Name: William Crutchfield
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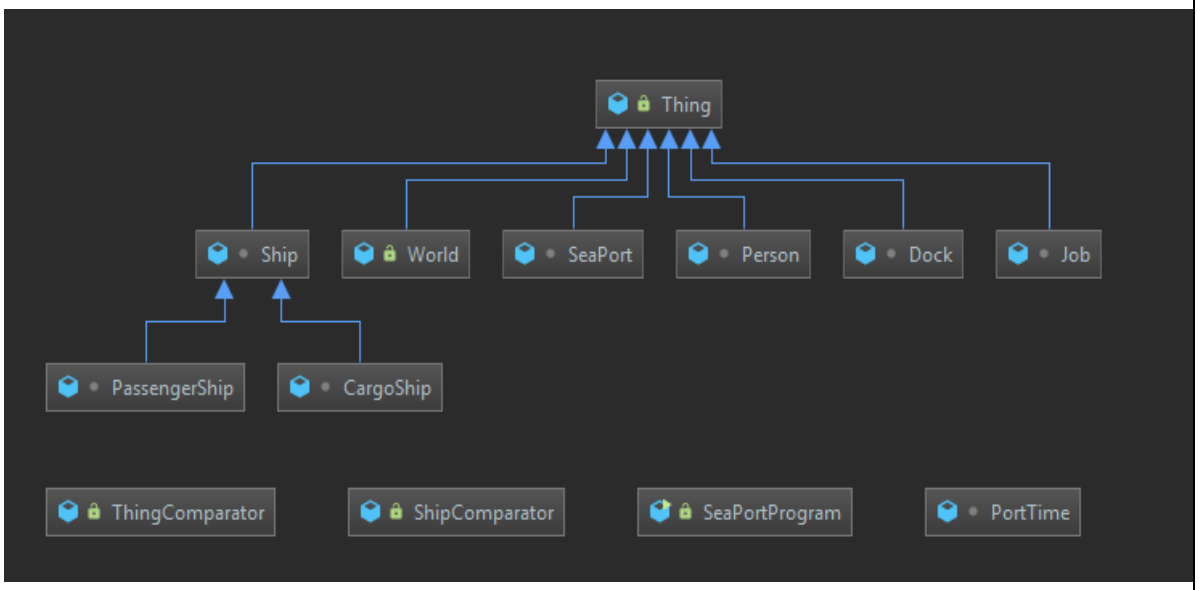
Course: CMSC 335 – Object-Oriented and Concurrent Programming
Project: 2

1	**Source code, data files, and configuration files (if any)** Insert a zipped file of NetBeans ALL project files (so that it could be unzipped and loaded into NetBeans IDE again), zipped file of all data files, and zipped file of configuration files (if any). : src.zip
2	**Design** Insert here UML Class diagram, explain classes, variables, methods, explain how classes tie to the requirements of the project:  The main difference in this UML Diagram compared to the previous project, is that we have two new classes, ThingComparator and ShipComparator. ThingComparator is the default comparator that is used to sort objects by name and index. The ShipComparator is a specialized comparator that is used for Ship objects only. ShipComparator technically extends ThingComparator by calling ThingComparator if the specialized compare methods in ShipComparator are not needed. However, ShipComparator does not actually "extend" ThingComparator due to the need to implement a comparator for Ship objects only.

3 **User Guide**

Explain how a user starts & runs your project, and any specific features with screenshots:

In order to run this project, download the src.zip file and extract. Once extracted, open the src files up in any IDE. Lastly, run the SeaPortProgram.java file.

4 **Test Plan**

Complete this table and extend it with your test cases:

Test ID	Test Case	Selected Input	Expected Output	Actual Output (Screenshots)	Pass/Fail
1	Sort aSPab.txt by Port name	aSPab.txt	Bangpakong Majunga Port_Des_Galets Wuchun Xiangtan	(Please see attached Screenshots) - Capture1.PNG - Capture2.PNG	Pass, looking at the screenshots, we can see that the ports are now order alphabetically. I called toString on the sort method so that the user may see the sorted data structure and compare it to the original data structure.
2	Sort aSPab.txt by Dock name (following results of previous test case)	aSPab.txt	Pier_0 Pier_1 Pier_2 Pier_3 Pier_4 Pier_5 Etc.	(Please see attached Screenshots) - Capture3.PNG - Capture4.PNG	Pass, looking at the screenshots, we can see that each port now organizes it's docks by name. It is important to note that it is organized by port, so each independent port is sorted by dock name.
3	Sort aSPab.txt by Dock name (following results of	aSPab.txt	(Bangpakong Port) Anteroom Aspheric Bilberry Ceaselessly	(Please see attached Screenshots) - Capture5.PNG - Capture6.PNG	Pass, looking at the screenshots, we can see that each port now organizes ships by name. It is important to note

	previous test case		Cracking Crocus Etc.		that this does NOT organize ships in the queue by name.
6	Sort aSPab.txt by Queue name (following results of previous test case	aSPab.txt	(Bangpakong Port) Anteroom Bilberry Ceaselessly Crocus Enlightening Etc.	(Please see attached Screenshots) - Capture7.PNG - Capture8.PNG	Pass, looking at the screenshots, we can see that the ships in the queue are now sorted by name.
7	Sort aSPab.txt by Queue weight (following results of previous test case	aSPab.txt	(Bangpakong Port) 54.18 80.48 81.46 99.27 Etc.	(Please see attached Screenshots) - Capture9.PNG - Capture10.PNG	Pass, looking at the screenshots, we can see that the ships in the queue are now sorted by weight (first decimal number following the ship).
8	Sort aSPab.txt by Queue length (following results of previous test case	aSPab.txt	(Bangpakong Port) 122.9 132.61 170.63 189.42 Etc.	(Please see attached Screenshots) - Capture11.PNG - Capture12.PNG	Pass, looking at the screenshots, we can see that the ships in the queue are now sorted by length (second decimal number following the ship).
9	Sort aSPab.txt by Queue width (following results of previous test case	aSPab.txt	(Bangpakong Port) 39.44 42.0 77.75 81.0 Etc.	(Please see attached Screenshots) - Capture13.PNG - Capture14.PNG	Pass, looking at the screenshots, we can see that the ships in the queue are now sorted by width (third decimal number following the ship).
10	Sort aSPab.txt by Queue draft (following results of	aSPab.txt	(Bangpakong Port) 16.52 19.09 23.63	(Please see attached Screenshots) - Capture15.PNG - Capture16.PNG	Pass, looking at the screenshots, we can see that the ships in the queue are now sorted by draft

	previous test case		30.66 Etc.		(last decimal number following the ship).
11	Sort aSPab.txt by People name (following results of previous test case	aSPab.txt	(Bangpakong Port) Antonia Jaime Josefina Lindsay Etc.	(Please see attached Screenshots) - Capture17.PNG - Capture18.PNG	Pass, looking at the screenshots, we can see that the people are now sorted by name.

5 **Reflection and Lessons Learned**

Reflect on your experience completing this project and the lessons you learned:

Overall, I enjoyed this project a lot. I previously had very little experience with comparators in Java. This project forced me to explore the JDK and research the proper way to implement a comparator. However, I believe that I have implemented the comparators correctly. This project provided a great challenge for me, and I learned a lot during the process. Please let me know if there is anything I could improve upon!