Name: William Crutchfield

Date: 02/06/19

Course: CMSC 335 - Object-Oriented and Concurrent Programming

Project: 2

1 | Source code, data files, and configuration files (if any)

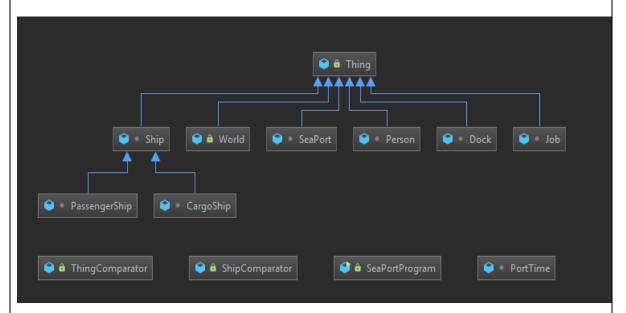
Insert a zipped file of NetBeans ALL project files (so that it could be unzipped and loaded into NetBeans IDE again), zipped file of all data files, and zipped file of configuration files (if any). :



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 Case 1:

Test Case: Sort aSPab.txt by Port name

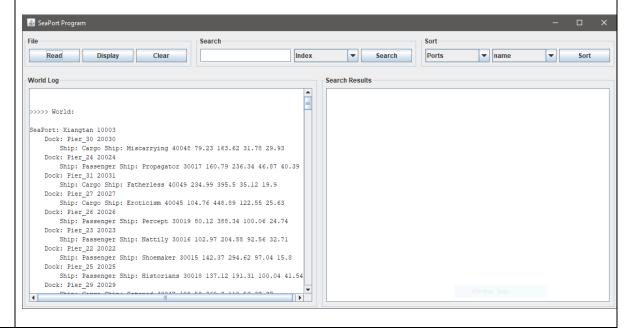
Selected Input: aSPab.txt

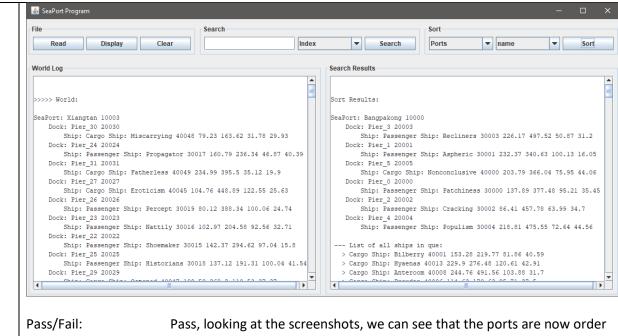
Expected Output: Bangpakong

Majunga

Port_Des_Galets

Wuchun Xiangtan





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.

Test Case 2:

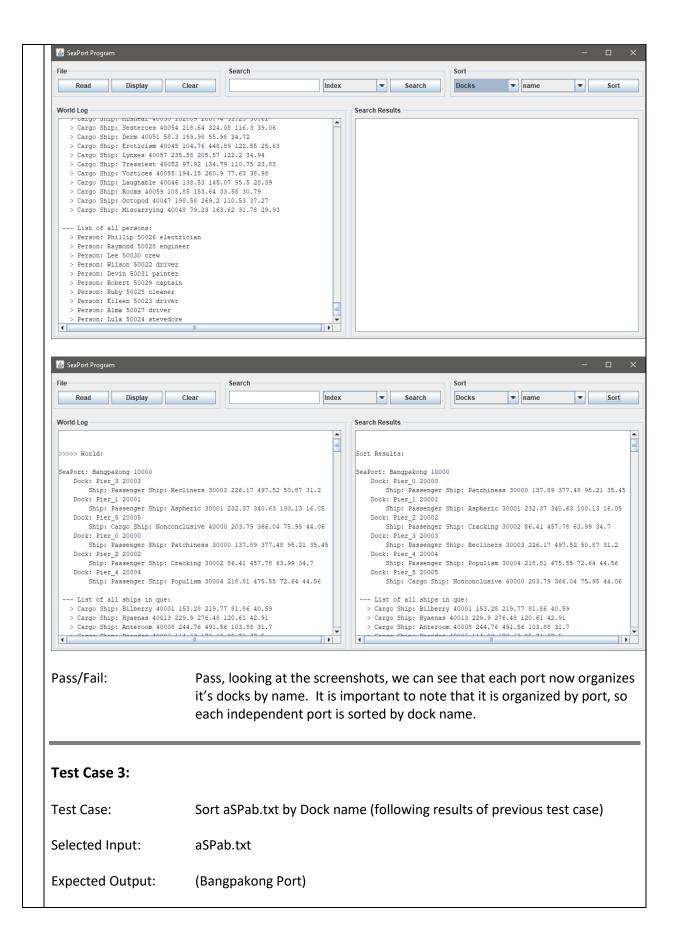
Test Case: Sort aSPab.txt by Dock name (following results of previous test case)

