CMSC 335

Project 4

Sea Port Program

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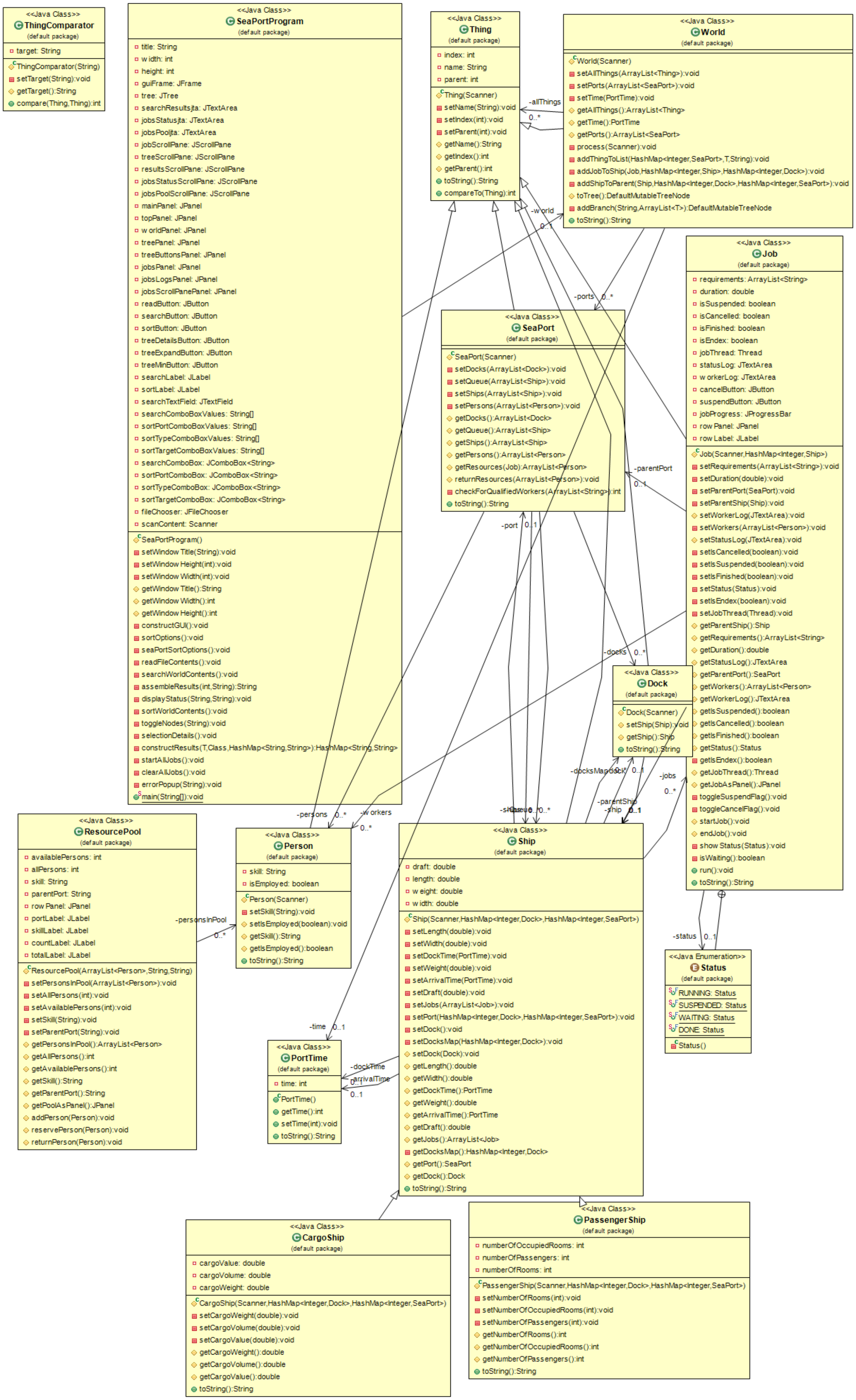
UML Diagram:



Design

This SeaPortProgram consists of many classes and methods that work together as a whole to read input files and display information in a clear and organized GUI. Project 4 is an expansion of Project 3, aimed at improving upon the nature of the jobs progression multithreading function and incorporating dock worker resource pools divided by profession. Moored ships with jobs in need of completion by persons with specific skills are required to request workers from these worker pools before proceeding with their tasks; if no available workers are present, jobs threads are required to relinquish access to the shared resource pools and wait until workers become available. If jobs can never be fulfilled, either due to a lack of any workers of a needed skill or a required number greater than those currently present, the job is cancelled. Furthermore, this project displays each port-based resource pool in the GUI, displaying the number of available and total workers, organized into skill groups. The only new class created in this project is ResourcePool. Its job is to keep GUI components related to a skill separate and easier to change as workers' statuses change. Once again, the portTime class was not utilized in this project.

