

# Midterm Exam

A202/A598/I211  
Spring Semester 2006

Lindley Hall 120—March 2, 11:15am

## Implement a Vending Machine.

Implement a vending machine that sells three products and has the interface presented below: three buttons, one for each of the products, a textfield where a new coin can be entered and a **Proceed** button for actually entering the coin in the machine. The picture below shows the vending machine after 75 cents have been entered and before a new dime is to be sent in. The credit is updated each time a valid coin is sent in, and the buttons for the products with a price below the current credit are active (enabled).

If instead of sending the dime we push the button for the crackers the interface will change, by showing a new credit of 0 (zero) and all three buttons will be disabled. The command prompt, where the program was compiled and started, will display two messages:

- a) The first one, **Enjoy your crackers** is equivalent to the dispensing of the merchandise. Again, this is printed in the command window.
- b) The second message instructs about giving change, indicating the necessary coins. In this case because the crackers are 55 cents and our credit was 75 cents we receive back 0 quarters, 2 dimes and 0 nickels.

The price of the items is displayed on the buttons (\$1.25 for the cookies, \$0.70 for the soda and \$0.55 for the crackers). The bounds for the user interface elements shown in the picture are:

```
cookies.setBounds(90, 80, 180, 30); // button
soda.setBounds(90, 130, 180, 30); // button
crackers.setBounds(90, 180, 180, 30); // button
labelOne.setBounds(20, 230, 210, 30);
proceed.setBounds(150, 280, 180, 30); // button
labelTwo.setBounds(20, 20, 290, 30);
```

but you should feel free to choose a different set of values with a similar effect. You are supposed to write a program in the same style as we have practiced throughout this semester thus far: there should be only one listener, the interface

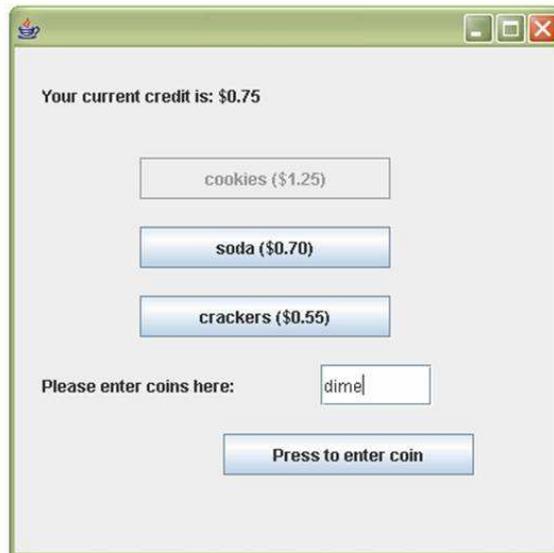


Figure 1: Interface of a vending machine after entering 75 cents worth of coins and right before entering a new coin, a dime. Only the buttons for a product that costs less than the current credit are enabled. The program starts with three disabled buttons in the user interface.

is to be put together through a static method (perhaps main) which creates a frame, gets its content pane, creates components and initializes them and adds them one by one to the content pane. Don't forget that the layout manager of the content pane should be disabled (in other words it's to be set to null).

Write your code in a blue book. Turn the code you write at the end of the exam (you have 75 minutes) to Adrian. Then take this piece of paper to the lab with you and implement the program, then turn it in your dropbox and/or the lab dropbox for this week. This exam is closed-book, the lab work is not. Work with care and with confidence, and do well.