Selected Input: aSPab.txt

Expected Output: Pier 0

Pier_1 Pier_2 Pier_3 Pier_4 Pier_5

Etc.



Anteroom **Aspheric** Bilberry Ceaselessly Cracking Crocus Etc. **Actual Output:** 🙆 SeaPort Program File Sort Index Ships name Read Display Clear -Search -Sort Search Results Dock: Pier_5 20005 Ship: Cargo Ship: Nonconclusive 40000 203.79 366.04 75.95 44.06 --- List of all ships in que: > Cargo Ship: Bilberry 40001 153.28 219.77 81.86 40.59 > Cargo Ship: Hyaenas 40013 229.9 276.48 120.61 42.91 > Cargo Ship: Anteroom 40008 244.76 491.56 103.88 31.7 > Cargo Ship: Prouder 40006 114.63 170.63 85.71 37.5 > Cargo Ship: Pecky 40014 81.46 122.9 42.0 19.09 Cargo Ship: Uprears 40002 181.45 266.47 77.75 16.52 > Cargo Ship: Revolters 40003 121.94 480.01 119.33 41.24 > Cargo Ship: Subservience 40010 106.55 316.13 120.34 30.66 > Cargo Ship: Vindicator 40004 132.61 149.09 39.44 37.08
> Cargo Ship: Euphony 40005 80.48 222.75 84.59 43.25 Cargo Ship: Enlightening 40009 99.27 267.58 86.55 34.86 > Cargo Ship: Ceaselessly 40007 190.73 422.7 82.96 43.82 > Cargo Ship: Shipments 40012 54.18 189.42 81.0 23.63 > Cargo Ship: Crocus 40011 128.89 450.39 124.86 33.71 -- List of all ships: > Passenger Ship: Aspheric 30001 232.37 340.63 100.13 16.05 Passenger Ship: Populism 30004 218.81 475.55 72.64 44.56 | b | 🚣 SeaPort Program File Search Sort Ships Read Display Clear Index -Search ▼ name **v** Sort World Log Search Results -- List of all ships: --- List of all ships: > Passenger Ship: Aspheric 30001 232.37 340.63 100.13 16.05 > Passenger Ship: Populism 30004 218.81 475.55 72.64 44.56 > Cargo Ship: Anteroom 40008 244.76 491.56 103.88 31.7 > Passenger Ship: Aspheric 30001 232.37 340.63 100.13 16.05 > Passenger Ship: Cracking 30002 86.41 457.78 63.99 34.7
