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CS 162 Winter 2019
Due: March 19, 2019

Final Project:

Library Adventure (Text Based game)

Theme:

Player explores the Salt Lake City Public Library

Classes:

PLAYER CLASS:

- Create player that has a name, an energy level, and a tote bag (vector container)
- functions for increments and decrementing player's energy level
- functions to add an item to or remove an item from the tote bag

BASE CLASS : SPACE

- derived space types: new for each floor (Childrens - Level 5)
- space pointers: Up, Down, Elevator, Exit
- functions for descriptions of what is on the floor and for what the player can see
- ability to check out materials - put them in the tote bag.

SUBCLASS: CHILDRENS

- unique collection of materials:

SUBCLASS: LEVEL 1 (AV, CREATIVE LAB)

- unique collection of materials:

SUBCLASS: LEVEL 2 (FIC, TEEN, PER)

- unique collection of materials:

SUBCLASS: LEVEL 3 (NF, LANG)

- unique collection of materials:

SUBCLASS: LEVEL 4 (NF, ART)

- unique collection of materials:

SUBCLASS: LEVEL 4 (NF, ART)

- unique collection of materials:

SUBCLASS: LEVEL 5 (ROOF)

- unique collection of materials:

GAME CLASS:

- Constructor: creates new space objects of each base class and properly links them, prints the instructions (including goals) and gets the user's name to create a new player.
- Destructor: deletes all new spaces and new player created in the constructor.
- Playing the Game (player starts on level 1)

1. Print the description of the floor, map of the building (showing location)
2. Player gets the option to go up a floor, down a floor, look around or exit if applicable. (Player can only exit the building on the 1st and 5th floors.)
3. look around: there will be collections to browse and areas of the library to explore
4. Collect the proper items and leave the library with a full tote bag to win the game.

Main Method:

1. Initialize game
2. while loop to continue running the game until the player exits the library
3. check if the player completed goals
4. Print win/lose message

Testing Plan:

Test Case	Input Values/Test Functions	Expected outcome	Observed outcomes
Test individual pieces before assembling as a whole:			
test connections between spaces , map functions		correct level marked on map.	correct level marked on map.
Test tote bag container works	make sure can't overfill (max five items), if full ask if player wants to return item, make sure if item is added to tote it is removed from collection options	max holds five items, will ask if want to return item if try to add to full tote, items added to tote no longer appear in collection.	max holds five items, will ask if want to return item if try to add to full tote
Testing program as a whole:			
Check win conditions work	testing std::find works	player wins the game	player wins the game
check for memory leaks	run game	none	none

Reflection:

I had a hard time with the project at first. I was trying to design a pirate themed treasure hunt. I was having a really hard time visualizing what was happening and trying to figure out how all the pieces of the game fit together. I obviously ended up scrapping the idea and starting over with an entirely new project. I picked the library as a setting/theme because it was based in reality so I only had to be creative in how the player interacts with the game, the setting was already something I was familiar with. Now, I think I could go back and recreate what I was trying to do with the pirate adventure. I have a better grasp on how all the pieces can fit together.

I ended up having to create a seventh space, the exit space, that I didn't have in my original design. Because my movements were done in the spaces classes, I needed a way to exit exit the game from the game class. As a solution, I created a space that was outside the library (level 99). As long as the level wasn't 99, the game would continue to loop through the explore function moving between levels (spaces) of the library.

I also ended up adding a map to the helper functions (validateChoice and menu functions). When not necessary. It is nice to visualization of how many floors you have to go up, so how much energy you need, to get to certain areas of the library.

I didn't love this assignment, I struggled with the creative freedom as I mentioned before, but, I did love that it shows how much I learned in this course. I feel very accomplished and that I have a good grasp on coding in c++.