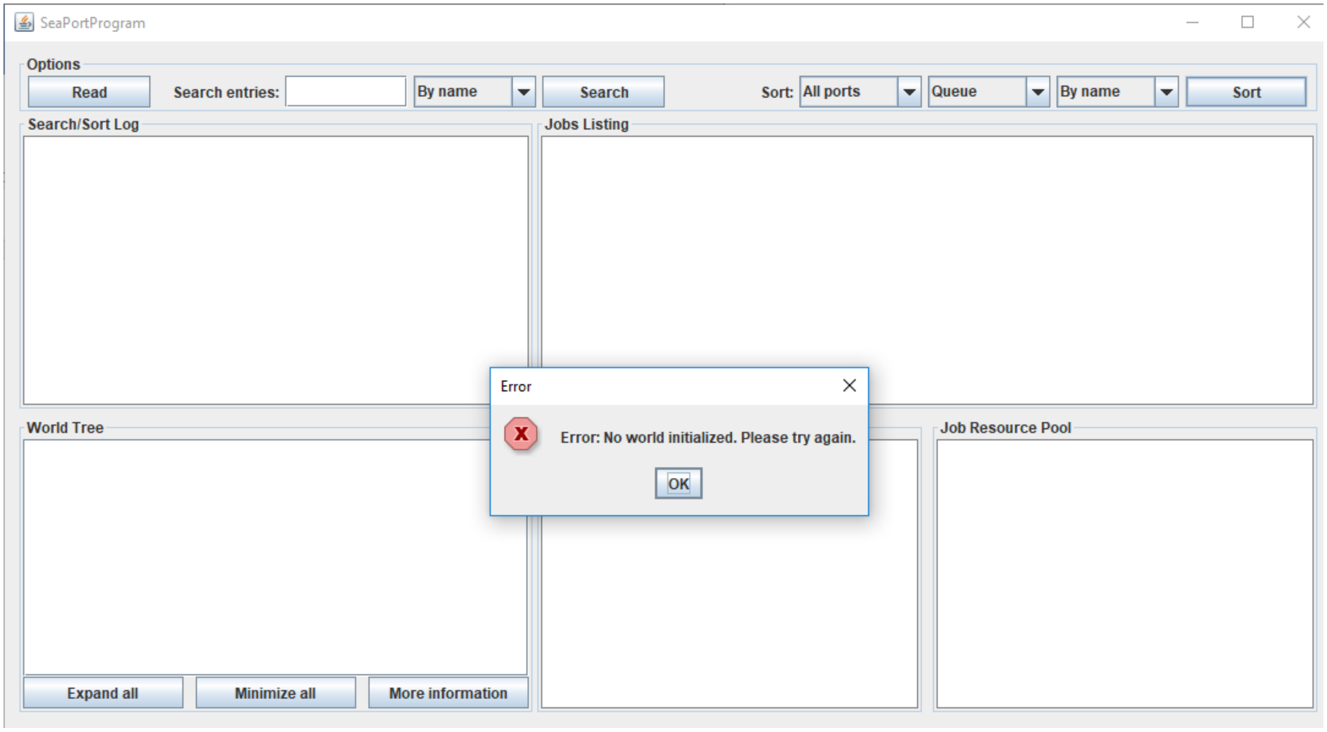
User's Guide

1. Open Command Prompt
2. Change the directory to where these files are saved (i.e cd desktop)
3. Type in "javac SeaPortProgram.java"
4. Type in "java SeaPortProgram"
5. When the GUI pops up, click "Read" button and select the sample data file. (entry is case sensitive and should be spelled correctly. Nontext files will generate an error).

