample),,
%TSTTREE4,testFilterByAmount(TestExample),false,1,false,-1,testFilterByAmount(TestExample),,
%TSTTREE5,testUndoNoTransactions(TestExample),false,1,false,-1,testUndoNoTransactions(TestExa
mple),,
%TSTTREE6,testAddTransactionInView(TestExample),false,1,false,-1,testAddTransactionInView(Tes
tExample),,
%TSTTREE7,testRegisterFails(TestExample),false,1,false,-1,testRegisterFails(TestExample),,
%TSTTREE8,testRegisterSucceeds(TestExample),false,1,false,-1,testRegisterSucceeds(TestExample
),,
%TSTTREE9,testFilterByCategory(TestExample),false,1,false,-1,testFilterByCategory(TestExample
),,
%TSTTREE10,testAddTransaction(TestExample),false,1,false,-1,testAddTransaction(TestExample),,
%TSTTREE11,testUndoAddTransactionInView(TestExample),false,1,false,-1,testUndoAddTransactionI
nView(TestExample),,
%TSTTREE12,testRemoveTransaction(TestExample),false,1,false,-1,testRemoveTransaction(TestExam
ple),,
%TESTS  2,testUndoAddTransaction(TestExample)

%TESTE  2,testUndoAddTransaction(TestExample)
%TESTS  3,testInvalidInputHandling(TestExample)
```

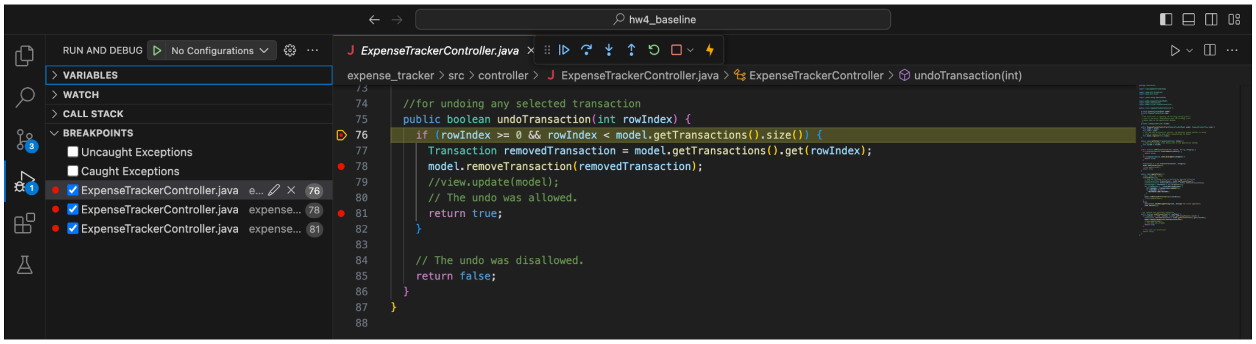
```
✓ Test run at 12/4/2023, 8:03:33 PM
    ✓ testAddTransaction()
    ✓ testAddTransactionInView()
    ✓ testFilterByAmount()
    ✓ testFilterByCategory()
    ✓ testInvalidInputHandling()
    ✓ testRegisterFails()
    ✓ testRegisterSucceeds()
    ✓ testRemoveTransaction()
    ✓ testUndoAddTransaction()
    ✓ testUndoAddTransactionInView()
    ✓ testUndoNoTransactions()
✓ Test run at 12/4/2023, 7:40:32 PM
```



```java
// package test;
import static org.junit.Assert.assertEquals;
import static org.junit.Assert.assertFalse;
import static org.junit.Assert.assertNotNull;
import static org.junit.Assert.assertNull;
import static org.junit.Assert.assertTrue;

import java.util.Date;
import java.util.List;
import java.text.ParseException;