> Passenger Ship: Patchiness 30000 137.89 377.48 95.21 35.45 > Cargo Ship: Bilberry 40001 153.28 219.77 81.86 40.59 > Cargo Ship: Ceaselessly 40007 190.73 422.7 82.96 43.82 > Passenger Ship: Recliners 30003 226.17 497.52 50.87 31.2 > Passenger Ship: Cracking 30002 86.41 457.78 63.99 34.7 > Cargo Ship: Bilberry 40001 153.28 219.77 81.86 40.59 > Cargo Ship: Hyaenas 40013 229.9 276.48 120.61 42.91 > Cargo Ship: Crocus 40011 128.89 450.39 124.86 33.71 > Cargo Ship: Enlightening 40009 99.27 267.58 86.55 34.86 > Cargo Ship: Anteroom 40008 244.76 491.56 103.88 31.7 > Cargo Ship: Prouder 40006 114.63 170.63 85.71 37.5 > Cargo Ship: Euphony 40005 80.48 222.75 84.59 43.25 > Cargo Ship: Hyaenas 40013 229.9 276.48 120.61 42.91 > Cargo Ship: Pecky 40014 81.46 122.9 42.0 19.09 > Cargo Ship: Uprears 40002 181.45 266.47 77.75 16.52 > Cargo Ship: Nonconclusive 40000 203.79 366.04 75.95 44.06 > Passenger Ship: Patchiness 30000 137.89 377.48 95.21 35.45 Cargo Ship: Revolters 40003 121.94 480.01 119.33 41.24 > Cargo Ship: Pecky 40014 81.46 122.9 42.0 19.09 > Cargo Ship: Subservience 40010 106.55 316.13 120.34 30.66 > Passenger Ship: Populism 30004 218.81 475.55 72.64 44.56 > Cargo Ship: Vindicator 40004 132.61 149.09 39.44 37.08 > Cargo Ship: Prouder 40006 114.63 170.63 85.71 37.5 > Cargo Ship: Nonconclusive 40000 203.79 366.04 75.95 44.06 > Cargo Ship: Euphony 40005 80.48 222.75 84.59 43.25 > Passenger Ship: Recliners 30003 226.17 497.52 50.87 31.2 > Cargo Ship: Revolters 40003 121.94 480.01 119.33 41.24 Cargo Ship: Enlightening 40009 99.27 267.58 86.55 34.86 > Cargo Ship: Shipments 40012 54.18 189.42 81.0 23.63 > Cargo Ship: Ceaselessly 40007 190.73 422.7 82.96 43.82 > Cargo Ship: Subservience 40010 106.55 316.13 120.34 30.66 Cargo Ship: Shipments 40012 54.18 189.42 81.0 23.63 > Cargo Ship: Uprears 40002 181.45 266.47 77.75 16.52 > Cargo Ship: Crocus 40011 128.89 450.39 124.86 33.71 > Cargo Ship: Vindicator 40004 132.61 149.09 39.44 37.08 **|** Pass/Fail: Pass, looking at the screenshots, we can see that each port now organizes