Test Plan

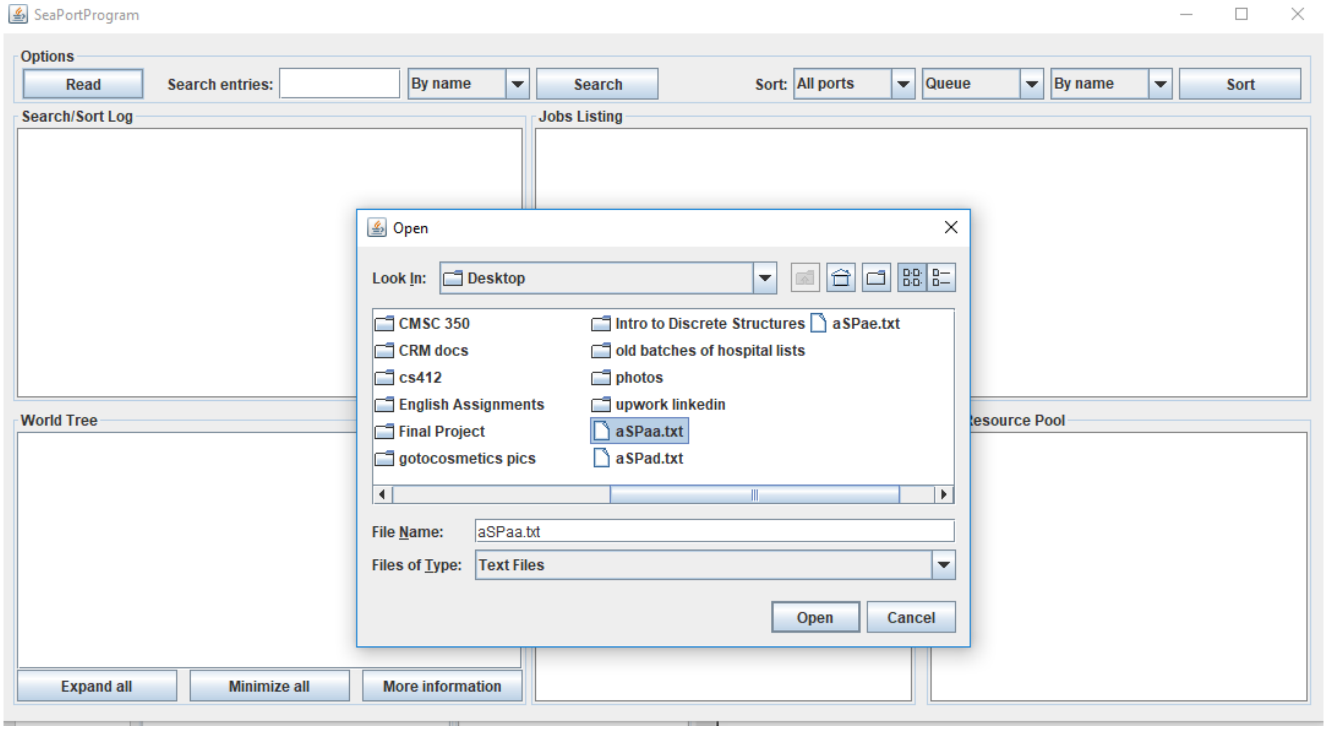
I knew that I would be pressed for time, so I included much of Project 4 functionality in Project 3 code. Basically, all I added to this project was the ResourcePool class to keep track of worker threads.

Selecting the Sort Button with no input: expecting an error message: Success



Error: No world initialized. Please try again.