import javax.swing.table.TableModel;
```

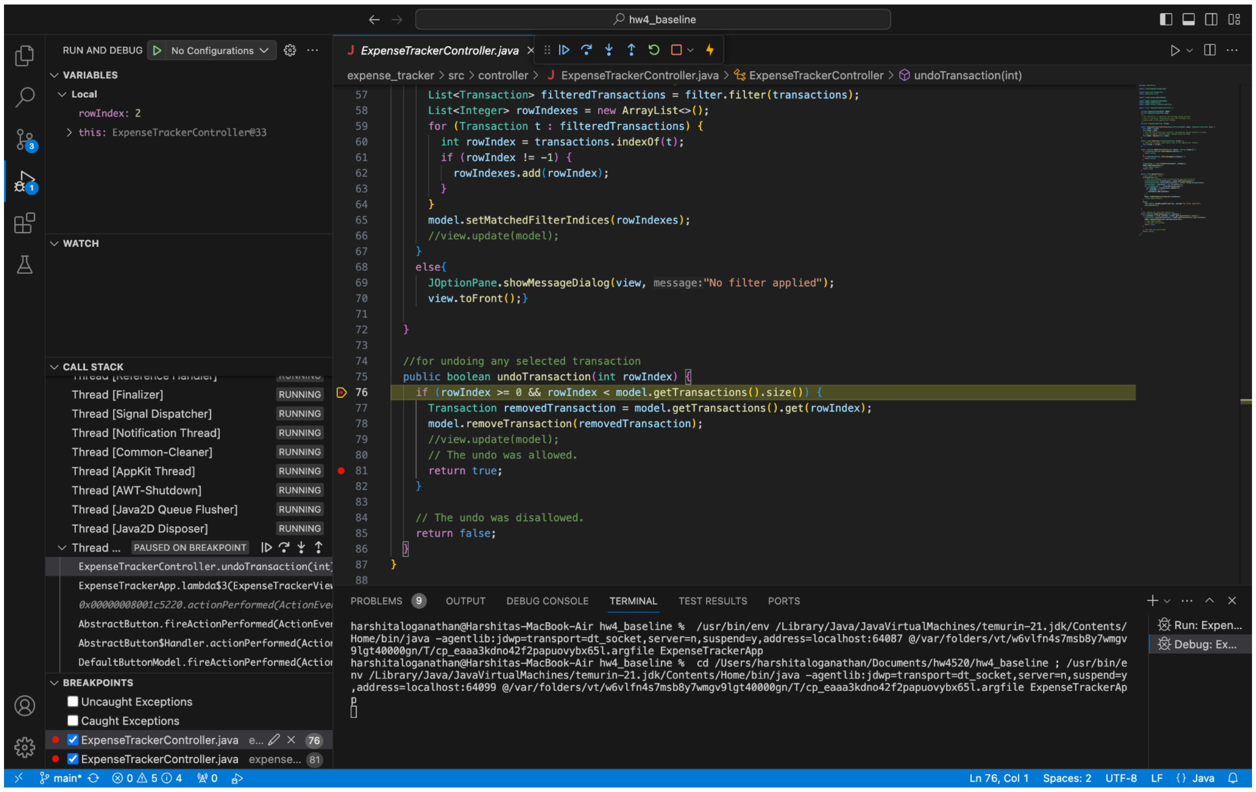
```
harshitaloganathan@Harshitas-MacBook-Air expense_tracker % ant test
Buildfile: /Users/harshitaloganathan/Documents/hw4520/hw4_baseline/expense_tracker/build.xml

init:

compile:

compile.tests:

test:
     [echo] Running unit tests ...
    [junit] Running TestExample
    [junit] Testsuite: TestExample
    [junit] Tests run: 11, Failures: 0, Errors: 0, Skipped: 0, Time elapsed: 1.148 sec
    [junit] Tests run: 11, Failures: 0, Errors: 0, Skipped: 0, Time elapsed: 1.148 sec
    [junit]
    [junit] Testcase: testUndoAddTransaction took 0.887 sec
    [junit] Testcase: testInvalidInputHandling took 0.019 sec
    [junit] Testcase: testFilterByAmount took 0.033 sec
    [junit] Testcase: testUndoNoTransactions took 0.016 sec
    [junit] Testcase: testAddTransactionInView took 0.026 sec
    [junit] Testcase: testRegisterFails took 0.025 sec
    [junit] Testcase: testRegisterSucceeds took 0.037 sec
    [junit] Testcase: testFilterByCategory took 0.023 sec
    [junit] Testcase: testAddTransaction took 0.036 sec
    [junit] Testcase: testUndoAddTransactionInView took 0.015 sec
    [junit] Testcase: testRemoveTransaction took 0.026 sec

BUILD SUCCESSFUL
Total time: 1 second
harshitaloganathan@Harshitas-MacBook-Air expense_tracker % 
```

3. Screenshot of the debugger displaying the set breakpoints at the undo function


hw4_baseline
RUN AND DEBUG
No Configurations
VARIABLES
WATCH
CALL STACK
BREAKPOINTS
ExpenseTrackerController.java
expense_tracker > src > controller > ExpenseTrackerController.java > ExpenseTrackerController > undoTransaction(int)

BREAKPOINTS
- Uncaught Exceptions
- Caught Exceptions
- ✓ ExpenseTrackerController.java e... 76
- ✓ ExpenseTrackerController.java expense... 78
- ✓ ExpenseTrackerController.java expense... 81

