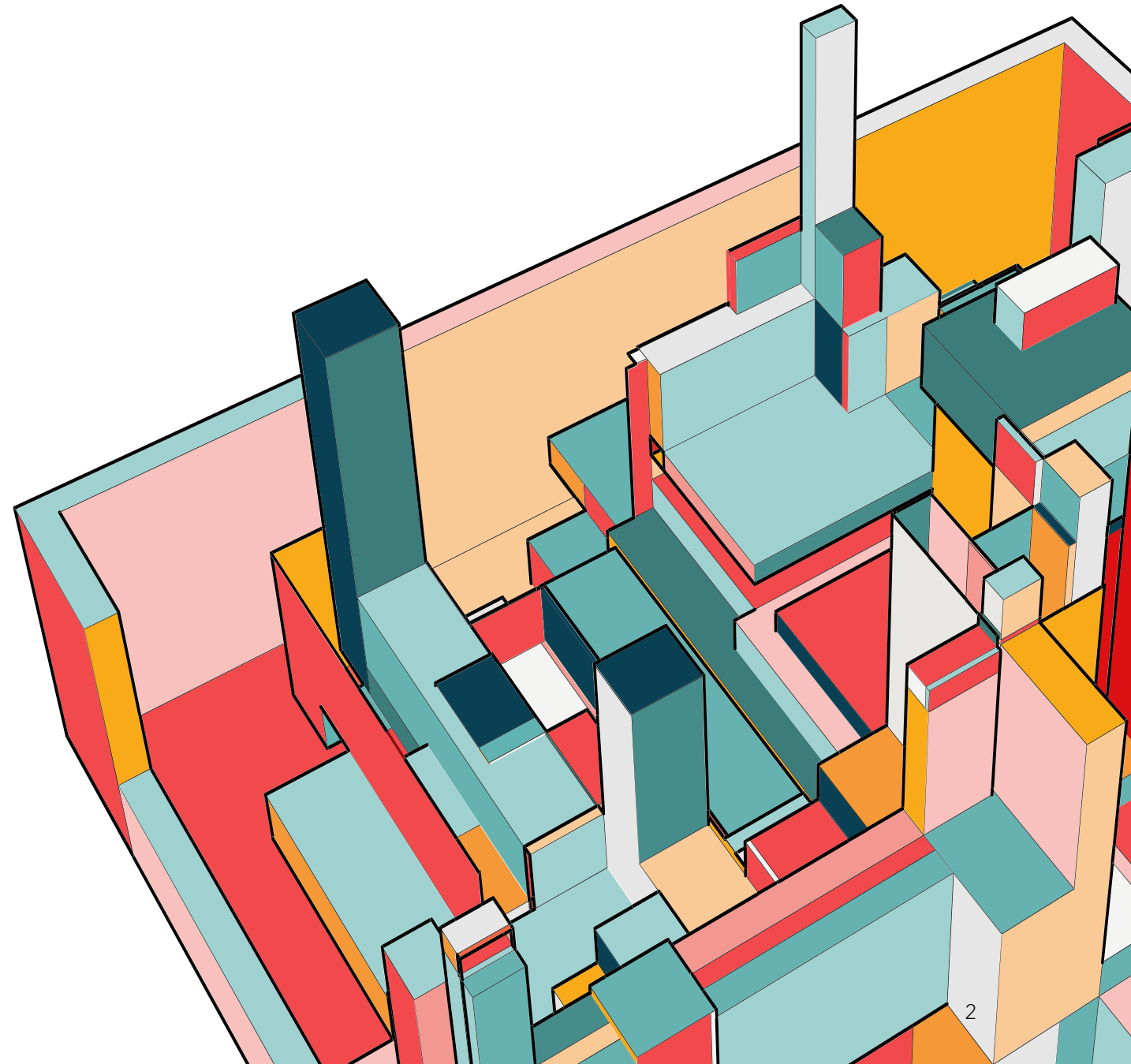
The background features a collection of 3D rectangular blocks of various heights and colors, including teal, red, orange, and pink. These blocks are arranged in a way that creates a sense of depth and perspective, with some blocks appearing to be stacked or connected. The overall aesthetic is clean and modern, typical of a tech or engineering-themed design.

