Final Project

Goals-
Design a program to satisfy provided requirements
Use good OOP style including inheritance

You will design and implement a text-based game where the player moves through a room or compartment based structure. They will need to gather items to achieve some purpose. The details are left to you!

Specific requirements. You will create a series of rooms for the player to move through. Each room will be a class with four pointer variables that link to other rooms. Your structure can be linear such as a train or long narrow spaceship. You still need to have four pointer variables in the class (for secret passages or "stepping" outside?). Or you can have a more 2-dimensional arrangement of rooms. You need to have at least 10 rooms. You will have a room superclass that will not be implemented. You will have at least 3 derived classes for rooms that have unique characteristics or functions other than just a different name. To continue with the train theme you could have a passenger car, baggage car, or Pullman (sleeper car). Or one 'room' could have controls such as the engine. You could have a T.A.R.D.I.S. and it is bigger on the inside than outside?

You must have a goal for the player. Maybe it is solve a crime (like Clue?). Maybe you need to find a cure for a mysterious illness? Maybe the aliens have invaded your spaceship but normal weapons do not work! Your player finds that aliens do not like broccoli either. ☺ Based on your theme the player must discover what the solution is. You may have a random way to achieve the goal, hidden from the user. One time it is the broccoli, and then next it is a pillow. Maybe it is get to the controls to start or stop the vehicle. It could be a haunted house and the player needs to find the key to letting the ghost get to its final peace?

You must have some way to keep track of which room the player is in. You are not required to have a class just for the player but that is one solution to holding all information for the player in the game. In addition to the location, the player will have a bag (backpack, attaché, or knitting bag) to carry items. The bag must have some limit. It can be simply the number of items or you can include size. So a knitting bag may not hold more than one bowling ball. These items should be required as part of the solution, such as a key to the mysterious room (which may not be a physical key or even a single item). You can have more items than will fit in the bag.

The goal may be a puzzle with clues in each room. It does not need to be a physical possession. This one could be tricky if it requires free-form input. It is frustrating to not win because you did not spell something correctly or there are variant meanings or spellings. You should have a time limit of some sort to urge the player on. Maybe the train will get to the station and the killer can get lost in the crowd? The player must interact with parts of the structure, and not just simply collect things. This can be throwing something at the monster, operating a light switch (or other control), opening doors, or singing to get the baby back to sleep.

Movement will be similar to the previous lab, using just east, west, north, and south.

Up to you. You must develop a theme for your game. Make it interesting, if not fun. It should not just be a matter of finding the biggest gun and destroying the alien(s). Or if they use the big gun it also ruptures the hull venting all the air to space and everyone gets sucked out?

To make it interesting you can submit your theme to the instructor by midnight Sunday of Week 9. I will post them, stripped of any names, and the class can vote on which one they find the most creative, best or whatever criteria you want to use. The TAs will get to vote too. **The winner will get some extra credit**. ☺

What to submit. You must submit your program files, including your makefile as usual. You must submit your reflections. In this case the design part may be longer than usual. Your test plan must be included. It may be the hardest part of this assignment. You must ensure that navigation through your structure works. That each type of room functions as intended. That the player can pick up only the number of items you intend. That it is possible for the player to get the necessary items to have a chance to win. If you have a random element make sure that at least one option allows the player to achieve her goal. All of these must be in a single zip archive as usual.

To make it easy on your grader please provide an additional menu option. It should reveal the goal to the 'player'. If the grader does not know the goal they cannot tell if the program is working correctly. This information does not need to be elaborate. Something like, "the broccoli causes the aliens to leave", or "the murder was done by Mrs. Duck, club car, fishing pole." HINT: Always be kind to your grader! ☺

SUGGESTION- As always use incremental development. The exact sequence may depend upon your theme. At a minimum you will need to have moving in the structure working. Each type of room must be different, but you can start with a generic room and then flesh out the details. The player must be able to pick up a carry items, to the limit you impose. Do the design first! If you try to plan out your theme as you write code you will make it much difficult.

Grading:

- programming style and documentation (10%)
- create the basic structure of 10 rooms of at least 3 different types- this includes how creative you were with the linked structure (25%)
- all 40 links work as intended (10%)
- prompt the user to start the game and execute all commands as intended (10%)
- properly implement some sequence of actions required for the player to exit (other than just moving through the rooms) (10%)
- correctly implement a time limit (5%)
- correctly implement interaction with elements of the structure (10%)
- reflections document to include the design description, test plan, test results, and comments about how you resolved problems during the assignment (20%)