ships by name. It is important to note that this does NOT organize ships

in the queue by name.

Test Case 4:

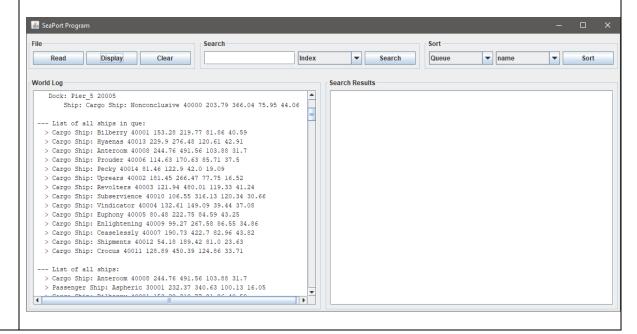
Test Case: Sort aSPab.txt by Queue name (following results of previous test case)

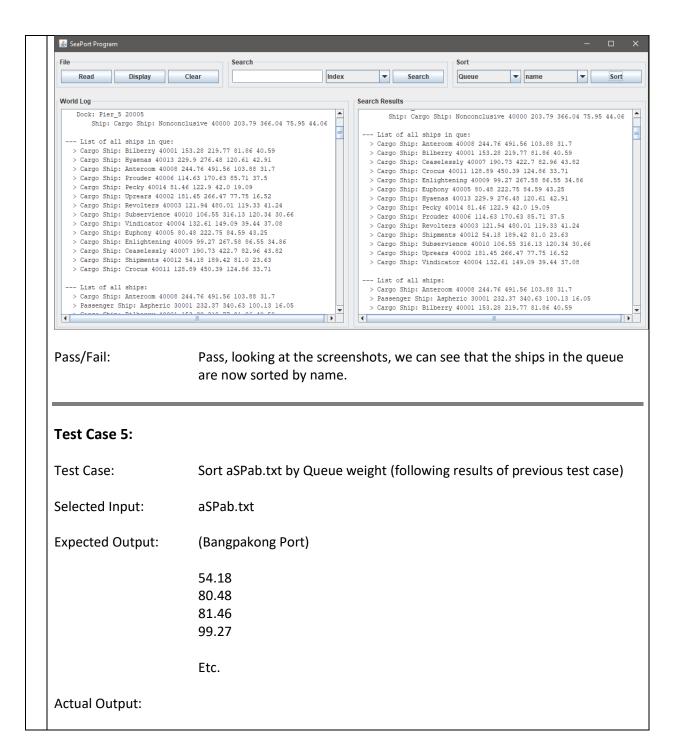
Selected Input: aSPab.txt

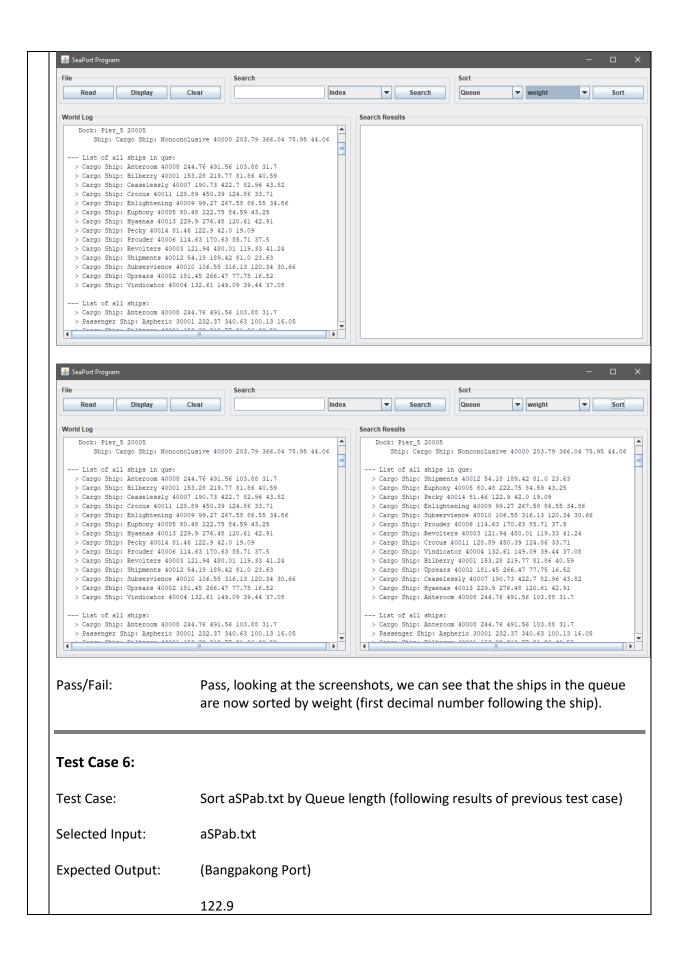
Expected Output: (Bangpakong Port)

Anteroom Bilberry Ceaselessly Crocus Enlightening

Etc.







