Bryce Holewinski
CS162
Final Project! Text based game
Write up

Initial Thoughts

Going into this assignment I immediately thought of making a pretty simple version of the game Myst from the 90's. I wanted this game to have a mysterious premise and for there to be half clues about what it's about but the player can only figure out most of the details if they pick up notes in the game and do a playthrough where they win and one where they die. The player has to walk about from each location picking up something of use that is required to unlock something in a different place. Although there will be some items that seem helpful but are superfluous. The player will have to progress grabbing a key from the beach, garden hoe from the garden, and gas from the cave (the cave was dropped due to time constraints). Also, they will have to turn on the lighthouse light to navigate the waters around the island.

Pseudocode

Check scanned in doc (part of this zip file), it was handwritten this time (apologies for my handwriting!). I decided to try using pen and paper in the hopes that I would be less distracted and have more thoughtful design. I think that it did help in to some extent and I may try using that method more in the future rather than writing it up on google docs like I've done thus far.
I did use this google doc for the derived classes though, that pseudocode is as follows:

Class: Shack Private:

Public:
Shack();//class constructor
~Shack();//class destructor
virtual void describePlace();//this function will describe the shack
virtual void describeSpecial();// this will describe the special feature
virtual void special();//dismembers the chair

Class: Garden Private:

Public:
Garden();//class constructor
~Garden();//class destructor
virtual void describePlace();//this function will describe the garden
virtual void describeSpecial();// this will describe the special feature
virtual void special();//uncovers the garden hoe

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Class: Beach Private:

Public:
Beach();//constructor
~Beach();//destructor
virtual void describePlace();//this function will describe the beach
virtual void describeSpecial();// this will describe the special feature
virtual void special();//uncovers the key

Class: Lighthouse Private: Bool searchlight;

Public:
Lighthouse();//class constructor
~Lighthouse();//destructor
virtual void describePlace();//this function will describe the unique space
virtual void describeSpecial();// this will describe the special feature
virtual void special();//uncovers the key
bool lightOn();//returns true if the lighthouse searchlight is on

Class: Boat Private: Lighthouse *passage

Public:
Boat();//constructor
~Boat();//destructor
virtual void describePlace();//this function will describe the unique space
virtual void describeSpecial();// this will describe the special feature
virtual void special();//starts the boat!

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Testing

Function being tested	Input	Expected output	Analysis
addItem()	String item1 “key” String item2 “gas”	“Key” “gas”	No problems getting the addItems function to work
displayBackpack()	Same as above	Same as above	Display backpack worked properly first time as well
addItem() x 5 items	5 string items	“The backpack is full…”	It properly denied adding the 5th item thus keeping the backpack size limited per the project requirements
addItem()x4 dropItem(); displayBackpack()	4 string items	Take user input as to which item they would like to remove and then remove that item and display the item getting removed	Successful removal of item It couted which item was being removed. And then when displayBackpack was called the properly ordered remaining items appeared!
Next I moved onto the space parent class and wrote up the addItem,removeItem, and displayItems functions	2 string items	Properly took and removed the items	Properly took and removed the items
Used Player and space’s take and remove functions within space using a menu() (menu later went to game class and then main...reasoning described in the last section)	3 string items	For the items that are in the player’s backpack to no longer be in space and vice versa	The functions worked as intended, when one was removed from the game world it was added to the player's backpack and vice versa
Next I began coding up the game class	Menu(); userSelection = 5;	For the player to move to the	Run time error, improper definition of Game and

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and did the derived classes of space to check on movement -at this point in my code I still had setter functions related to each space pointer	locationSelection = 1-5; *space describeSpace()	selected section and then have that location's description couted	Space
I realized that I had run into the same issue that I had during the lab5 which I was not able to think through at that point. This time I pulled menu() out of the Game class and put it in main and then I created an instance of the game world in main as well (this took me a half-day to think through)	Menu(); userSelection = 5; locationSelection = 1-5; *space describeSpace()	For the player to move to the selected section and then have that location's description couted	My code worked...just not as intended. My character spawned on the boat and not the garden as intended and when I went to move them there was a core dump
Ran through valgrind, which was of some help, and my debugger on xcode and then realized that i didnt set my space* in main equal to the location of getCurrentSpace (this took a few hours)	Menu(); userSelection = 5; locationSelection = 1-5; *space describeSpace()	For the player to move to the selected section and then have that location's description couted	It worked kinda better! This time my character spawned in the garden as intended! But when they went to move to a new location there was another core dump
I read through canvas a lot and pondered people's suggestions on there and eventually realized that I wasn't properly initializing my pointers and how to combat that. So I got rid of the setter	Menu(); userSelection = 5; locationSelection = 1-5; *space describeSpace()	For the player to move to the selected section and then have that location's description couted	SUCCESS!!! Lot's of happiness ensued from this! The player could successfully move around and it displayed the space's description

functions in Space and my setLocationPtr function (this took several more hours)			

Next I decided it was time to test the various menu functions in each environment	Menu()
	userSelection = 5;
	Location selection 1-5;
	investigate();
	Add item();
	Remove item();
	special();
		Various results depending on the functions	I discovered a few minor bugs in this portion. First I realized that I needed to add a prompt to the user in case there wasn't an item that was available to be picked up from the environment

Next I decided it was time to test the various menu functions in each environment	Menu()
	userSelection = 5;
	Location selection 1-5;
	investigate();
	Add item();
	Remove item();
	special();
		Various results depending on the functions	Next bug I found and fixed was related to picking up the notes. I realized that I had to add some if statements to player's addItem to cout messages in case those particular items were picked up

Next I decided it was time to test the various menu functions in each environment	Menu()
	userSelection = 5;
	Location selection 1-5;
	investigate();
	Add item();
	Remove item();
	special();
		Various results depending on the functions	Next I found a bug that with special i wasn't pushing back the item onto itemStorage in the Space

Next I decided it was time to test the various menu functions in each environment	Menu()
	userSelection = 5;
	Location selection 1-5;
	investigate();
	Add item();
	Remove item();
	special();
		Various results depending on the functions	Then I had to fix the conditions for entering the lighthouse so that the player had to have a key

Next I decided it was time to test the various menu functions in each environment	Menu()
	userSelection = 5;
	Location selection 1-5;
	investigate();
		Various results depending on the functions	Lastly, was fixing the win condition so that the player could access the metal crate and get the gasoline from there since I got rid of

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	Add item(); Remove item(); special();		the cave class I originally wanted

Problems Resolved and Analysis:

The biggest problem to solve was dealing with the pointers and getting the player to move about between the spaces. I spent a long time before coding trying to work through it on my own but came up short. It took me a long time even after I started coding to get the mental model down with the pointers. Especially since I wanted all of my spaces to point to each other, I think that threw me off a little bit because I kept thinking that the space would have to be self-reflexive i.e. point to itself too. People's comments and suggestions on canvas helped tremendously with getting the old idea out and for a new and working idea to click. It definitely took a while though to grasp exactly what it should look like. As disheartening as that process was I was relieved that once the concept was in my mind the coding/debugging was far far less time consuming which restored some confidence.

There were some other bugs to work out with the minor functions not working exactly as intended but those were all fairly easy to correct. Additionally, I had to switch up the win condition since I took out the cave, so that took a little bit more mental model workings but it came around without as much fuss as the movement gave me.

Over the break I think I will refine this project a bit and add sleep functionality to the outputs and then add it to my baren github account. I had some serious confident swings throughout this assignment and overall I genuinely enjoyed it. Thanks for the guidance this semester! -Bryce