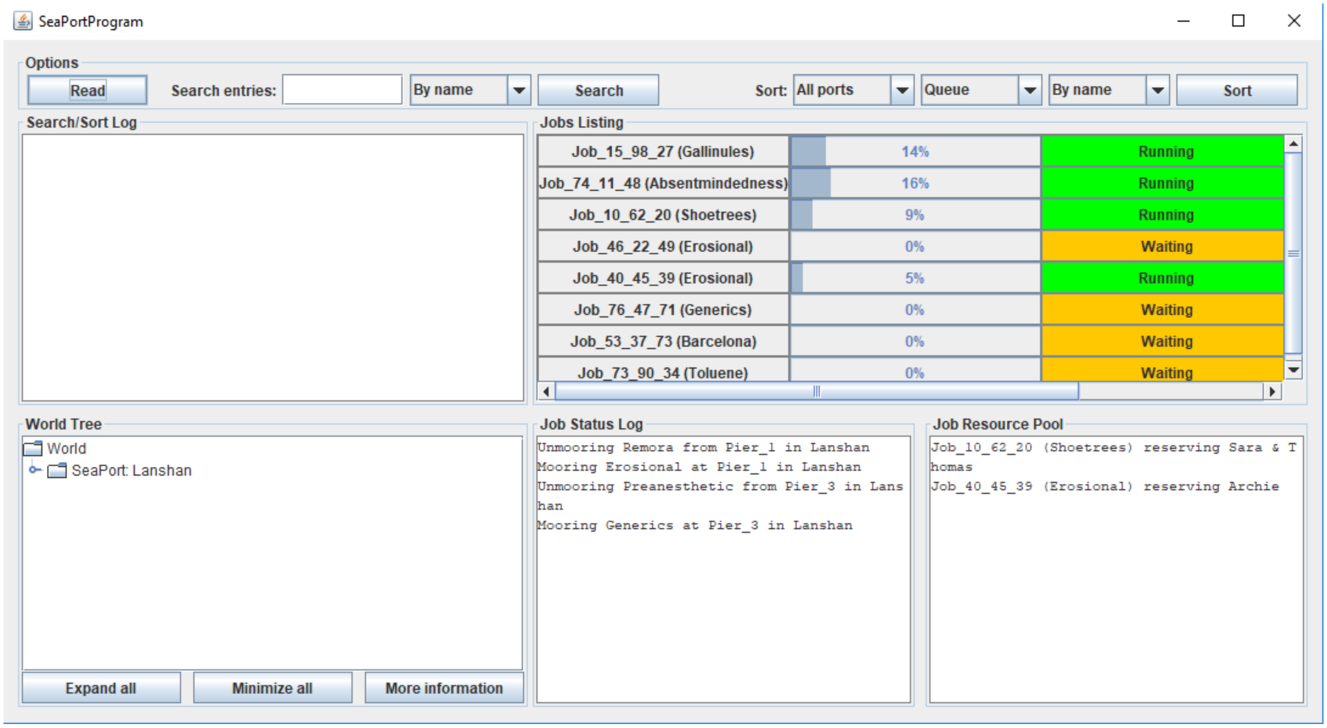
Opening aSPaa.txt: expecting it to compile: Success



