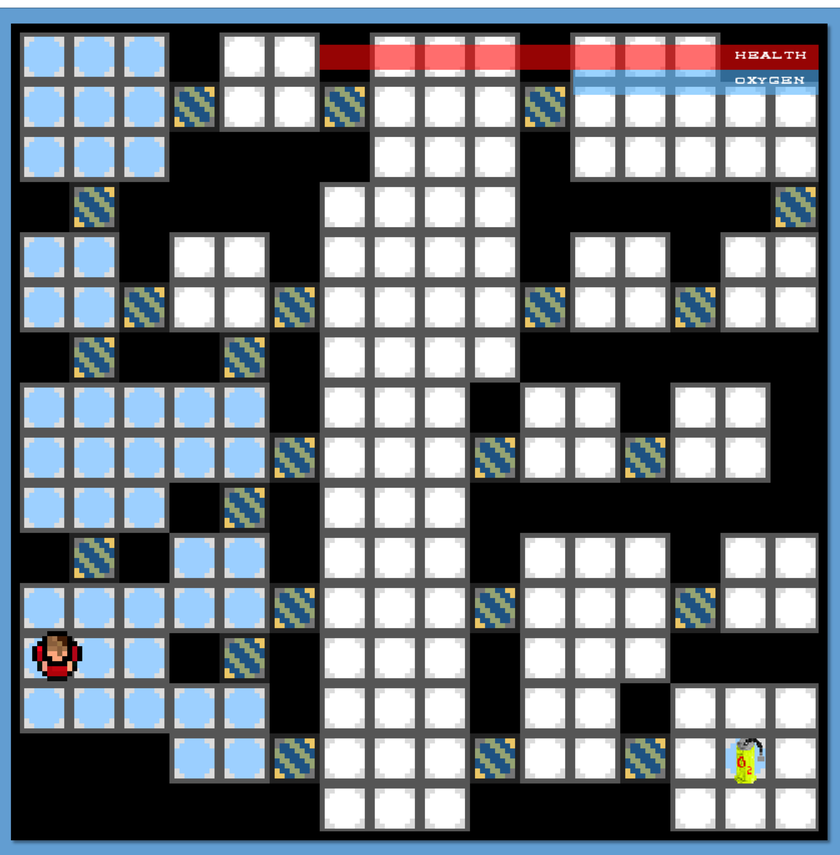
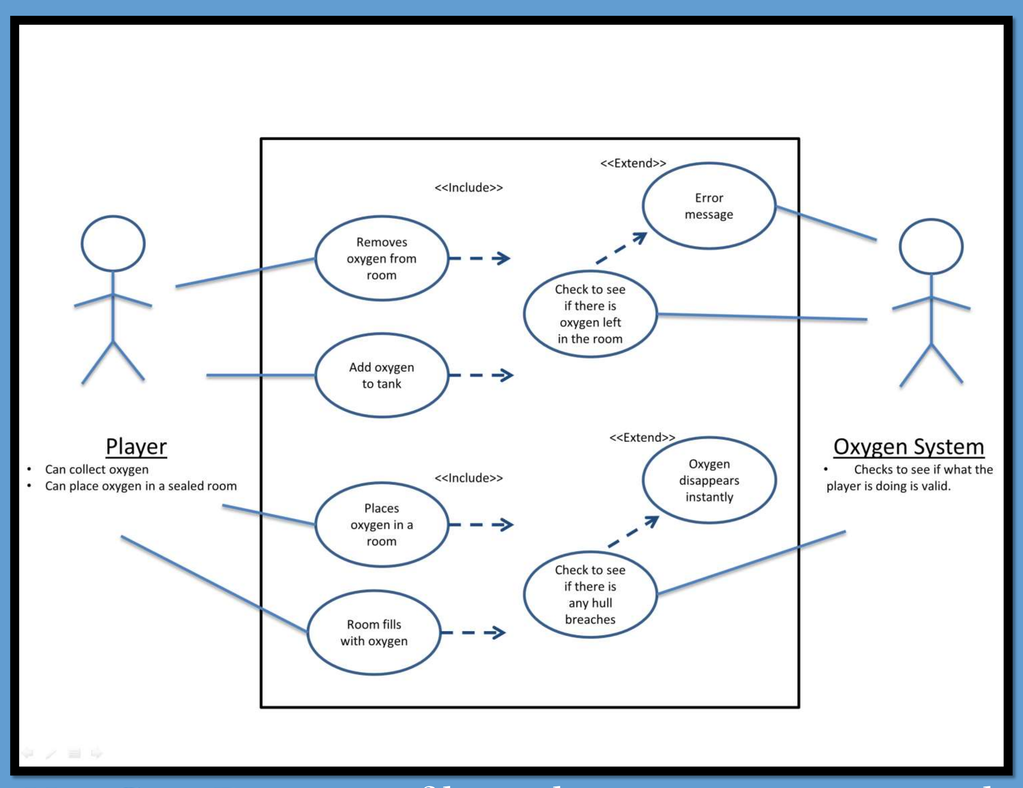
Coding Task II & Weather API