```java
  //for undoing any selected transaction
  public boolean undoTransaction(int rowIndex) {
    if (rowIndex >= 0 && rowIndex < model.getTransactions().size()) {
      Transaction removedTransaction = model.getTransactions().get(rowIndex);
      model.removeTransaction(removedTransaction);
      //view.update(model);
      // The undo was allowed.
      return true;
    }

    // The undo was disallowed.
    return false;
  }
}
```



VARIABLES
Local
rowIndex: 2
this: ExpenseTrackerController@33

WATCH

CALL STACK
Thread [Reference Handler] RUNNING
Thread [Finalizer] RUNNING
Thread [Signal Dispatcher] RUNNING
Thread [Notification Thread] RUNNING
Thread [Common-Cleaner] RUNNING
Thread [AppKit Thread] RUNNING
Thread [AWT-Shutdown] RUNNING
Thread [Java2D Queue Flusher] RUNNING
Thread [Java2D Disposer] RUNNING
Thread ... PAUSED ON BREAKPOINT
ExpenseTrackerController.undoTransaction(int)
ExpenseTrackerApp.lambda$3(ExpenseTrackerView
0x000000008001c5220.actionPerformed(ActionEve
AbstractButton.fireActionPerformed(ActionEve
AbstractButton$Handler.actionPerformed(Actio
DefaultButtonModel.fireActionPerformed(Actio

BREAKPOINTS
- Uncaught Exceptions
- Caught Exceptions
- ✓ ExpenseTrackerController.java e... 76
- ✓ ExpenseTrackerController.java expense... 81

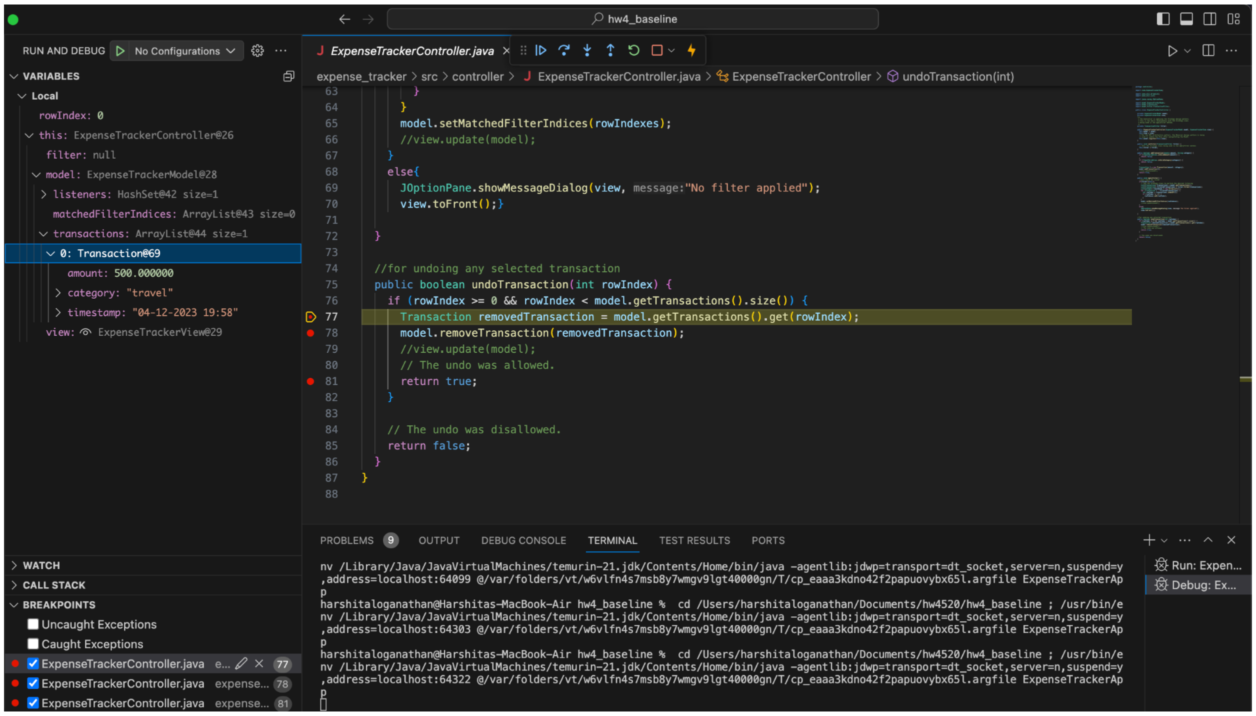
```java
      List<Transaction> filteredTransactions = filter.filter(transactions);
      List<Integer> rowIndexes = new ArrayList<>();
      for (Transaction t : filteredTransactions) {
        int rowIndex = transactions.indexOf(t);
        if (rowIndex != -1) {
          rowIndexes.add(rowIndex);
        }
      }
      model.setMatchedFilterIndices(rowIndexes);
      //view.update(model);
    }
    else{
      JOptionPane.showMessageDialog(view, message:"No filter applied");
      view.toFront();}