Look In: Desktop

File Name: aSPaa.txt

Files of Type: Text Files



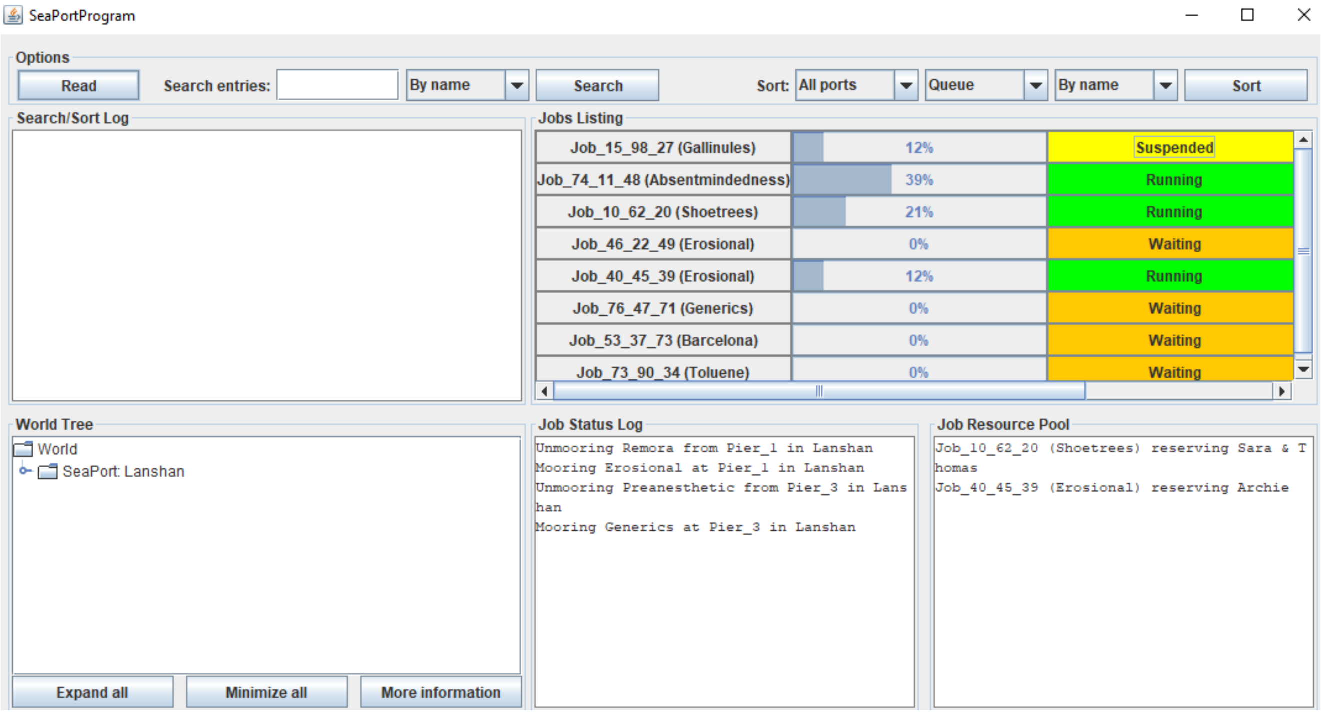
World
SeaPort: Lanshan

Job	Progress	Status
Job_15_98_27 (Gallinules)	14%	Running
Job_74_11_48 (Absentmindedness)	16%	Running
Job_10_62_20 (Shoetrees)	9%	Running
Job_46_22_49 (Erosional)	0%	Waiting
Job_40_45_39 (Erosional)	5%	Running
Job_76_47_71 (Generics)	0%	Waiting
Job_53_37_73 (Barcelona)	0%	Waiting
Job_73_90_34 (Toluene)	0%	Waiting

```
Unmooring Remora from Pier_1 in Lanshan
Mooring Erosional at Pier_1 in Lanshan
Unmooring Preanesthetic from Pier_3 in Lans
han
Mooring Generics at Pier_3 in Lanshan
```

```
Job_10_62_20 (Shoetrees) reserving Sara & T
homas
Job_40_45_39 (Erosional) reserving Archie
```

Testing the Suspend Button: Expecting process to suspend and change colors: Success