132.61 170.63 189.42 Etc. **Actual Output:** 💪 SeaPort Program File Search Sort Queue ▼ length ▼ Read Index Search World Log Search Results Dock: Pier 5 20005 Ship: Cargo Ship: Nonconclusive 40000 203.79 366.04 75.95 44.06 -- List of all ships in que: > Cargo Ship: Shipments 40012 54.18 189.42 81.0 23.63 > Cargo Ship: Euphony 40005 80.48 222.75 84.59 43.25 Cargo Ship: Pecky 40014 81.46 122.9 42.0 19.09 > Cargo Ship: Enlightening 40009 99.27 267.58 86.55 34.86 > Cargo Ship: Subservience 40010 106.55 316.13 120.34 30.66 > Cargo Ship: Prouder 40006 114.63 170.63 85.71 37.5 > Cargo Ship: Revolters 40003 121.94 480.01 119.33 41.24 > Cargo Ship: Crocus 40011 128.89 450.39 124.86 33.71 > Cargo Ship: Vindicator 40004 132.61 149.09 39.44 37.08 > Cargo Ship: Bilberry 40001 153.28 219.77 81.86 40.59 > Cargo Ship: Uprears 40002 181.45 266.47 77.75 16.52 > Cargo Ship: Ceaselessly 40007 190.73 422.7 82.96 43.82 > Cargo Ship: Hyaenas 40013 229.9 276.48 120.61 42.91 > Cargo Ship: Anteroom 40008 244.76 491.56 103.88 31.7 --- List of all ships: > Cargo Ship: Anteroom 40008 244.76 491.56 103.88 31.7 > Passenger Ship: Aspheric 30001 232.37 340.63 100.13 16.05 SeaPort Program Search Sort Index Queue Read Display Clear -Search ▼ length Sort World Log Search Results Dock: Pier_5 20005 Dock: Pier_5 20005 Ship: Cargo Ship: Nonconclusive 40000 203.79 366.04 75.95 44.06 Ship: Cargo Ship: Nonconclusive 40000 203.79 366.04 75.95 44.06 -- List of all ships in que: --- List of all ships in que: > Cargo Ship: Shipments 40012 54.18 189.42 81.0 23.63 > Cargo Ship: Pecky 40014 81.46 122.9 42.0 19.09 > Cargo Ship: Vindicator 40004 132.61 149.09 39.44 37.08 > Cargo Ship: Euphony 40005 80.48 222.75 84.59 43.25 > Cargo Ship: Pecky 40014 81.46 122.9 42.0 19.09 > Cargo Ship: Prouder 40006 114.63 170.63 85.71 37.5 > Cargo Ship: Enlightening 40009 99.27 267.58 86.55 34.86 > Cargo Ship: Shipments 40012 54.18 189.42 81.0 23.63 > Cargo Ship: Bilberry 40001 153.28 219.77 81.86 40.59 > Cargo Ship: Euphony 40005 80.48 222.75 84.59 43.25 > Cargo Ship: Subservience 40010 106.55 316.13 120.34 30.66 > Cargo Ship: Prouder 40006 114.63 170.63 85.71 37.5 Cargo Ship: Revolters 40003 121.94 480.01 119.33 41.24 > Cargo Ship: Uprears 40002 181.45 266.47 77.75 16.52 > Cargo Ship: Crocus 40011 128.89 450.39 124.86 33.71 > Cargo Ship: Enlightening 40009 99.27 267.58 86.55 34.86 > Cargo Ship: Vindicator 40004 132.61 149.09 39.44 37.08 > Cargo Ship: Hyaenas 40013 229.9 276.48 120.61 42.91 > Cargo Ship: Bilberry 40001 153.28 219.77 81.86 40.59 > Cargo Ship: Uprears 40002 181.45 266.47 77.75 16.52 > Cargo Ship: Subservience 40010 106.55 316.13 120.34 30.66 > Cargo Ship: Ceaselessly 40007 190.73 422.7 82.96 43.82 > Cargo Ship: Ceaselessly 40007 190.73 422.7 82.96 43.82 > Cargo Ship: Crocus 40011 128.89 450.39 124.86 33.71 > Cargo Ship: Revolters 40003 121.94 480.01 119.33 41.24 > Cargo Ship: Anteroom 40008 244.76 491.56 103.88 31.7 > Cargo Ship: Hyaenas 40013 229.9 276.48 120.61 42.91 > Cargo Ship: Anteroom 40008 244.76 491.56 103.88 31.7 -- List of all ships: --- List of all ships: > Cargo Ship: Anteroom 40008 244.76 491.56 103.88 31.7 > Cargo Ship: Anteroom 40008 244.76 491.56 103.88 31.7 > Passenger Ship: Aspheric 30001 232.37 340.63 100.13 16.05 > Passenger Ship: Aspheric 30001 232.37 340.63 100.13 16.05 1 Pass/Fail: 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).