SOFTWARE ENGINEERING INTERNSHIP

Isaac Dugan

OPEN PROFESSIONAL GROUP

- OPG is a software consulting company based in Westminister MD
- OPG builds and maintains software solutions for various clients mostly in the health care industry
- OPG was founded in 2005 by Andrew Dean who is CEO of the company today
- Is a remote company with about 30 employees



HOW DID I GET THE INTERNSHIP?

Cold Email

In October of 2023 I sent emails to several software companies in Maryland inquiring about possible internship opportunities.

Second Interview

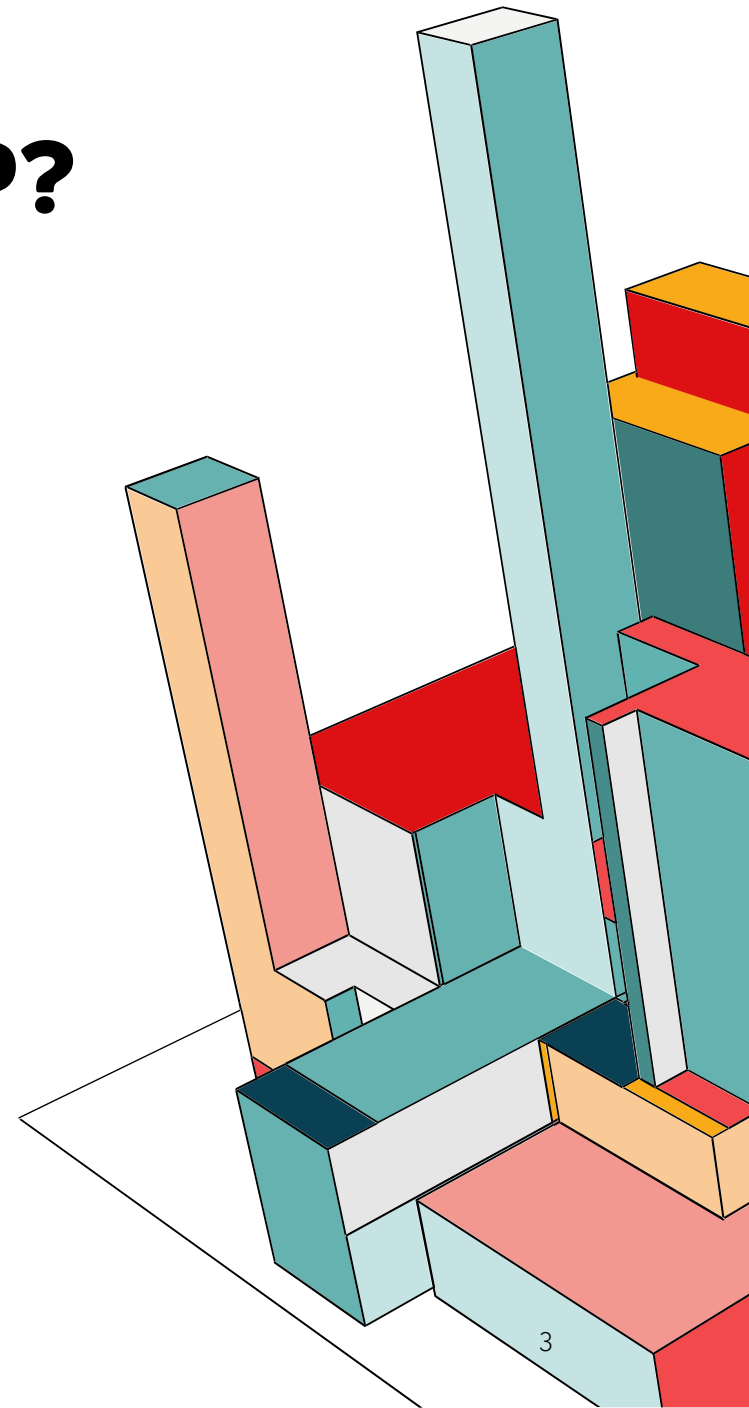
During the second interview, the CEO, Mr. Dean and I discussed possible tasks that I could complete and more about the company's tech stack.

First Interview

Later that week I received an email back and we scheduled a zoom interview. During the initial interview we talked about my resume and prior programming experience.

Offer

In December, I was offered a position as an intern. I could start in January and continue until through the end of the summer.





MEETING MY TEAM

Client

I was placed on a team doing work for a company called Switchbridge. Switchbridge offers data normalization services for healthcare companies.