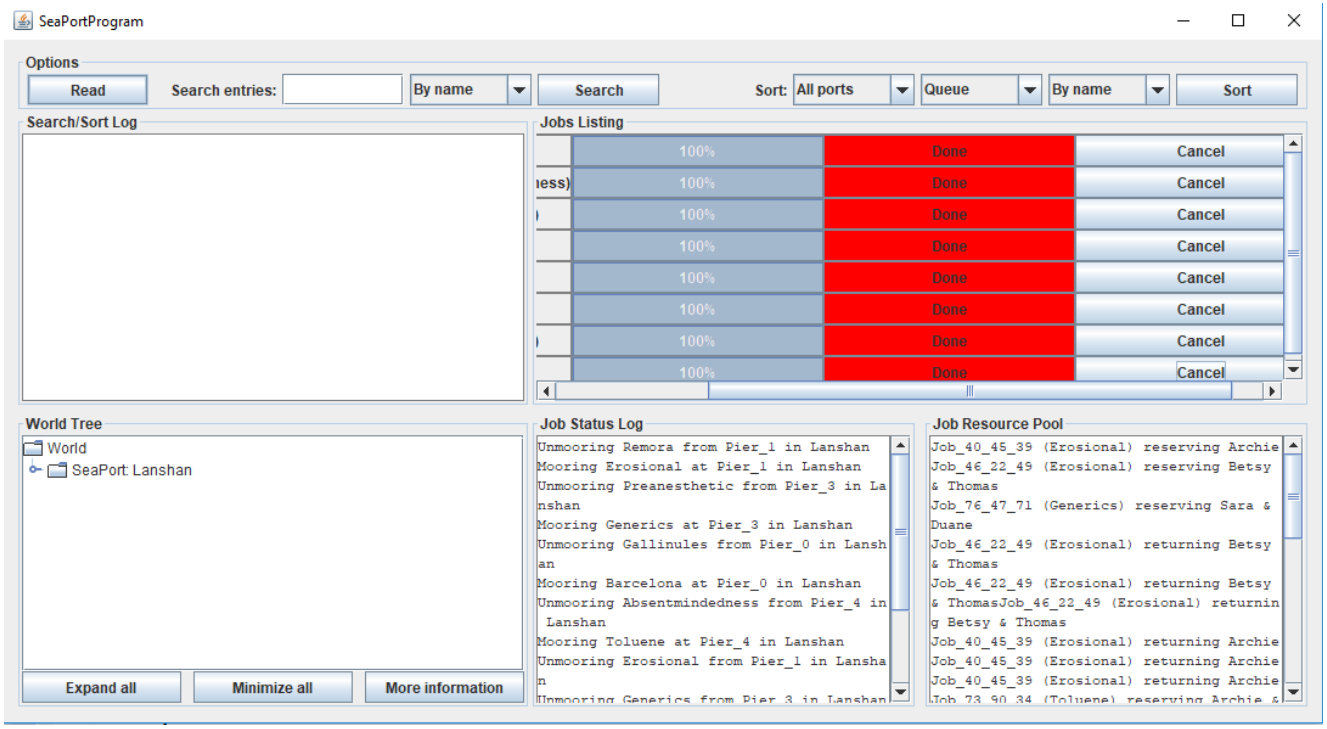
World
SeaPort: Lanshan

Job	Progress	Status
Job_15_98_27 (Gallinules)	12%	Suspended
Job_74_11_48 (Absentmindedness)	39%	Running
Job_10_62_20 (Shoetrees)	21%	Running
Job_46_22_49 (Erosional)	0%	Waiting
Job_40_45_39 (Erosional)	12%	Running
Job_76_47_71 (Generics)	0%	Waiting
Job_53_37_73 (Barcelona)	0%	Waiting
Job_73_90_34 (Toluene)	0%	Waiting

```
Unmooring Remora from Pier_1 in Lanshan
Mooring Erosional at Pier_1 in Lanshan
Unmooring Preanesthetic from Pier_3 in Lans
han
Mooring Generics at Pier_3 in Lanshan
```

```
Job_10_62_20 (Shoetrees) reserving Sara & T
homas
Job_40_45_39 (Erosional) reserving Archie
```

Testing the Cancel Button: expecting a color change and cancelled run time: Success



By name

Sort: All ports | Queue | By name

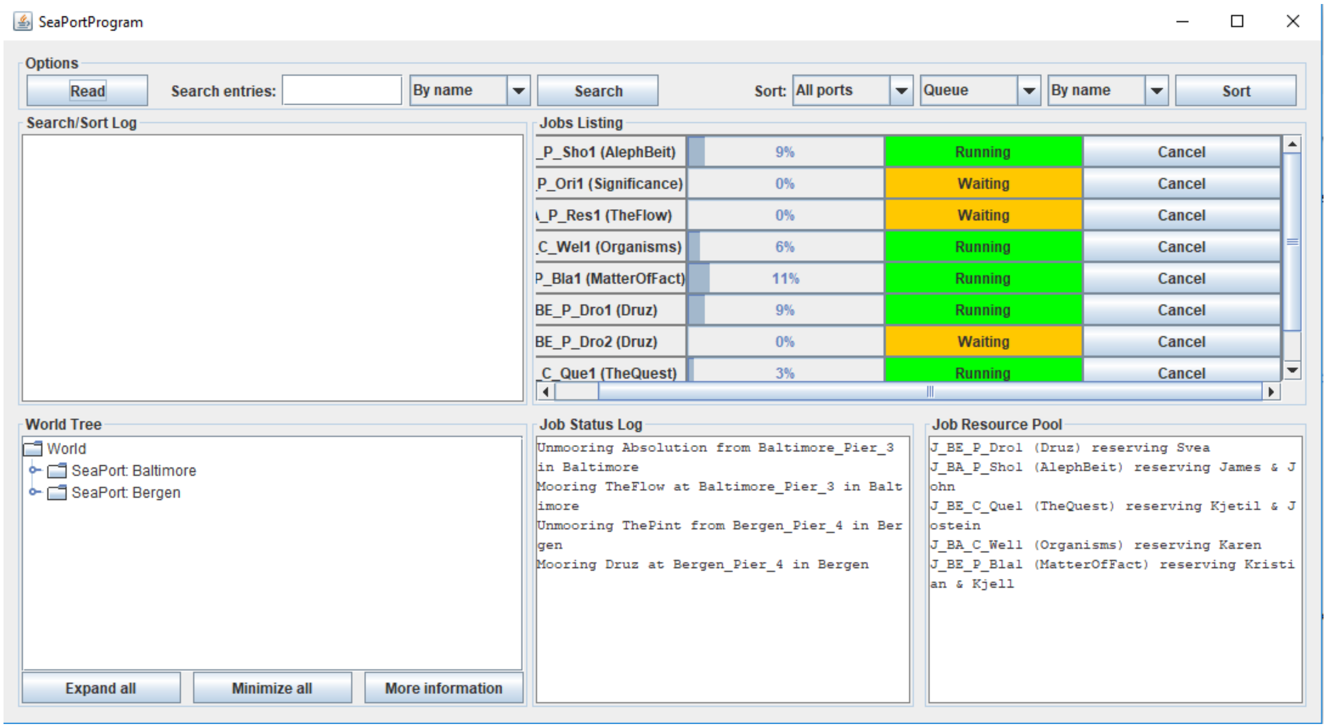
	100%	Done	Cancel
ıess)	100%	Done	Cancel
)	100%	Done	Cancel
	100%	Done	Cancel
	100%	Done	Cancel
	100%	Done	Cancel
)	100%	Done	Cancel