Test Case 7:

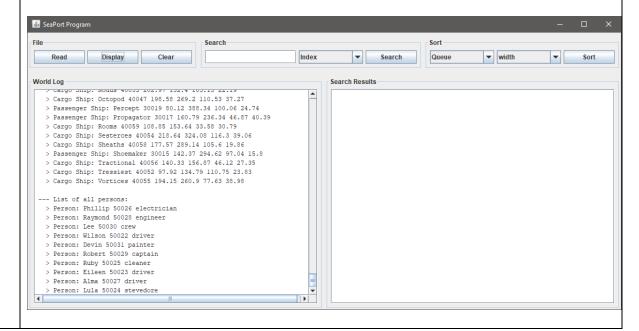
Test Case: Sort aSPab.txt by Queue draft (following results of previous test case)

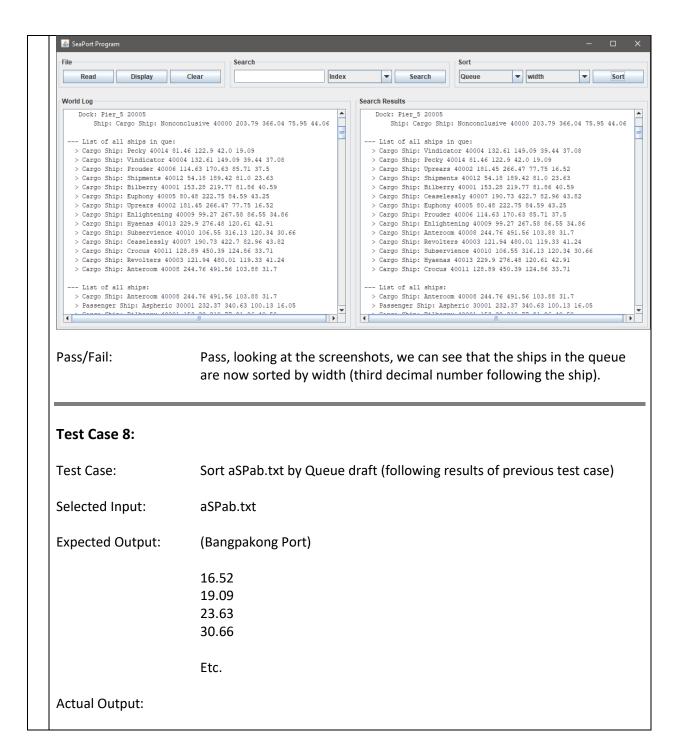
Selected Input: aSPab.txt

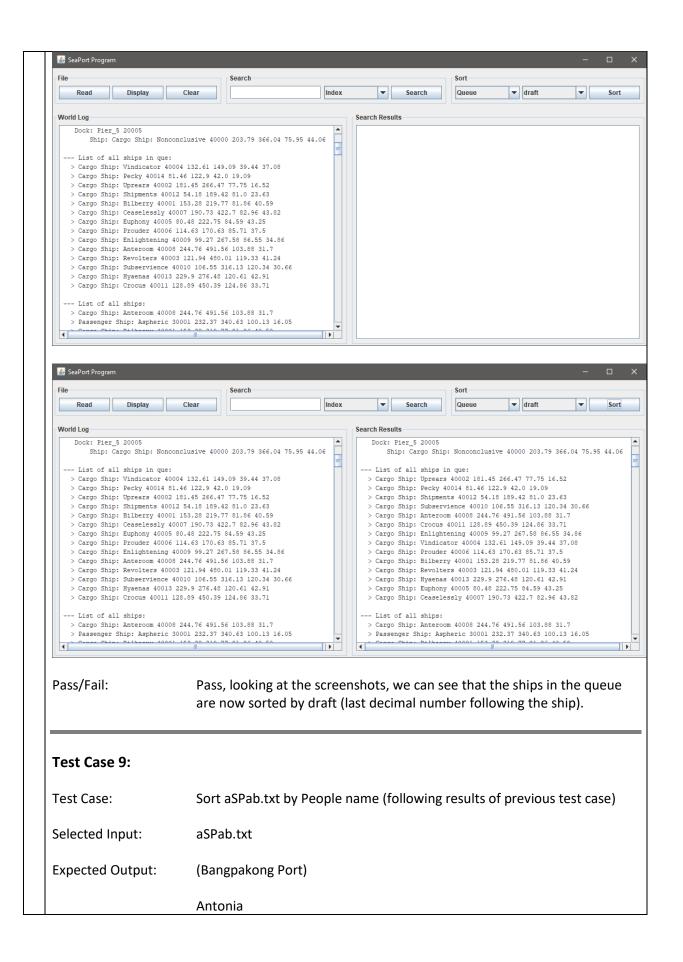
Expected Output: (Bangpakong Port)

39.44 42.0 77.75 81.0

Etc.







