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Design Document

Design:

- The setting:
    o On an island for a reality tv show
    o Will include shore beach and forest, as well as a helicopter
- The layout:
    o The main game will be a 3 by 3 grid with 1 row of forest along the top. A row of beach in the middle and the last row will be a row of shore.
    o The grid will be surrounded by "danger" zones that will cause instant defeat.
    o The player will start in the middle beach square being dropped off by a helicopter.
    o The player will leave by a different helicopter to the south of the eastern shore.
- The game:
    o The player will have to find 3 keys 1 in each zone. Once the player has collected all three the space south of the eastern shore will change from a "danger" space to that of an escape helicopter.
    o The jungle key will require a shell that can only be found in the shore to get the key from the tree.
    o The Player will have 15 turns to get the keys and once they have them the turn counter will be reset and they will have 8 turns to find the helicopter and leave.
    o There will be story textboxes throughout the game to provide story and guidance.
    o There will be an option to be told how to win at the beginning.
    o The Player will have an inventory that will be set to a max of four items. They will hit this limit when they have the parachute, shore key, beach key, and shell. Once they throw the shell for the key they will have room for the key.
- Classes needed:
    o Spaces (Parent of all Tiles)
        ▪ Derived from it are
            - Beach
            - Shore
            - Forest
            - Helicopter
    o Player
        ▪ For inventory
    o Map
        ▪ To layout the game
    o Story
        ▪ To keep the main from being cluttered with massive text boxes

Testing Plan:

I started the program with only beach tiles to get the movement between the spaces working as well as the inheritance from the parent class. Once this was working I created the map class to contain all of the spaces for the map. Then I created the other derived classes and made a full map.

| Testing Done | Action | Expect Outcome | Actual Outcome |
|---|---|---|---|
| Verifying that the player could go throughout the map. | Various I traveled throughout the entire map. | I would be able to access all four spaces around each map tile. | I was able to get to each tile as expected. |
| Verifying that moving onto a danger square properly kills the player | Going onto each danger square | Player would die | Player died |
| Player tries to get the first key. | Looking around on a beach tile and saying yes to digging | Player gets the key | Player got the key |
| Player tries to get the first key again | Looking around on a second beach tile and saying yes to digging | Player is told they already have this key | Player got told they already have the key |
| Player tries to get the shore key but not the shell | Yes to wading out no to picking up the shell | Player gets key not shell | Player got key not shell |
| Player tries to get the shore key and get the shell | Yes to wading out yes to picking up the shell | Player gets key and shell | Player got both |
| Player tries to get shore key again and shell for first time | Yes to wading out yes to picking up the shell | Player is told they already have this key And gets the shell | Player got told they already have the key and given the shell |
| Player tries to get the forest key with shell | Yes to throwing shell at key | Player is told they got the key | Player got the key |
| Player tries to get forest key without the shell | Looking around a forest | Told they need to find something to throw at the key | Told they need to find something to throw at the key |
| Player gets all three keys | Player has gotten all tree keys | Player is told about escape and the helicopter appears | Player is told about escape and the helicopter appears |
| Player runs out of time | | Player dies | Player died |
| Player wins the game | Player leaves in the helicopter | Player wins game exits | Player won and game exited |
| Check for input validation | Nonvalid input | Told the input is invalid | Told input is invalid. |

Comments and reflections:

This program took much longer than any other program that I have done this quarter. The biggest issue was the making of the map and figuring out how to move the player throughout. Once that was done the rest of the program was a lot easier to do. While this program was hard it did help me understand pointers and linked lists much better than I had previously.