  }

  //for undoing any selected transaction
  public boolean undoTransaction(int rowIndex) {
    if (rowIndex >= 0 && rowIndex < model.getTransactions().size()) {
      Transaction removedTransaction = model.getTransactions().get(rowIndex);
      model.removeTransaction(removedTransaction);
      //view.update(model);
      // The undo was allowed.
      return true;
    }

    // The undo was disallowed.
    return false;
  }
}
```

```
harshitaloganathan@Harshitas-MacBook-Air hw4_baseline %  /usr/bin/env /Library/Java/JavaVirtualMachines/temurin-21.jdk/Contents/
Home/bin/java -agentlib:jdwp=transport=dt_socket,server=n,suspend=y,address=localhost:64087 @/var/folders/vt/w6vlfn4s7msb8y7wmgv
9lgt40000gn/T/cp_eaaa3kdno42f2papuovybx65l.argfile ExpenseTrackerApp
harshitaloganathan@Harshitas-MacBook-Air hw4_baseline %  cd /Users/harshitaloganathan/Documents/hw4520/hw4_baseline ; /usr/bin/e
nv /Library/Java/JavaVirtualMachines/temurin-21.jdk/Contents/Home/bin/java -agentlib:jdwp=transport=dt_socket,server=n,suspend=y
,address=localhost:64099 @/var/folders/vt/w6vlfn4s7msb8y7wmgv9lgt40000gn/T/cp_eaaa3kdno42f2papuovybx65l.argfile ExpenseTrackerAp
p
```

4 and 5

Screenshot of the debugger illustrating the program's execution state, specifically the variables view, after a transaction has been added but before the undo operation is initiated, highlighting the correct setting of the model and/or UI components.
And
Screenshot of the debugger illustrating the program's execution state after executing the undo operation, demonstrating that the model and/or UI components have returned to their initial, empty state.

4.


hw4_baseline
RUN AND DEBUG
No Configurations
ExpenseTrackerController.java
expense_tracker > src > controller > ExpenseTrackerController.java > ExpenseTrackerController > undoTransaction(int)
PROBLEMS 9
OUTPUT
DEBUG CONSOLE
TERMINAL
TEST RESULTS
PORTS
Run: Expen...
Debug: Ex...

VARIABLES