Sector

Healthcare Startup

Project

We worked on an application called Coach that manages ETL processes.

Teammates

I was placed on a team with a senior developer with 20+ years of experience named Shawn and a senior developer with 10 years of experience named Niles.

UNIQUE CHALLENGES

Privacy

Healthcare data requires
HIPPA secure data
protocols

Scale

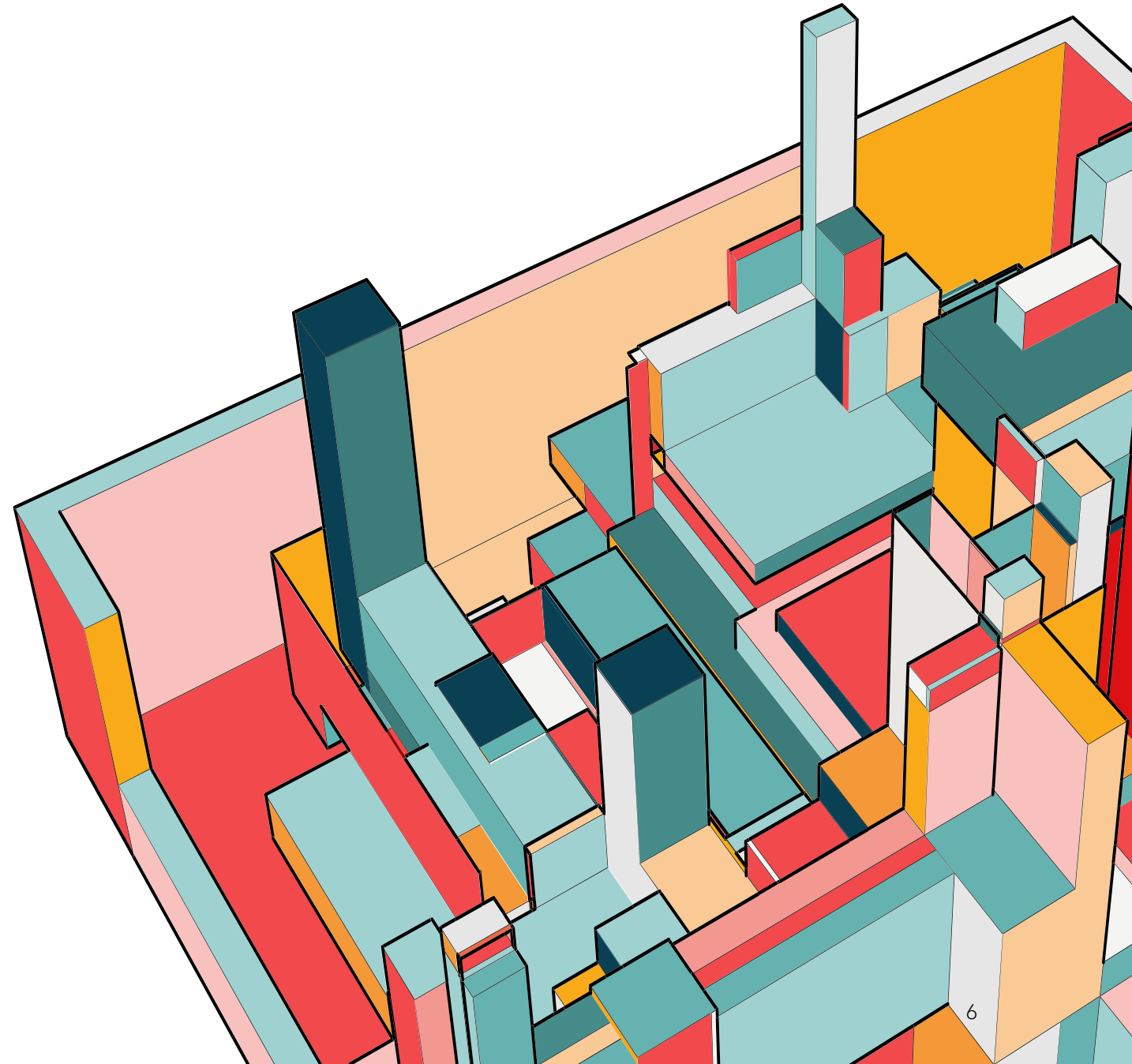
Millions of records
processed each year.