Jaime Josefina Lindsay Etc. **Actual Output:** 💪 SeaPort Program File Search Sort Index People name Read Display Clear Search Sort World Log Search Results > Cargo Ship: Shipments 40012 54.18 189.42 81.0 23.63 > Cargo Ship: Subservience 40010 106.55 316.13 120.34 30.66 > Cargo Ship: Uprears 40002 181.45 266.47 77.75 16.52 > Cargo Ship: Vindicator 40004 132.61 149.09 39.44 37.08 --- List of all persons: > Person: Antonia 50004 cleaner > Person: Lindsay 50000 driver > Person: Jaime 50001 stevedore > Person: Manuel 50003 stevedore > Person: Josefina 50006 electrician > Person: Terrell 50007 craneOperator > Person: Marianne 50005 mate > Person: Sonya 50002 crew SeaPort: Majunga 10002 Dock: Pier_17 20017 Ship: Passenger Ship: Loathsomely 30010 228.47 150.54 80.27 42.15 Dock: Pier_18 20018 Ship: Passenger Ship: Subdividing 30011 240.08 154.54 94.33 26.29 Dock: Pier_19 20019 Ship: Passenger Ship: Forbode 30012 57.35 293.08 35.84 33.74 💪 SeaPort Program Search Sort People Index Read Display Clear |₹| Search ▼ name Sort World Log Search Results > Cargo Ship: Shipments 40012 54.18 189.42 81.0 23.63 > Cargo Ship: Shipments 40012 54.18 189.42 81.0 23.63 > Cargo Ship: Subservience 40010 106.55 316.13 120.34 30.66 > Cargo Ship: Uprears 40002 181.45 266.47 77.75 16.52 > Cargo Ship: Subservience 40010 106.55 316.13 120.34 30.66 > Cargo Ship: Uprears 40002 181.45 266.47 77.75 16.52 > Cargo Ship: Vindicator 40004 132.61 149.09 39.44 37.08 > Cargo Ship: Vindicator 40004 132.61 149.09 39.44 37.08 --- List of all persons: > Person: Antonia 50004 cleaner > Person: Antonia 50004 cleaner > Person: Lindsay 50000 driver > Person: Jaime 50001 stevedore > Person: Jaime 50001 stevedore > Person: Josefina 50006 electrician > Person: Manuel 50003 stevedore > Person: Lindsay 50000 driver > Person: Josefina 50006 electrician > Person: Manuel 50003 stevedore > Person: Terrell 50007 craneOperator > Person: Marianne 50005 mate > Person: Marianne 50005 mate > Person: Sonya 50002 crew > Person: Sonya 50002 crew > Person: Terrell 50007 craneOperator SeaPort: Majunga 10002 SeaPort: Majunga 10002 Dock: Pier 17 20017 Dock: Pier 17 20017 Ship: Passenger Ship: Loathsomely 30010 228.47 150.54 80.27 42.15 Ship: Passenger Ship: Loathsomely 30010 228.47 150.54 80.27 42.15 Dock: Pier 18 20018 Dock: Pier 18 20018 Ship: Passenger Ship: Subdividing 30011 240.08 154.54 94.33 26.29 Ship: Passenger Ship: Subdividing 30011 240.08 154.54 94.33 26.29 Dock: Pier_19 20019 Dock: Pier_19 20019 Ship: Passenger Ship: Forbode 30012 57.35 293.08 35.84 33.74 Ship: Passenger Ship: Forbode 30012 57.35 293.08 35.84 33.74 Pass/Fail: 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!