```
Local
  rowIndex: 0
  this: ExpenseTrackerController@26
    filter: null
    model: ExpenseTrackerModel@28
      listeners: HashSet@42 size=1
      matchedFilterIndices: ArrayList@43 size=0
      transactions: ArrayList@44 size=1
        0: Transaction@69
          amount: 500.000000
          category: "travel"
          timestamp: "04-12-2023 19:58"
    view: ExpenseTrackerView@29
```

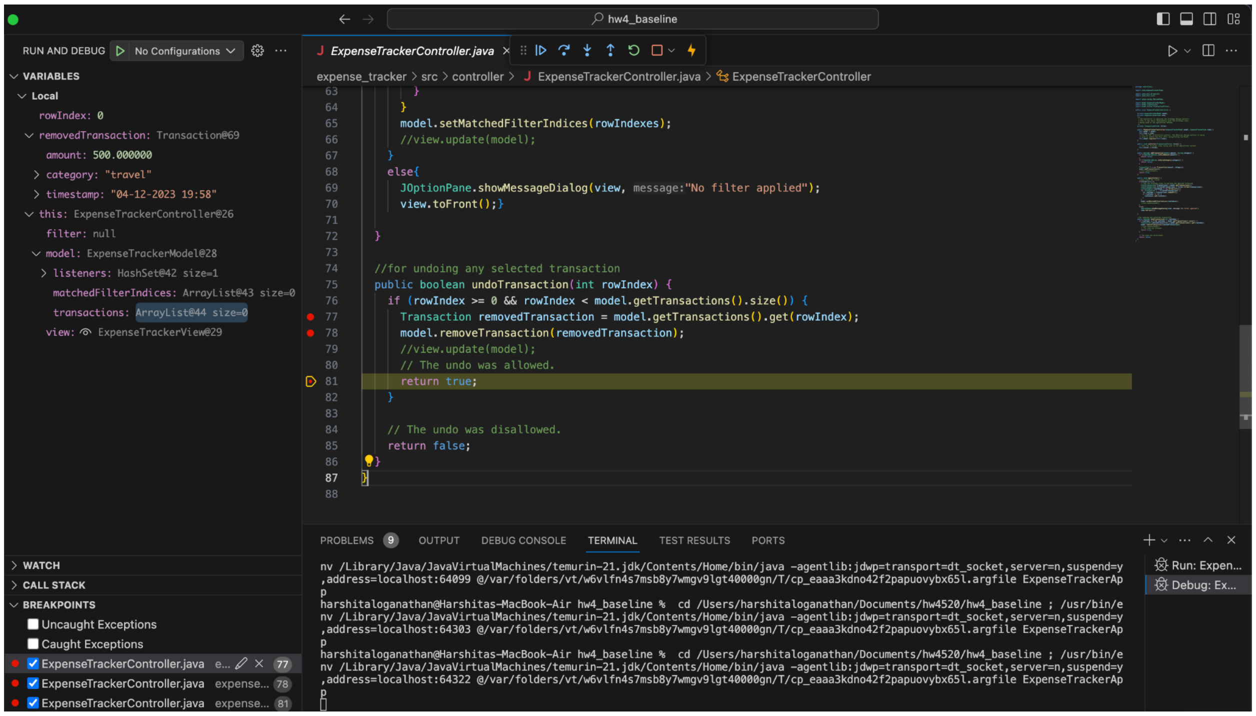
```java
63              }
64          }
65          model.setMatchedFilterIndices(rowIndexes);
66          //view.update(model);
67        }
68        else{
69          JOptionPane.showMessageDialog(view, message:"No filter applied");
70          view.toFront();}
71
72      }
73
74      //for undoing any selected transaction
75      public boolean undoTransaction(int rowIndex) {
76        if (rowIndex >= 0 && rowIndex < model.getTransactions().size()) {
77          Transaction removedTransaction = model.getTransactions().get(rowIndex);
78          model.removeTransaction(removedTransaction);
79          //view.update(model);
80          // The undo was allowed.
81          return true;
82        }
83
84        // The undo was disallowed.
85        return false;
86      }
87    }
88
```

WATCH
CALL STACK
BREAKPOINTS

- [ ] Uncaught Exceptions
- [ ] Caught Exceptions
- [x] ExpenseTrackerController.java e... 77
- [x] ExpenseTrackerController.java expense... 78
- [x] ExpenseTrackerController.java expense... 81