	100%	Done	Cancel

```
World
  SeaPort: Lanshan
```

```
Unmooring Remora from Pier_1 in Lanshan
Mooring Erosional at Pier_1 in Lanshan
Unmooring Preanesthetic from Pier_3 in La
nshan
Mooring Generics at Pier_3 in Lanshan
Unmooring Gallinules from Pier_0 in Lansh
an
Mooring Barcelona at Pier_0 in Lanshan
Unmooring Absentmindedness from Pier_4 in
 Lanshan
Mooring Toluene at Pier_4 in Lanshan
Unmooring Erosional from Pier_1 in Lansha
n
Unmooring Generics from Pier_3 in Lanshan
```

```
Job_40_45_39 (Erosional) reserving Archie
Job_46_22_49 (Erosional) reserving Betsy
& Thomas
Job_76_47_71 (Generics) reserving Sara &
Duane
Job_46_22_49 (Erosional) returning Betsy
& Thomas
Job_46_22_49 (Erosional) returning Betsy
& ThomasJob_46_22_49 (Erosional) returnin
g Betsy & Thomas
Job_40_45_39 (Erosional) returning Archie
Job_40_45_39 (Erosional) returning Archie
Job_40_45_39 (Erosional) returning Archie
Job_73_90_34 (Toluene) reserving Archie &
```

