

Cruise Ship Boarding

You are to write a boarding system for a Cruise ship in java. The system will print a menu with which the user will interact to assign passengers to each cabin of a cruise ship.

Task 1. Arrays solution.

Design a program for a Cruise Ship with **twelve** cabins using code like the code provided near the end of your notes. Start by checking that the code works.

Once the basic code runs, put the code for 'Views All cabins' and 'Adds customer to cabin', into separate procedures, and test it works. You can build up your test cases as you develop your program (see testing below).

Then add a menu system which will allow the user to choose what they want to select. Enter an 'A' to add a customer to a cabin, and a 'V' to view all cabins. Implement each as a method. When an 'A' is pressed, it should do the Add method; a 'V' should do the View method.

One by one, add extra methods to do each of the following. The user should be able to choose from the menu what the program does.

- E: Display Empy cabins
- D: Delete customer from cabin
- F: Find cabin from customer name
- S: Sore program data into file
- L: Load program data from file
- O: View passengers Orded alphabetically by name. (**Implement your own sort algorithm**)

Task 2. Classes solution.

Create a second version of the Cruise Ship program using an *array of Cabin objects*. Create a class called Cabin and another class called Passenger. Each cabin should hold up to 3 passengers with the following additional information.

- i. First Name.
- ii. Surname.
- iii. Expenses.

Add an additional option to the menu. 'T' that will give the user the option to print the expenses per passenger as well as the total expenses of all passengers. Otherwise, the program should function as in Task 1.

Task 3. Add Queue.

Add a waiting list to your Cruise Ship class version.

Modify your 'A: Add' and 'D: Delete' as follows:

- When you press 'A' to add a new customer, the customer should be added to the Waiting List queue if the Cruise Ship is full.
- When you press 'D' to delete a customer from a cabin, the next customer in the Waiting List queue should be automatically placed in the cabin.