

**Sketch an automated solution (on paper) that can score a black-friday item (i.e. the item that will get sold in a few seconds) from Amazon. In your design, you should clearly explain the challenge and how your automated solution works to add a super hot item in your shopping cart asap.**

### **Assumptions**

- there is only one black-friday item that this automated solution is targeting
- Amazon will not ban my IP address for sending too many requests in a certain time frame
- the automated solution aims to add the item to my shopping cart and purchase it immediately using stored credit card credentials
- upon successful purchase of one black-friday item, the automation stops
- the black-friday item page link is static (i.e. it doesn't change)

### **Challenges**

- the black-friday item is usually out of stock as it is targeted by a lot of users
- the item will get sold out in a few seconds
- Amazon may price the item differently each time it is available, my automated solution should have a price threshold (if item is priced higher than threshold, do not add to shopping cart)
- if there are multiple instances of the item being sold, select the one with lowest price

### **Approach**

- implement the solution using Selenium 2.0 Firefox WebDriver in Java
- execute the automated script in an infinite loop, until terminated by user or an item is bought
- Java Logging API is used to provide critical time-stamped information
- login errors, failed add to cart attempts, failed checkout attempts, etc are logged as SEVERE
- compose XPath queries targeting the necessary WebElements for Selenium to perform actions on
- XPath queries are exact so this method is best suited for this task
- there are Firefox extensions that can easily locate the XPath query for an element through inspection
- Amazon pages that are relevant to solution are
  - Amazon user login page
  - black-friday item detail page (contains product info, stock available, price, add to cart button)
  - Amazon shopping cart page
  - Amazon checkout page
  - Amazon purchase confirmation page

**Amazon user login page WebElements**

- email address text field
- “Yes, I have a password” radio button
- password text field
- “Sign in using our secure server” button

**Amazon item detail page WebElements**

- item name text label
- “Price” text label
- “Add to Cart” button

**Amazon shopping cart page WebElements**

- “1 item added to cart” text label
- item name text label
- “Proceed to checkout” button

**Amazon checkout page WebElements**

- item name text label
- last 4 digits of credit card text label
- shipping address text labels
- “Order Total” text label
- “Place your order” button

**Amazon purchase confirmation page**

- “Order confirmed” text label

Activity Diagram of Amazon  
black-friday item purchaser

