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ATM White Box Test Suite

This document contains a description of the white box tests used for ATMExample. The test suite goes through each class and tests each method and all their branches. Some methods that interacted with the GUI had to be skipped since they returned an error. Also private methods were not tested directly but in most cases were tested indirectly by other methods in their class.

100% of the tests passed but coverage was only 82.7%. This is due to private methods that were not tested and some GUI methods that had to be skipped since they produced errors. These methods produced errors when certain GUI objects that were expected to exist did not exist. Many of these errors were null pointer exceptions.

Every test is not described for the sake of brevity.

Mock Simulation

This class is used to for classes that require the Simulation class methods that are still tied to the GUI. Most of these methods do nothing but some return null or a boolean value.

```
public MockSimulation(ATM atm)- constructor for MockSimulation

public Card readCard() - mock method; does nothing

public void ejectCard()- mock method; does nothing

public void retainCard()- mock method; does nothing

public void dispenseCash() - mock method; does nothing

public void clearDisplay()- mock method; does nothing

public void display(String message) - mock method; does nothing

public String readInput(int mode, int maxValue) - mock method; does nothing

public boolean acceptEnvelope()- returns value of envelopeInserted

public Status sendMessage(Message message, Balances balance) - returns a
testSuccess Status

public class testSuccess extends Status - extends Status class

public boolean envelopeInserted - keeps track of when envelope is inserted
```

TestATMClass

All the methods in this class have been fully tested except for the run() method and performShutdown. There was difficulty getting run() to be covered completely since it ran as a thread. performShutdown() gave a null pointer exception.

TestATMPanelClass

All the code in this class is covered except listener that showed a log button in the constructor.

TestBalancesClass

All the code in this class is covered. It consists only of a constructor and methods that set the value of balance and retrieve the value

TestBillsPanelClass

The listener within the constructor of this class is not covered. Also code that reads input from a GUI is not covered.

TestCardClass

The coverage for this class is complete. It consists of only a constructor and a getter.

TestCardPanelClass

The listener in the constructor class is not covered. Portions of the readCard() method that use the GUI are also not covered.

TestCardReaderClass

This class is completely covered. It consists of a constructor and methods that facilitate reading a card from the user.

TestCashDispenserClass

This class is completely covered.

TestCustomerConsoleClass

This class is completely covered.

TestEnvelopeAcceptorClass

This class is completely covered

TestGUIClass

The majority of this class is covered except for the showCard and readCard methods which use the GUI

TestLogClass

This class is completely covered

TestLogPanelClass

This class is completely covered except for two listeners in the constructor.

TestMessageClass

This class is completely covered

TestMoneyClass

This class is completely covered

TestNetworkToBankClass

This class is completely covered. It consists only of a constructor and the sendMessage method which returns a Status object.

TestOperatorPanelClass

This class is completely covered. It consists of a constructor, a method which returns the initial cash amount in the atm, a method which sets the initial cash amount, a method which returns the number of NumberFormatExceptions encountered, and a method which returns which Java Card object is currently being displayed in GUI.mainLayout. These methods were tested by checking that they return the correct object.

TestReceiptClass

This class is completely covered. It consists of only of a constructor and a method which returns the lines of a receipt. It was tested by checking that it returned the lines of the receipt.

TestReceiptPrinterClass

This class it completely covered. It consists only of a constructor and prints the receipt.

TestSessionClass

This class is only partially covered. The performSession method is largely uncovered due to fact it is difficult to automate the different switch cases without starting a thread. The other methods which return different private fields of the class are completely covered.

TestSimCardReaderClass

This class is only partially covered. Two methods animateInsertion and animateEjection draw to the GUI. It is difficult to test these without a complete ATM running. The other methods in this class are tested completely.

TestSimCashDispenserClass

This code is mostly covered except for one line which catches an interruption. It is difficult to throw an exception unless this method is running as part of another thread.

SimDisplayClass

All of this class is covered except for one line which catches an exception. The other methods clear and print to the display. They are tested using the getDisplay method.

TestEnvelopeAcceptorClass

Large portions of this code are untested due to their reliance on a GUI. In the constructor code for a listener is uncovered. Portions of the acceptEnvelope method are uncovered as they animate the envelope going into the machine. This is difficult to test without a complete atm running.

TestSimKeyboardClass

There are significant portions of this class that are not covered since they are listeners that wait for keyboard input.

TestSimOperatorPanelClass

This class is mostly covered except for a portion of the constructor which is a listener and another portion which catches exceptions.

TestSimReceiptPrinterClass

This class is mostly covered except for a portion of the constructor which is a listener and another portion which catches exceptions.

TestSimulatedBankClass

This class is completely covered. The test class tests all the branches of the handleMessage method. The different methods for each transaction type are private but are tested through the handleMessage method.

TestSimulationClass

Most of this class is covered except for the ejectCard method which uses the GUI. This class facilitates interaction with different physical components of the ATM. The methods are tested by checking their return values or by checking other values they have affected such as those of displays.

TestStatusClass

This class is completely covered

TestTransactionClass

Large portions of this code are uncovered due to the difficulty in testing this class without an ATM running.