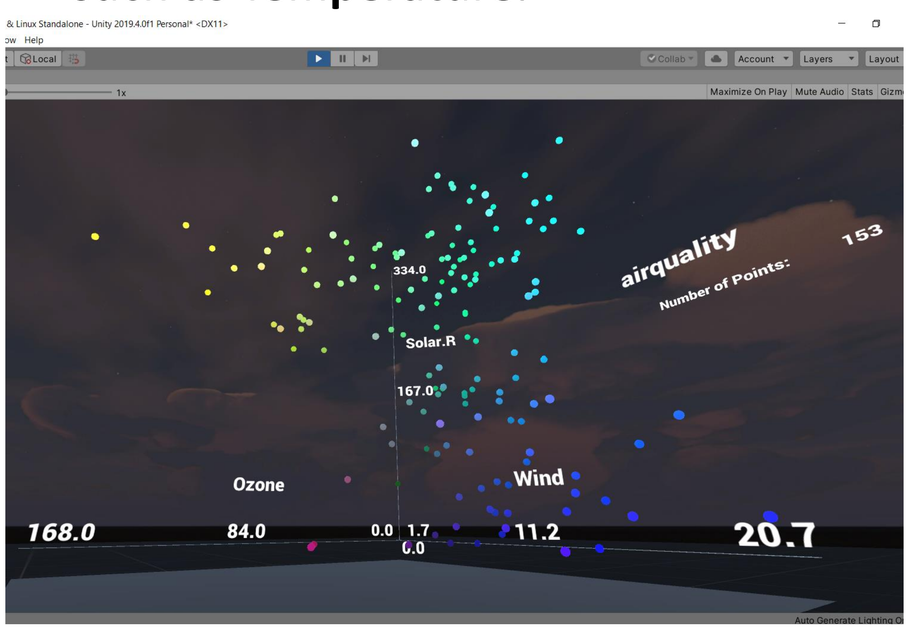
# Green Building
## Data Visualization Internship

### Main Objective

- **To Explore and try to Visualize the gbxml 3D data in Unity 3D Engine.**

- **Here is a simple 3d scatter plot in unity 3d which displays points in the 3 dimensional space from a sample CSV file imported in the Engine.**

- **The colour grading is currently based off the x,y,z values. This is helpful for us in visualizing factors like such as Temperature.**

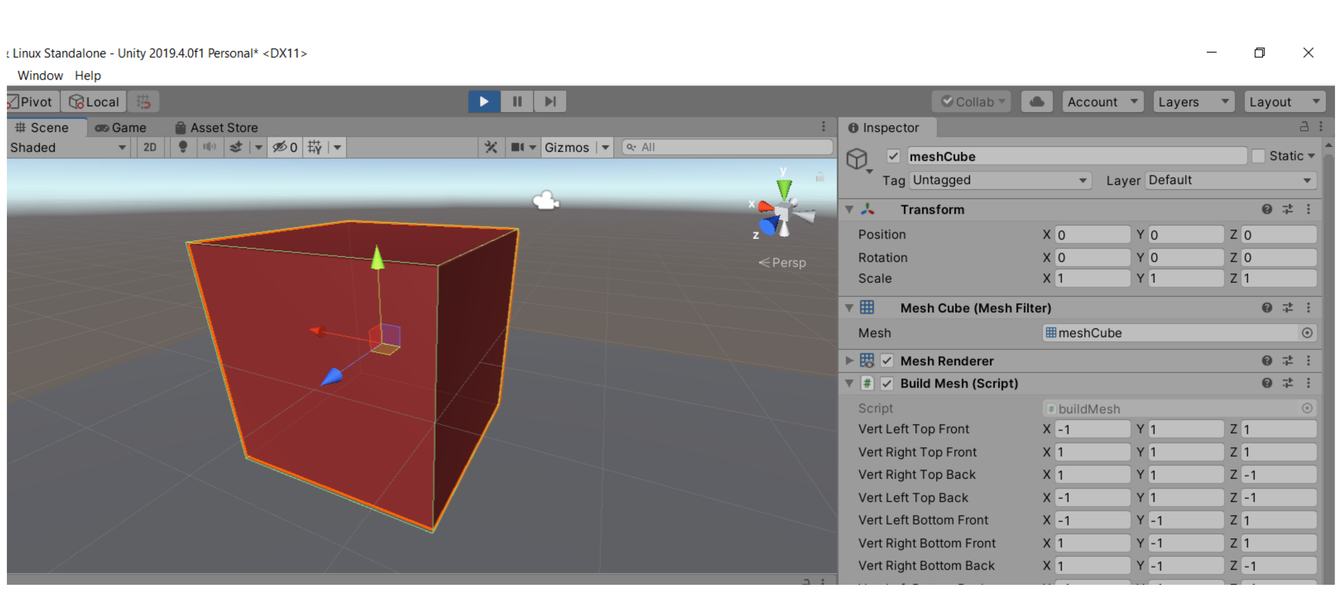



### Objects in Unity

- **Unity allows us to create objects with scripts ( C# ).This object cube is made with over 200 lines of C# code.**

- **Any 3D object is comprised of meshes which are planes made up triangles which further create complex shapes.**

- **This way we can create multiple objects or a simple room by scripting. We can provide these values also with a CSV file.**




## Tasks Performed

1. **Basis of IESVE –** My first assigned task was to explore the IESVE software basics and find out the methods of visualizing the GBXML data in Unity.
2. **Visualize Sample Data in Unity using Scripting**
   - Researching what format of Data would be best suitable for visualizing in Unity.
   Created:
   a) 3D Scatter Plot
   b) Simple Objects (Meshes)
3. **Data Formats Explored –** XML,JSON, CSV. CSV format is not suitable for large scale structures. The best scalable option and also supported by Unity is JSON**.**

**4. Other Methods to Visualize-** Apart from Unity the other software I discovered for visualization with Python , JSON was : Blender

### Final IESVE Data Visualization

- **We can convert the XML file from IESVE software to a JSON file. This data contains coordinates which can visualize simple 3d objects.**
- **Here we will try to plot the data file from iesve into Unity.**
- **GBXML -> JSON -> UNITY**

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