```
nv /Library/Java/JavaVirtualMachines/temurin-21.jdk/Contents/Home/bin/java -agentlib:jdwp=transport=dt_socket,server=n,suspend=y
,address=localhost:64099 @/var/folders/vt/w6vlfn4s7msb8y7wmgv9lgt40000gn/T/cp_eaaa3kdno42f2papuovybx65l.argfile ExpenseTrackerAp
p
harshitaloganathan@Harshitas-MacBook-Air hw4_baseline %  cd /Users/harshitaloganathan/Documents/hw4520/hw4_baseline ; /usr/bin/e
nv /Library/Java/JavaVirtualMachines/temurin-21.jdk/Contents/Home/bin/java -agentlib:jdwp=transport=dt_socket,server=n,suspend=y
,address=localhost:64303 @/var/folders/vt/w6vlfn4s7msb8y7wmgv9lgt40000gn/T/cp_eaaa3kdno42f2papuovybx65l.argfile ExpenseTrackerAp
p
harshitaloganathan@Harshitas-MacBook-Air hw4_baseline %  cd /Users/harshitaloganathan/Documents/hw4520/hw4_baseline ; /usr/bin/e
nv /Library/Java/JavaVirtualMachines/temurin-21.jdk/Contents/Home/bin/java -agentlib:jdwp=transport=dt_socket,server=n,suspend=y
,address=localhost:64322 @/var/folders/vt/w6vlfn4s7msb8y7wmgv9lgt40000gn/T/cp_eaaa3kdno42f2papuovybx65l.argfile ExpenseTrackerAp
p
```

5.



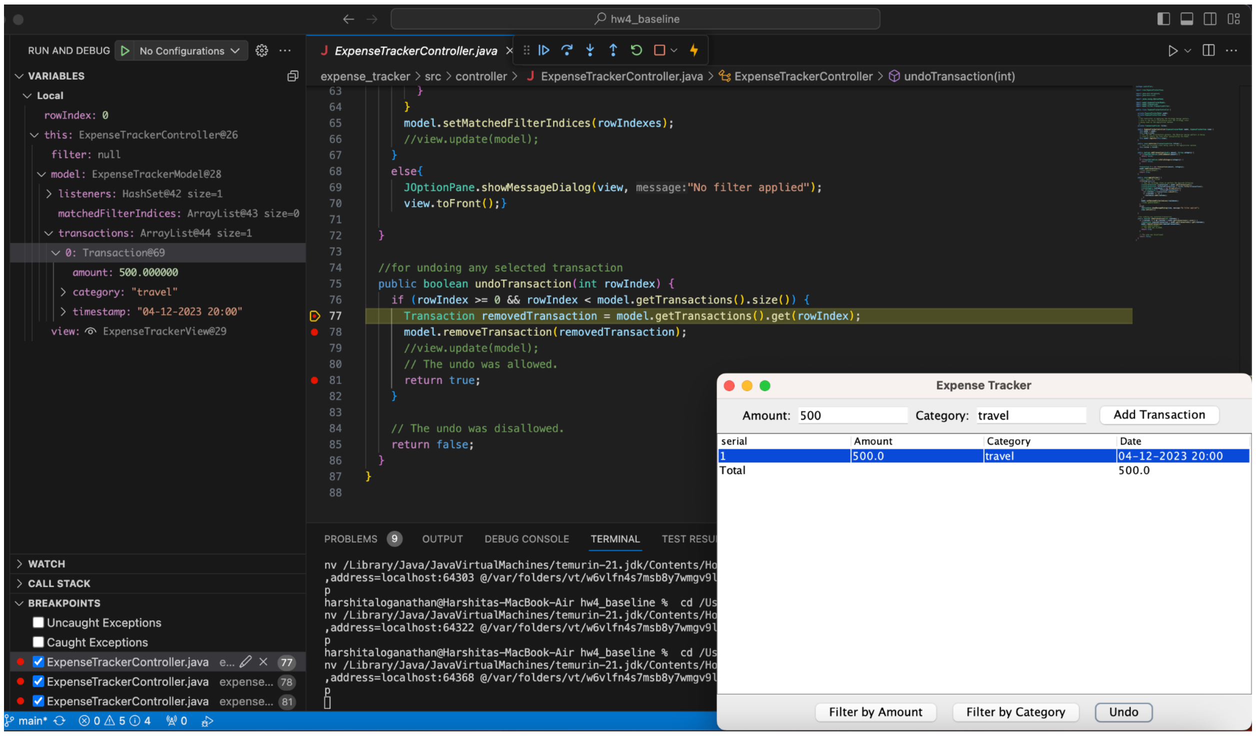
```
VARIABLES
  Local
    rowIndex: 0
    removedTransaction: Transaction@69
      amount: 500.000000
      category: "travel"
      timestamp: "04-12-2023 19:58"
    this: ExpenseTrackerController@26
      filter: null
      model: ExpenseTrackerModel@28
        listeners: HashSet@42 size=1
        matchedFilterIndices: ArrayList@43 size=0
        transactions: ArrayList@44 size=0
      view: ExpenseTrackerView@29
```

```java
          }
        }
        model.setMatchedFilterIndices(rowIndexes);
        //view.update(model);
      }
      else{
        JOptionPane.showMessageDialog(view, message:"No filter applied");
        view.toFront();}

    }

    //for undoing any selected transaction
    public boolean undoTransaction(int rowIndex) {
      if (rowIndex >= 0 && rowIndex < model.getTransactions().size()) {
        Transaction removedTransaction = model.getTransactions().get(rowIndex);
        model.removeTransaction(removedTransaction);
        //view.update(model);
        // The undo was allowed.
        return true;
      }

      // The undo was disallowed.
      return false;
    }
}
```

```
BREAKPOINTS
  Uncaught Exceptions
  Caught Exceptions
  ✓ ExpenseTrackerController.java  e...  77
  ✓ ExpenseTrackerController.java  expense...  78
  ✓ ExpenseTrackerController.java  expense...  81
```

