

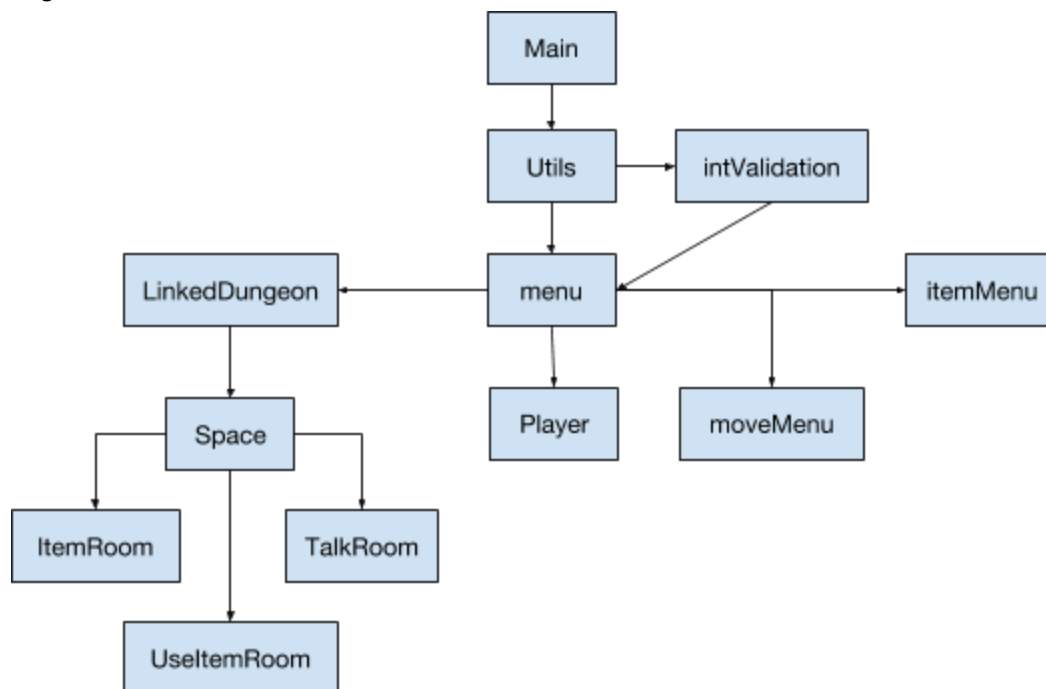
Design

Outline:

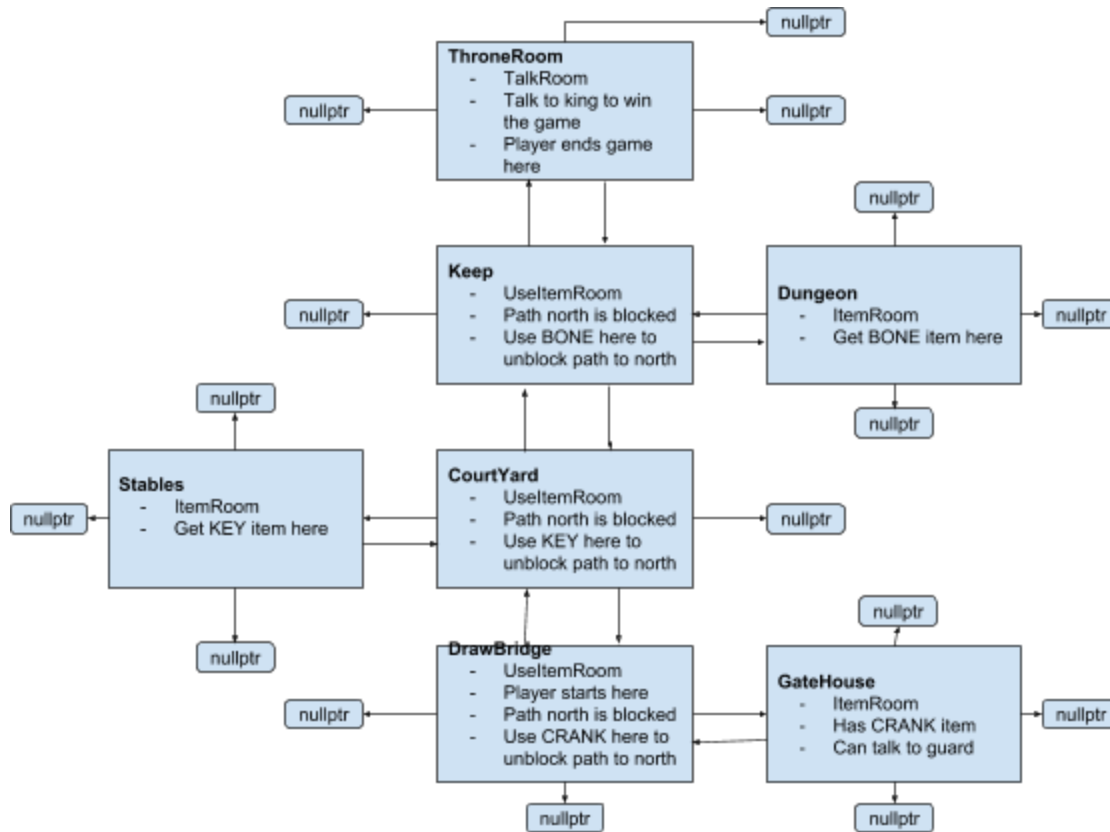
- Theme
 - Medieval quest for the throne. Light-hearted humor-based
- Space class
 - Must be abstract with pure virtual functions
 - Must have 4 pointers: top, right, left, bottom
- Three classes that inherit from Space
 - ItemRoom: has an item to be picked up by the player
 - UseItemRoom: an item in the players inventory can be used here to open up another pathway
 - TalkRoom: some character can be talked to by the player to progress the game along
- Game must have at least 6 spaces
 - Gate house: A small room with a guard. He can give the player an item
 - Drawbridge: A locked portcullis blocked the way forward
 - Courtyard: The castle's courtyard with a locked door leading into the castle
 - Stables: Contains a key used to unlock the courtyard door
 - Keep: The inside of the castle. The path forward is blocked by some mythical creature.
 - Dungeon: A prison in the castle that contains some item to be used.
 - Throne room: The final room where the king needs to be talked to.
- Must keep track of player's position with a map or through text description
 - Use text descriptions with north, south, east and west as positional directions
- Must have an inventory container system to hold items
 - Must have a capacity limit
 - Use vector to hold items
- At least one item must be used as part of a solution
 - Crank -> portcullis
 - Key -> door
 - Bone -> beasts
- Game must have a limit of turns in which the task must be accomplished
 - Decrement counter after moving every turn
- User must interact with parts of space structure to win game, not just collect items
 - Use picked up items in the right room to open up access other spaces
- Must have a menu system for users to interact with
 - Must use menu-based options
 - 1. Move
 - 1. Go NORTH
 - 2. Go EAST
 - 3. Go SOUTH
 - 4. Go WEST

