Northwestern Technology

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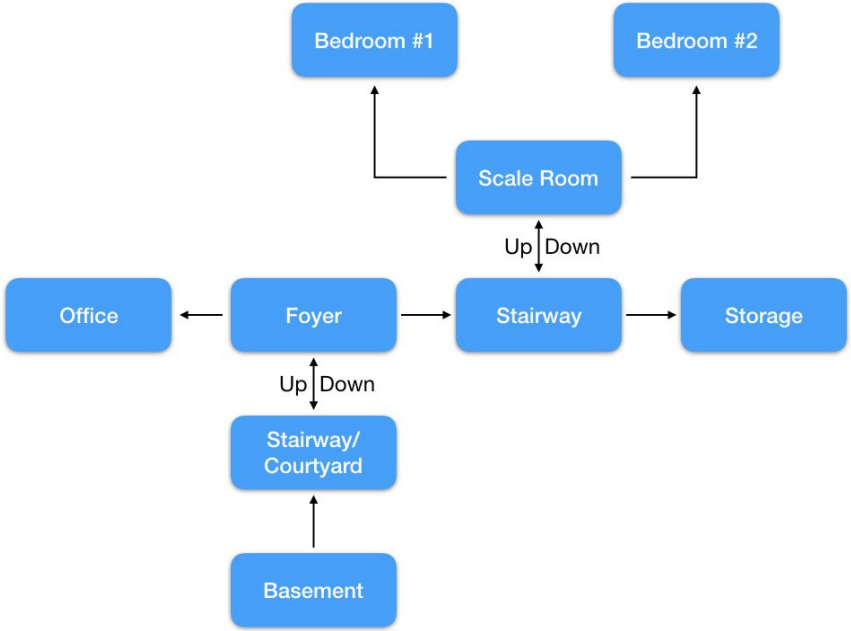
Objective

The objective was to use what we learned throughout the eight weeks of the CST 205 course to produce a game users can interact with. The game will contain visual, audio, and text based cues to help the user in their quest to complete the puzzles in order to win at the game.



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Approach

- Take the basis of the game we developed for a previous assignment and update / develop the Room and Inventory classes (Kevin).
- Create and implement icons for the inventory used during the game. Develop code for room navigation and picture updating (Brian).
- Develop the storyline and the plot for the game. Design and develop artwork and sound files for gameplay (Craig).
- Test the game to ensure there are no glitches. Work on developing the presentation for the project (Samuel).
- All team members also assisted in testing of the software and assisted in areas where additional help was needed.

Software Design

- Classes were used to simplify the design and reuse code.
- Room Class
  - A dictionary where the key is the direction (“North”) and the value is the room in that direction.
  - An array of items (InventoryItem)
  - A picture object
  - An action function
    - If an action function is initialized, the action for the current room is called to enable room specific behavior (e.g. The desk can only be opened in the room with the desk)
- Inventory Item
  - A picture (icon) that represents the item
  - A name for the item (e.g. “Key”)
  - A description that shows when the player looks at it.

Software Design (continued)

- Player
  - Player Name
  - Inventory List
- GameState
  - Flags for things like “Bottle is Open”
- User Interface
  - A single (main) picture is created big enough to show the picture for each room as well as the inventory items below.
  - We didn’t want to pop up a new picture for each room, so we overwrite the pixels on the main picture and call repaint(). This way the same window is used over and over.
    - The downside is the JES is slow to copy pixels, so there is a delay between each room when copying the image.

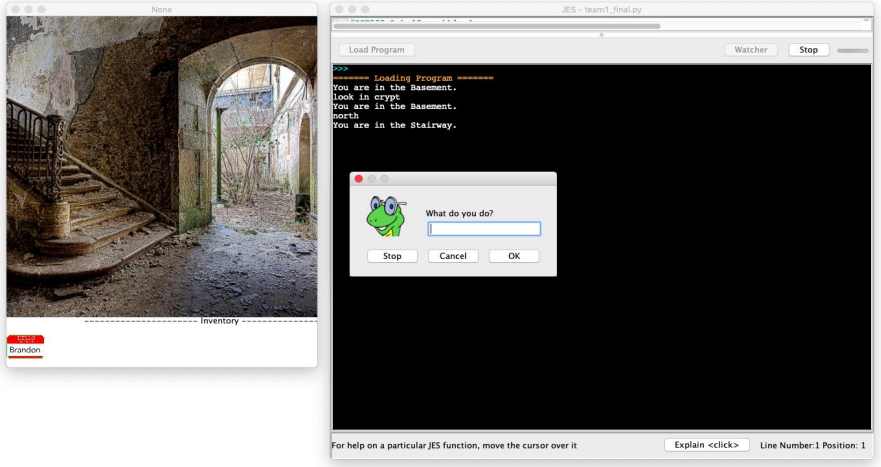
Software Design (continued)

- Room Navigation
  - Since each room has a dictionary that associates a direction with a room, the code to navigate is simple.