```
nv /Library/Java/JavaVirtualMachines/temurin-21.jdk/Contents/Home/bin/java -agentlib:jdwp=transport=dt_socket,server=n,suspend=y
,address=localhost:64099 @/var/folders/vt/w6vlfn4s7msb8y7wmgv9lgt40000gn/T/cp_eaaa3kdno42f2papuovybx65l.argfile ExpenseTrackerAp
p
harshitaloganathan@Harshitas-MacBook-Air hw4_baseline %  cd /Users/harshitaloganathan/Documents/hw4520/hw4_baseline ; /usr/bin/e
nv /Library/Java/JavaVirtualMachines/temurin-21.jdk/Contents/Home/bin/java -agentlib:jdwp=transport=dt_socket,server=n,suspend=y
,address=localhost:64303 @/var/folders/vt/w6vlfn4s7msb8y7wmgv9lgt40000gn/T/cp_eaaa3kdno42f2papuovybx65l.argfile ExpenseTrackerAp
p
harshitaloganathan@Harshitas-MacBook-Air hw4_baseline %  cd /Users/harshitaloganathan/Documents/hw4520/hw4_baseline ; /usr/bin/e
nv /Library/Java/JavaVirtualMachines/temurin-21.jdk/Contents/Home/bin/java -agentlib:jdwp=transport=dt_socket,server=n,suspend=y
,address=localhost:64322 @/var/folders/vt/w6vlfn4s7msb8y7wmgv9lgt40000gn/T/cp_eaaa3kdno42f2papuovybx65l.argfile ExpenseTrackerAp
p
```

4.



```
VARIABLES
  Local
    rowIndex: 0
    this: ExpenseTrackerController@26
      filter: null
      model: ExpenseTrackerModel@28
        listeners: HashSet@42 size=1
        matchedFilterIndices: ArrayList@43 size=0
        transactions: ArrayList@44 size=1
          0: Transaction@69
            amount: 500.000000
            category: "travel"
            timestamp: "04-12-2023 20:00"
      view: ExpenseTrackerView@29
```

```java
          }
        }
        model.setMatchedFilterIndices(rowIndexes);
        //view.update(model);
      }
      else{
        JOptionPane.showMessageDialog(view, message:"No filter applied");
        view.toFront();}

    }

    //for undoing any selected transaction
    public boolean undoTransaction(int rowIndex) {
      if (rowIndex >= 0 && rowIndex < model.getTransactions().size()) {
        Transaction removedTransaction = model.getTransactions().get(rowIndex);
        model.removeTransaction(removedTransaction);
        //view.update(model);
        // The undo was allowed.
        return true;
      }

      // The undo was disallowed.
      return false;
    }
}
```

Amount: 500   Category: travel

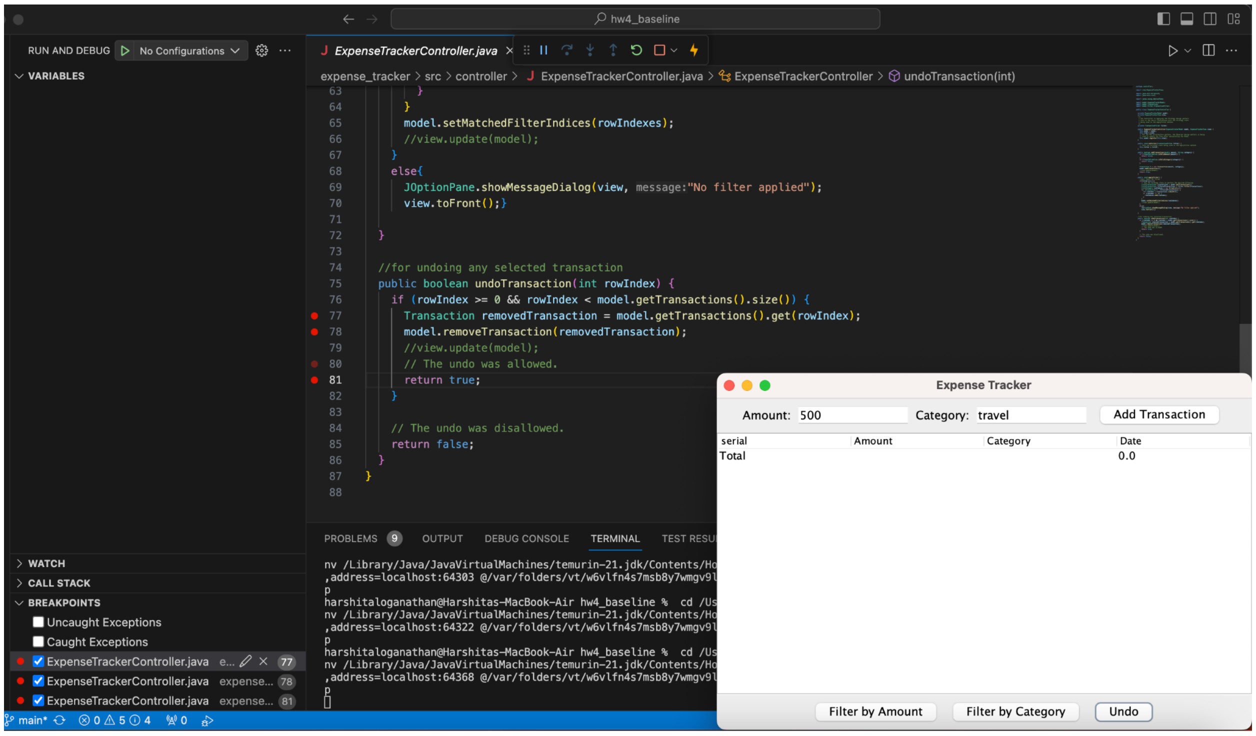
serial	Amount	Category	Date
1	500.0	travel	04-12-2023 20:00
Total			500.0