- 2. Use item
 - Use <item>?
 - Yes
 - No
- 3. Pick up item
 - If there is an item in the room, add it to inventory and remove it from the room.
- Talk
 - If there is someone in the room, talk to them
 - Can gain an item or a hint about the game

Logic Flowchart



Map layout



Test Plan

Test Case	Input	Expected Results	Observed Results
Move in direction that points to nullptr	1 4	You can't go that way	
Lose game by running out of turns before completing goal	While turns > 0: 1 2 1 3	+-----+ GAME OVER +-----+ You were too slow to get to the throne. By the time you arrived at the throne room, your eldest sister had already been crowned ruler. Thank you for playing Race to the Throne.	+-----+ GAME OVER +-----+ You were too slow to get to the throne. By the time you arrived at the throne room, your eldest sister had already been crowned ruler. Thank you for playing Race to the Throne.
Quit game through menu	5	Thank you for playing Race to the Throne.	Thank you for playing Race to the Throne.

Use item in room where it is not needed	1 2 3 2 1	You get the feeling this isn't the place to use it.	You get the feeling this isn't the place to use it.
Use item when inventory is empty	2	Your inventory is empty.	Your inventory is empty.
Try to move past the first blocked path	1 1	The portcullis is lowered and blocking your way into the courtyard. A large mechanism to the left looks like it can be used to raise it but it appears to be missing the hand crank.	The portcullis is lowered and blocking your way into the courtyard. A large mechanism to the left looks like it can be used to raise it but it appears to be missing the hand crank.
Pick up an item and try to pick it up again	1 2 3 3	You gingerly grab the CRANK off the table, careful not to wake the guard. Though it seems that a thunderstorm wouldn't disturb his slumber. There is nothing else of use in this room	You gingerly grab the CRANK off the table, careful not to wake the guard. Though it seems that a thunderstorm wouldn't disturb his slumber. There is nothing else of use in this room
Win the game	1 2 3 1 3 2 1 1 1 1 3 3 1 2 2 1 1 1 1 1 2 3 1 3 2 1 1 1 4	"Finally a worthy heir to the throne has arrived to claim ownership of the kingdom." the old king bellows. Come sit upon your throne my liege! +-----+ A WINNER IS YOU! +-----+	"Finally a worthy heir to the throne has arrived to claim ownership of the kingdom." the old king bellows. Come sit upon your throne my liege! +-----+ A WINNER IS YOU! +-----+
Check that description of room	1 2	You are now entering the gatehouse.	You are now entering the gatehouse.

changes after picking up item from room	3 1 3 1 2	<p>There is a single desk and chair where a portly guard sits with his head on the desk. He appears to be snoring and drooling a little. Something metal sits on the desk beside his head. To the WEST lies the castle's drawbridge.</p> <p>The guard is still fast asleep with his head on the desk. He appears to be snoring and murmuring something about fair maidens in his sleep. To the WEST lies the castle's drawbridge.</p>	<p>There is a single desk and chair where a portly guard sits with his head on the desk. He appears to be snoring and drooling a little. Something metal sits on the desk beside his head. To the WEST lies the castle's drawbridge.</p> <p>The guard is still fast asleep with his head on the desk. He appears to be snoring and murmuring something about fair maidens in his sleep. To the WEST lies the castle's drawbridge.</p>
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Reflection:

My room layout and theme changed a few times during the planning stages of this project, but I kept my outline updated after every change I made. Visually laying out the rooms The greatest obstacle I overcame with this project was preventing scope creep. I've created games in the past and have experienced scope creep on an all too familiar level. This prepared me to keep the scope of my game manageable. Instead of trying to implement all the ideas and features I wanted to put in the game, I opted to strip down the functions to the basic ones I needed to create a minimum viable product for this assignment. I decided that I would only add those extra features to the game after I had all the base systems implemented and working as intended. This resulted in me realizing that many of the features I was excited to initially put in the game didn't improve gameplay and weren't there for any other reason than I thought it sounded cool at the time. I did end up adding talk options for rooms without typical NPCs to talk to to make the game feel more alive and add some humor that was sometimes seen in early adventure games (a la Monkey Island and Day of the Tentacle).

really helped me to not only logically lay out the game, but to keep track of all the elements of the game.

Like most of the projects, I did run into issues with memory leaks at the end of this project. But by using valgrind and by matching all new statements with delete statements I was able to successfully free up all allocated memory.