

Recitation 9

Design Patterns

1. Draw a state diagram that models a user's shopping session at amazon.com, starting with a search. Show the UML for an implementation using the state design pattern including key fields and headers for the methods in the states.
2. Show how you would enhance the Singleton pattern to allow up to a maximum number of instances of an object. There should be a way for clients to recycle instances, i.e. when a client is finished with an instance, it gives it up, and this instance can be later dealt out in response to a new instance request.
3. Say you design a [BinaryTree](#) class. How will you use the [Iterator](#) design pattern to implement preorder, inorder, and postorder traversals, each of which just prints the data stored at each node? Sketch your design, and show how a client can call on the different traversals.