Chair of Computational Modeling and Simulation
TUM School of Engineering and Design
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Modeling:
Mathematics:
Programming:
Science:

Software Lab:

Deployable IFC Viewer based on ThatOpen

Description

This student project aims to develop a web viewer specifically designed for IFC models, leveraging the AECO Ecosystem by ThatOpenCompany (formerly Ifc.js) and built using TypeScript and JavaScript. The viewer will provide basic 3D visualization capabilities, allowing users to explore and interact with their models in a comprehensive and intuitive manner. Additionally, the application will enable component selection, offering detailed semantic information about each component to enhance understanding of the model. The final deliverable should be capable of being embedded in other websites, deployed via Docker for consistent environments, and packaged as a desktop executable for standalone use.

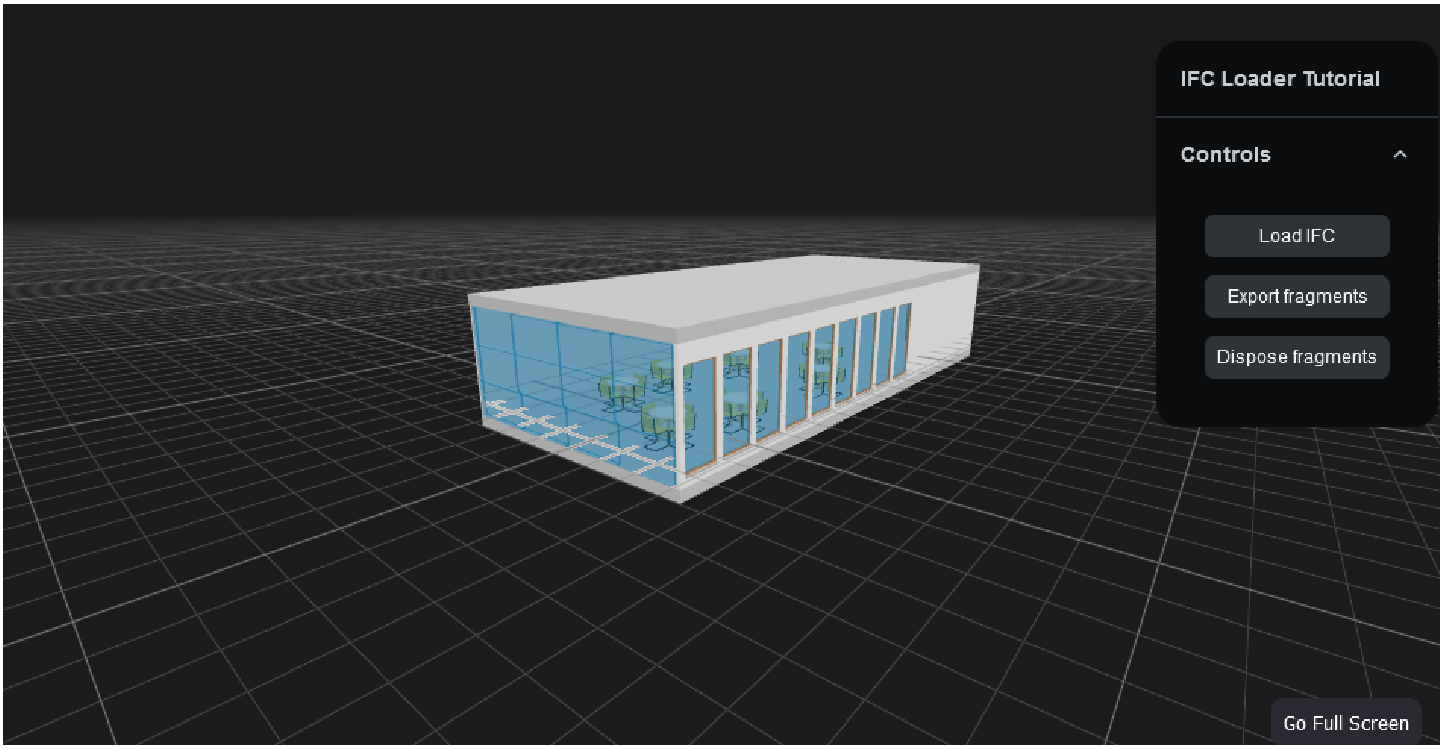

Figure 1: Example web IFC Viewer using ThatOpen engine components. *Image source*

Tasks

Instructions:

- Familiarize yourself with the ThatOpen documentation and study the provided sample code to understand the foundation of the project.
- Collaboratively distribute tasks among the group in a fair and targeted manner to ensure efficient progress.
- Develop the required features by integrating existing code and libraries, creating custom components as needed, and thoroughly testing their functionality.
- Learn about the available deployment options and implement the most appropriate methods to ensure the application runs effectively in its intended environment.

Deliverables:

The primary deliverable is a rendering application for IFC files with flexible deployment options and customizable features.

Deployment Options

The application can be deployed as:

- A stand-alone web application
- An embedded viewer in another web application
- A desktop application (using Electron or Tauri framework)

Core Features

The viewer must include these essential features:

- Selection and visibility control of main IFC entities (IfcWalls, IfcSlabs, etc.)
- Creation and manipulation of section views and section boxes
- Component selection with property display functionality

Optional Features

The following additional features may be implemented to enhance functionality:

- Multi-file IFC loading capability (e.g., Architecture & MEP) with consolidated view
- Measurement tools for model elements
- Advanced visualization options
- Update property sets
- Create BCF tickets

Supervisors

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References

ThatOpenCompany: https://thatopen.com/

ThatOpen Documentation: https://docs.thatopen.com/intro