Oxygen Coding Task II

For the comp150 game I focused on the oxygen mechanic, this involved adding oxygen to cells in the game, and then that oxygen will spread to neighbouring cells and then that would fill a room with oxygen.



This is the final game, with oxygen placed in some of the rooms.



Use Case Diagram of how the oxygen system works.

```
//if oxygen level is less than the cell to the left and does not exceed the size of the grid
if (cellX - 1 >= 0 && grid.grid[cellX + 1][cellY]->getOxygenLevel() < grid.grid[cellX - 1][cellY]->getOxygenLevel() && oxygenLevel >= 100 && oxygenLevel <= 0)
{
    //increase the oxygen level
    grid.grid[cellX][cellY]->setOxygenLevel(oxygenLevel + 1);

    //decrease the lefts cell oxygen level
    grid.grid[cellX - 1][cellY]->setOxygenLevel(oxygenLevel - 1);
}

//if oxygen level is greater than the cell to the left and does not exceed the size of the grid
else if (cellX - 1 >= 0 && oxygenLevel > grid.grid[cellX - 1][cellY]->getOxygenLevel())
{
    //decrease the oxygen level
    grid.grid[cellX][cellY]->setOxygenLevel(oxygenLevel - 1);

    //Decrease oxygen reserves
    setOxygenReserves(oxygenReserve - 1);

    //icrease the rights cell oxygen level
    grid.grid[cellX - 1][cellY]->setOxygenLevel(oxygenLevel + 1);
}
```

Sample bit of code that checks the neighbouring cells oxygen value

Weather API

This weather API will check the players location based on their IP address and then use a weather API to set the weather to the players current weather at their location.

```
44      //Returns the IP address of the user
45      IEnumerator GETIP()
46      {
47          string API_IP_URL = "api.ipify.org";
48          WWW API_IP = new WWW(API_IP_URL);
49
50          yield return API_IP;
51          string IP_Address = API_IP.text;
52
53          //Starts another Coroutine to get the location based on that IP
54          StartCoroutine(GetLocation(IP_Address));
55          Debug.Log("Your IP address is: " + IP_Address);
56      }
57
58      IEnumerator GetLocation(string IP_Address)
59      {
60          string IP_Location_URL_start = "http://ipinfo.io/"; //1000 Daily requests allowed for free
61          string IP_Location_URL_end = "/city";
62          string IP_Location_URL = IP_Location_URL_start + IP_Address + IP_Location_URL_end;
63          WWW IP_Location = new WWW(IP_Location_URL);
64          yield return IP_Location;
65
66          string location = IP_Location.text;
67          Debug.Log("Your location is: " + location);
68          StartCoroutine(GetWeather(location));
69      }
```

This is the code that checks the IP address and location of the player.

This weather API integrated three separate APIs together. First it checked the users external IP address with:

http://api.ipify.org/

Then the script got the location of the user with:

http://ipinfo.io/

Then it gets the weather with:

http://openweathermap.org/

An Image of the code working in game and setting the weather to clear