Opening text file aSPae.txt, expecting it to compile and run at different speeds: Success



By name

Sort: All ports | Queue | By name

_P_Sho1 (AlephBeit)	9%	Running	Cancel
P_Ori1 (Significance)	0%	Waiting	Cancel
ι_P_Res1 (TheFlow)	0%	Waiting	Cancel
C_Wel1 (Organisms)	6%	Running	Cancel
P_Bla1 (MatterOfFact)	11%	Running	Cancel
BE_P_Dro1 (Druz)	9%	Running	Cancel
BE_P_Dro2 (Druz)	0%	Waiting	Cancel
_C_Que1 (TheQuest)	3%	Running	Cancel

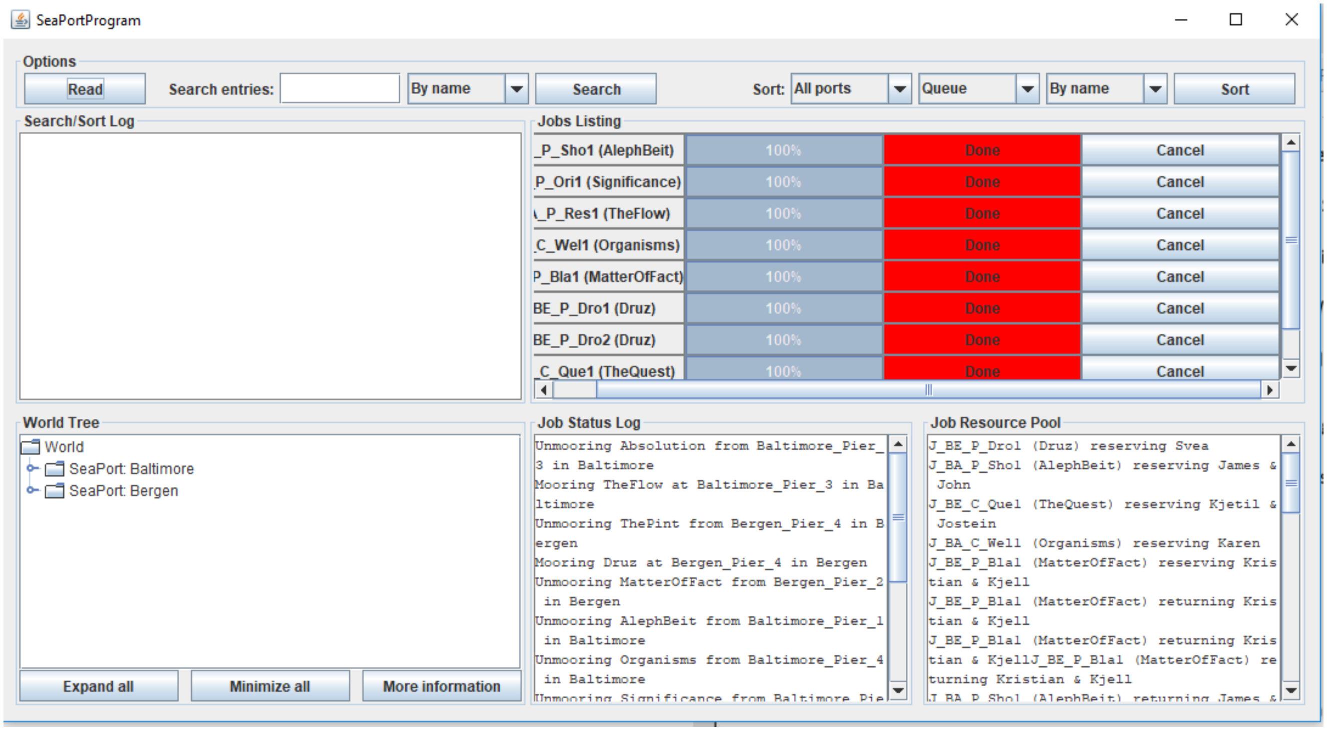
```
World
  SeaPort: Baltimore
  SeaPort: Bergen
```

```
Unmooring Absolution from Baltimore_Pier_3
in Baltimore
Mooring TheFlow at Baltimore_Pier_3 in Balt
imore
Unmooring ThePint from Bergen_Pier_4 in Ber
gen
Mooring Druz at Bergen_Pier_4 in Bergen
```

```
J_BE_P_Drol (Druz) reserving Svea
J_BA_P_Shol (AlephBeit) reserving James & J
ohn
J_BE_C_Quel (TheQuest) reserving Kjetil & J
ostein
J_BA_C_Well (Organisms) reserving Karen
J_BE_P_Blal (MatterOfFact) reserving Kristi
an & Kjell
```

All jobs are eventually completed as expected, with the waiting vessels using the workers as they become available in the worker resource pool.

Shafro Batyrov



_P_Sho1 (AlephBeit)	100%	Done	Cancel
P_Ori1 (Significance)	100%	Done	Cancel
_P_Res1 (TheFlow)	100%	Done	Cancel
_C_Wel1 (Organisms)	100%	Done	Cancel
P_Bla1 (MatterOfFact)	100%	Done	Cancel
BE_P_Dro1 (Druz)	100%	Done	Cancel
BE_P_Dro2 (Druz)	100%	Done	Cancel
_C_Que1 (TheQuest)	100%	Done	Cancel

```
Unmooring Absolution from Baltimore_Pier_
3 in Baltimore
Mooring TheFlow at Baltimore_Pier_3 in Ba
ltimore
Unmooring ThePint from Bergen_Pier_4 in B
ergen
Mooring Druz at Bergen_Pier_4 in Bergen
Unmooring MatterOfFact from Bergen_Pier_2
 in Bergen
Unmooring AlephBeit from Baltimore_Pier_1
 in Baltimore
Unmooring Organisms from Baltimore_Pier_4
 in Baltimore
Unmooring Significance from Baltimore_Pie
```

```
J_BE_P_Drol (Druz) reserving Svea
J_BA_P_Shol (AlephBeit) reserving James &
 John
J_BE_C_Quel (TheQuest) reserving Kjetil &
 Jostein
J_BA_C_Well (Organisms) reserving Karen
J_BE_P_Blal (MatterOfFact) reserving Kris
tian & Kjell
J_BE_P_Blal (MatterOfFact) returning Kris
tian & Kjell
J_BE_P_Blal (MatterOfFact) returning Kris
tian & KjellJ_BE_P_Blal (MatterOfFact) re
turning Kristian & Kjell
J_BA_P_Shol (AlephBeit) returning James &
```

Lessons Learned -

This was a lot of work in a very short amount of time. I learned a great deal about multithreading, GUI construction, inheritance, and the importance of hanging in there when none of your code is compiling and you want to rip your hair straight out of your head. I have to add, was there a point to the PortTime class? I am scared that I missed something integral here.