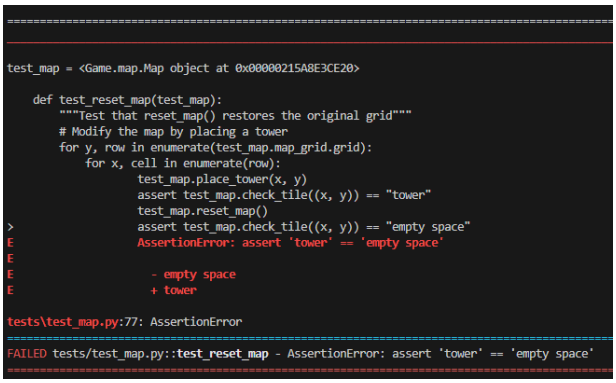
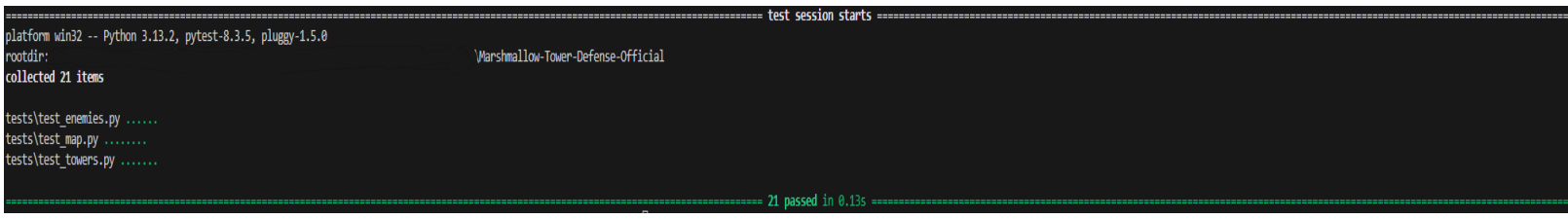
Testing with Pytest

- Pytest was used to test modules in my pygame project prototype
    - This is a testing framework for Python that allows writing of simple and scalable test cases
- Tested modules included:
    - Enemy class
    - Tower class
    - Map class
- Thus thoroughly testing all core functionalities in this prototype of my tower defense game.
- When running test on map class functions, the reset map function did not work as expected.
    - Assertion error shows that the expected output ('empty space') differed from the actual output ('tower') indicating that the reset_map function did not work as intended.
    - The fix here was to use pythons deepcopy method (from Python's copy module) to ensure that the map itself was not a stored reference to the default map/grid but rather a copy of it. (fully independent)

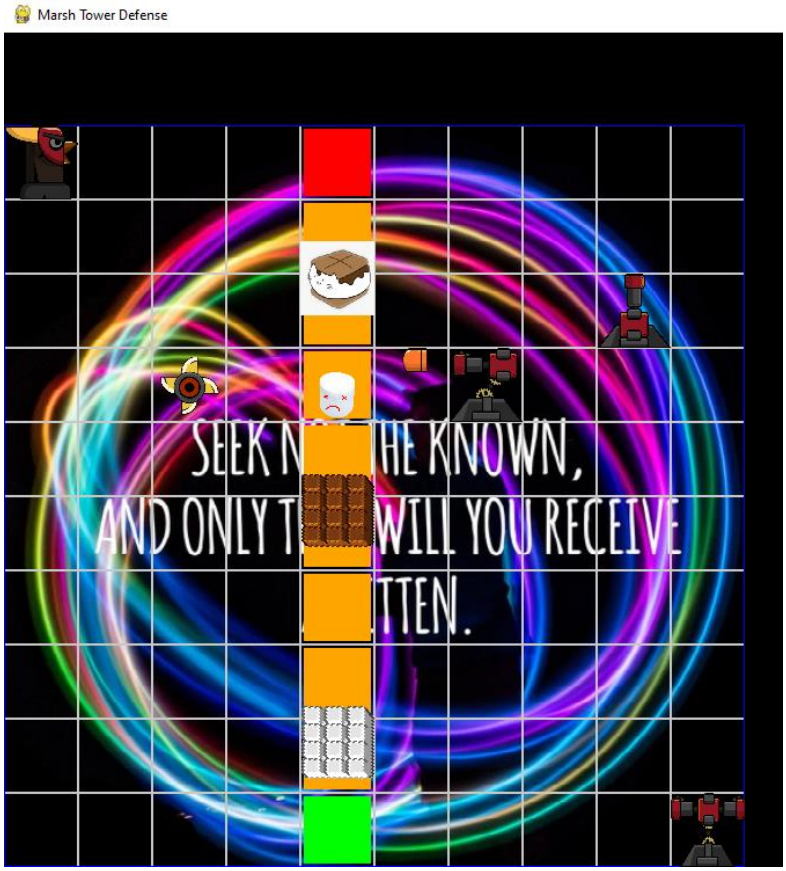


- Other testing ran smoothly, with no errors; all actual outputs matched the expected outputs in tested methods.



Game prototype in Action (Core Functionality)

- Prototype currently has basic towers, enemies, and a map system involving a grid module.

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[2, 0, 0, 0, 3, 0, 0, 0, 0, 0],
[0, 0, 0, 0, 1, 0, 0, 0, 0, 0],
[0, 0, 0, 0, 1, 0, 0, 0, 2, 0],
[0, 0, 2, 0, 1, 0, 2, 0, 0, 0],
[0, 0, 0, 0, 1, 0, 0, 0, 0, 0],
[0, 0, 0, 0, 1, 0, 0, 0, 0, 0],
[0, 0, 0, 0, 1, 0, 0, 0, 0, 0],
[0, 0, 0, 0, 1, 0, 0, 0, 0, 0],
[0, 0, 0, 0, 1, 0, 0, 0, 0, 0],
[0, 0, 0, 0, 4, 0, 0, 0, 0, 2],
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In game grid (inside grid class inside map class) at point in prototype screenshot:

- Map backdrop, path, demonstration/placeholder towers and demonstration/placeholder enemies implemented.
    - Towers rendered on map (in grid represented by number 2)
    - Closest tower is in range to shoot – currently shoots bullets consistently horizontally left.
    - Enemies spawn in at start tile (red) and move towards end goal tile (green), and being removed once they reach such tile.
    - Bullets can successfully collide with enemies, registering a hit and lowering the enemy's health by its own damage.
- Basic path drawn based on demonstration grid
    - Orange represents basic path tile. (in grid represented by number 1)
    - Red represents start tile. (in grid represented by number 3)
    - Green represents end goal tile. (in grid represented by number 4)