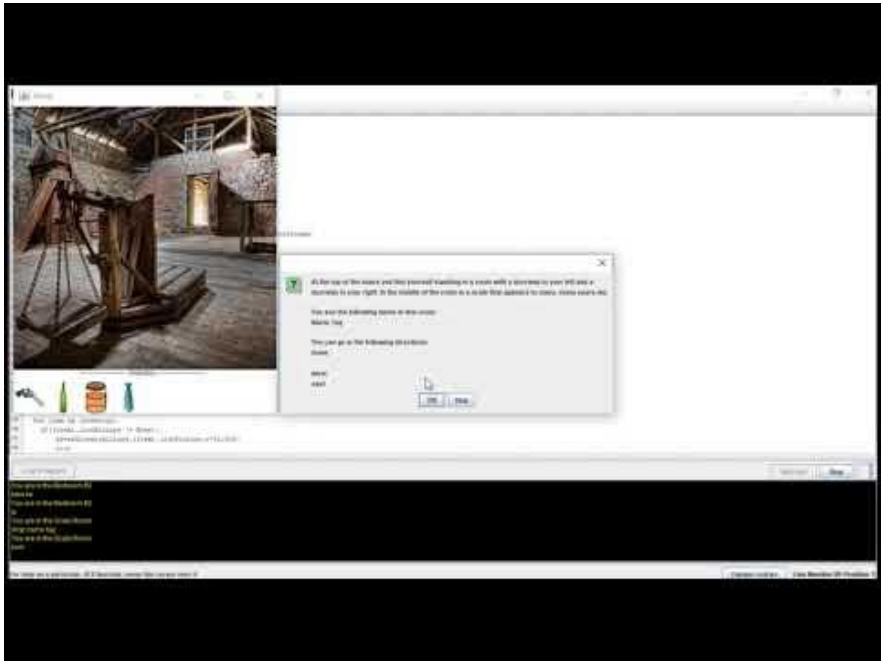
```
if(command.lower()=="go" and len(commands)>1):
    command = commands[1]
if(command.lower() in validDirections):
    newRoom = currentRoom.move(command)
    if(newRoom):
        currentRoom = newRoom
        # Copy pixels over for this room to mainWindow
        if(currentRoom.picture!=None):
          pyCopy(currentRoom.picture,mainWindow,0,0)
          repaint(mainWindow)

    else:
        displayGameText("You can't go that way!")
```

Results

As a team we were able to complete the project with ample time for testing. The game involves you moving throughout various rooms of a house, looking for clues so you can exit the house without losing your life. The games classes were updated by Kevin to allow for the visual and audio components to be implemented. The inventory icons and visual effects were developed and implemented by Brian and Craig. Samuel oversought the audio components as well as the development of the final presentation. The game was tested and issues were resolved by the group as a whole.



Demo Video



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Top Three Things We Learned

Brian Sheridan

- Was able to develop on programming within a team environment.
- Learned how to split tasks for programming purposes to allow for the greatest benefit.
- I learned that communication is vital in any group project.

Kevin Bentley

- Outside testing by people who didn't work on the development is very valuable.
- Testing and debugging can take a similar amount of time as the development took.
- The more you design up front, the easier the development will be.

Craig Calvert

- Planning as much of your project up front is very important prior to actually writing code.
- Working within a team allows for different approaches and different solutions to problems. Benefiting the project in the long run.
- Testing as much as possible through the design of a project is essential.

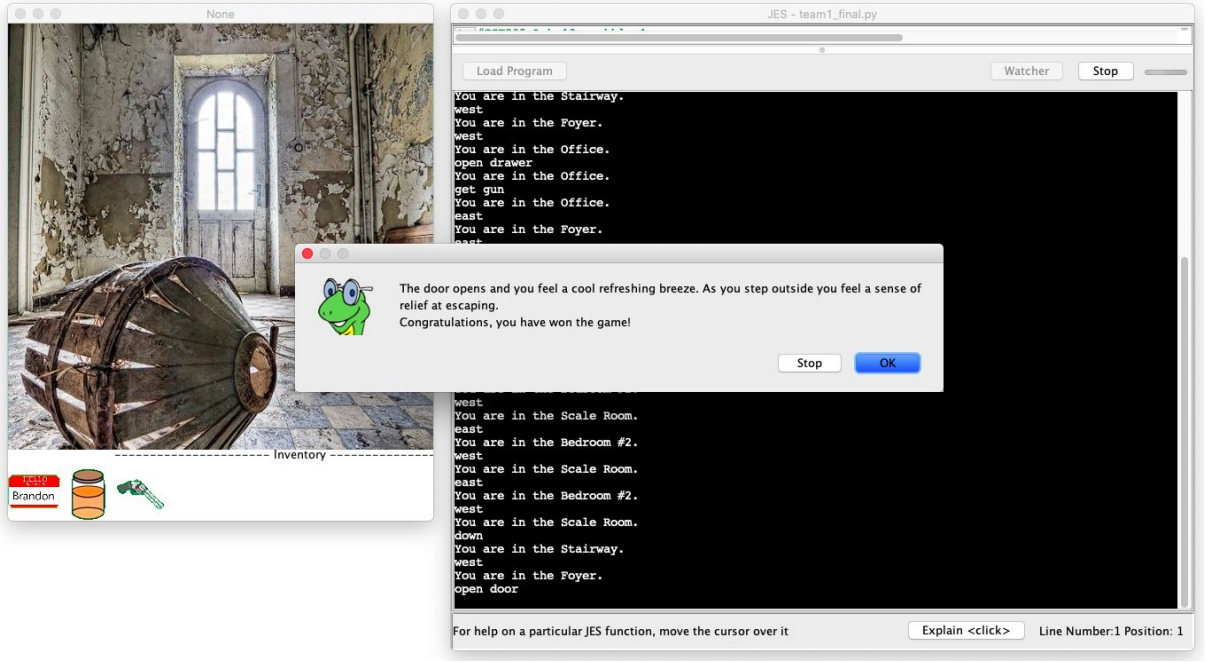
Samuel Pearce

- Understand how to program in a group environment when everyone has different schedules.
- Talking about the assignment makes working on the assignment a lot easier to understand.
- Having multiple people work on testing allows us to have a higher probability of finding errors within the program.

Project Links

[Group Status Google Document]

[Video Presentation]



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