```
BREAKPOINTS
  Uncaught Exceptions
  Caught Exceptions
  ✓ ExpenseTrackerController.java  e...  77
  ✓ ExpenseTrackerController.java  expense...  78
  ✓ ExpenseTrackerController.java  expense...  81
```

```
nv /Library/Java/JavaVirtualMachines/temurin-21.jdk/Contents/Ho
,address=localhost:64303 @/var/folders/vt/w6vlfn4s7msb8y7wmgv9l
p
harshitaloganathan@Harshitas-MacBook-Air hw4_baseline %  cd /Us
nv /Library/Java/JavaVirtualMachines/temurin-21.jdk/Contents/Ho
,address=localhost:64322 @/var/folders/vt/w6vlfn4s7msb8y7wmgv9l
p
harshitaloganathan@Harshitas-MacBook-Air hw4_baseline %  cd /Us
nv /Library/Java/JavaVirtualMachines/temurin-21.jdk/Contents/Ho
,address=localhost:64368 @/var/folders/vt/w6vlfn4s7msb8y7wmgv9l
p
```

```
main*  ⊗ 0 ⚠ 5 ⓘ 4   0
```

5.



hw4_baseline
RUN AND DEBUG
No Configurations
VARIABLES
ExpenseTrackerController.java
expense_tracker > src > controller > ExpenseTrackerController.java > ExpenseTrackerController > undoTransaction(int)

```java
            }
        }
        model.setMatchedFilterIndices(rowIndexes);
        //view.update(model);
      }
      else{
        JOptionPane.showMessageDialog(view, message:"No filter applied");
        view.toFront();}

    }

    //for undoing any selected transaction
    public boolean undoTransaction(int rowIndex) {
      if (rowIndex >= 0 && rowIndex < model.getTransactions().size()) {
        Transaction removedTransaction = model.getTransactions().get(rowIndex);
        model.removeTransaction(removedTransaction);
        //view.update(model);
        // The undo was allowed.
        return true;
      }

      // The undo was disallowed.
      return false;
    }
  }

```

```
nv /Library/Java/JavaVirtualMachines/temurin-21.jdk/Contents/Ho
,address=localhost:64303 @/var/folders/vt/w6vlfn4s7msb8y7wmgv9l
p
harshitaloganathan@Harshitas-MacBook-Air hw4_baseline %  cd /Us
nv /Library/Java/JavaVirtualMachines/temurin-21.jdk/Contents/Ho
,address=localhost:64322 @/var/folders/vt/w6vlfn4s7msb8y7wmgv9l
p
harshitaloganathan@Harshitas-MacBook-Air hw4_baseline %  cd /Us
nv /Library/Java/JavaVirtualMachines/temurin-21.jdk/Contents/Ho
,address=localhost:64368 @/var/folders/vt/w6vlfn4s7msb8y7wmgv9l
p
```

- [ ] Uncaught Exceptions
- [ ] Caught Exceptions
- [x] ExpenseTrackerController.java e... 77
- [x] ExpenseTrackerController.java expense... 78
- [x] ExpenseTrackerController.java expense... 81

Expense Tracker

Amount: 500   Category: travel   Add Transaction

serial	Amount	Category	Date
Total			0.0