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| Computer Science 112 Computer Science with Java IISpring, 2016 |  |

**Lab Report – Week *[1]* - *[States – Multiple Classes]***

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**Assignment Analysis and Design**

*To develop my code, first I did a mock UML diagram to get a feel for how the program was going to function. Then I did a few test lines of pseudocode that sampled the main block. I designed the State class first which was necessary to begin the StateList class. The StateList class has two members : an integer size, and an array of state objects. This array can be populated in two ways: by calling addState(State state) or by calling addState(File file) methods which in turn calls addState(state) in a for statement. Next there is a getIndex(String stateName) method which returns an integer value. If the name isn’t found, a -1 is returned, else the index returns . This method is called by both the searchState(String stateName) and removeState(String stateName)methods. The searchState(stateName) method simply prints the data found at the index of the StateList array. To remove a state, the method simply copies the data from the right of each element at the index, to the index in a for statement. When the counter is incremented, the next element is copied until the entire array is finished. Then the size datamember is decremented.*

**Assignment Code**

*Source code included in attached file.*

**Assignment Testing**

*I tested a few different cases to verify that the program works correctly. First I tested that the document was being loaded properly by calling the print method of StateList. Then I tested the print method of StateList simply by calling it from the main method of States class, and verifying it was being formatted properly. The private getIndex(String stateName) method is probably the most complicated part of the class. To test this I just called several states with the searchState(String stateName) method and made sure it printed correctly. To test the removeState(String stateName) I simply tested that it removed the state if found or it notified the user that the state was not found.*

**Assignment Evaluation**

*Briefly describe what you learned from this project. What things did you struggle with? what was easy? Give your opinions of the process, including what you liked about the project and any suggestions you have for improving the project.*

*I learned a lot during this project about designing arrays of classes in their own class. This was a first, and it was a little tricky. I was especially confused trying to figure out how to design the searchState and removeState methods, which I finally solved by implementing the private getIndex() method. I am still a little unsure if putting the try/catch block inside the StateList method was safe, but I decided that it definitely made using the code easier as illustrated by the simplicity of the main method.*