Problem Wk.3.2: Nano Quiz

Due date: 2/17, 9:50am

Do all parts of this problem and then click Submit. There is only one Submit button, you should only do that when you are finished with all the parts of the problem.

Do not try to start another log in, you will lose what you typed.

There is a limited checking budget (20 checks) on this quiz.

You have 15 minutes. You must click submit before:

2/17, 9:50am

Part 1: Constructing a State Machine

Define a state machine for a vending machine.
- The vending machine has an unlimited number of sodas that it sells for 75 cents apiece.
- The user can deposit quarters in the machine.
- If the user presses the `cancel` button, all the coins she's put in so far are returned.
- If the user presses the `dispense` button,
  - If she had not deposited at least 75 cents, she gets no soda and no change.
  - If she had deposited 75 cents or more, she gets a soda and any amount over 75 cents that she has deposited.

More concretely,

- The input for the machine is one of:
  - `'quarter'` (25 cents) indicates that a coin has been deposited
  - `'cancel'` indicates that the user wants her money back
  - `'dispense'` indicates that the user wants a soda
- The output of the machine is:

  ```
  (change, soda)
  ```

  where
  - `change` is an integer that indicates (in cents) the amount of change (possibly 0) that is returned
  - `soda` is a boolean that indicates whether or not the machine will dispense a soda

For example:

```
Vending().transduce(['dispense', 'quarter', 'quarter', 'quarter', 'quarter',
                     'dispense', 'quarter', 'cancel', 'dispense'])
```

would return:

```
[(0, False), (0, False), (0, False), (0, False), (0, False),
 (25, True), (0, False), (25, False), (0, False)]
```

```
class Vending(sm.SM):
    pass
```

20 checks left (Check) (Save)

Part 2: Enable Submit

Current time is: **3/1/2011, 9:23pm**

Click Submit before: **2/17, 9:50am**

The Check button will update the current time.

Enter Done below

[   ]

and click Submit.

If this problem is submitted past the due time, this subproblem will be marked incorrect.

20 checks left (Check)

6.01SC Introduction to Electrical Engineering and Computer Science
Spring 2011