Accuracy

Data must be checked by our
programs to ensure accuracy.

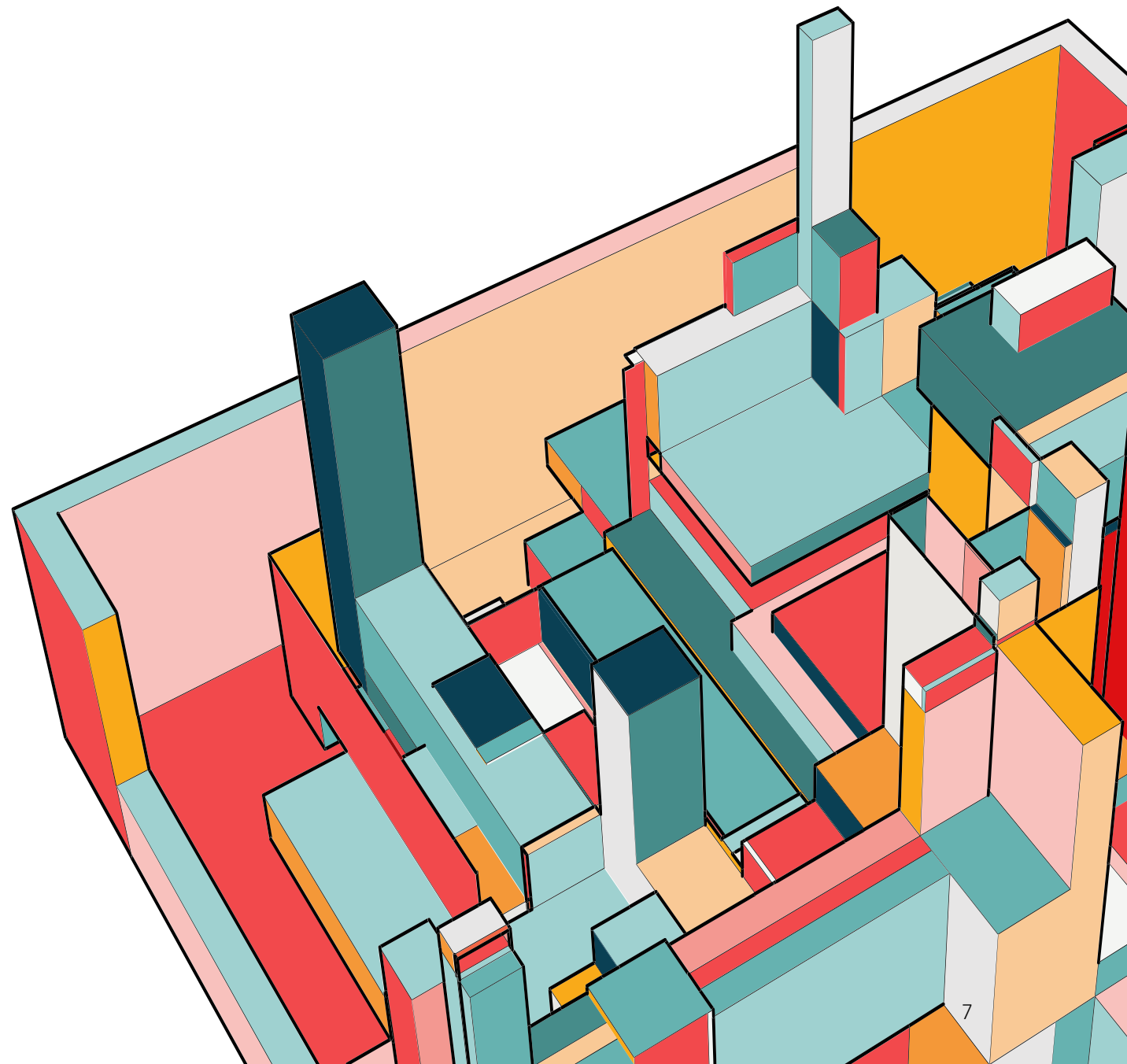
CASE STUDIES

One of Switchbridge's clients is an AI company that specializes in recognizing and identifying rare conditions in large populations. In order to build their models and to ingest their client data, they use Switchbridge for data normalization and storage. We streamline the process of receiving the data, processing it, deidentifying it, normalizing it and making it accessible via their API.



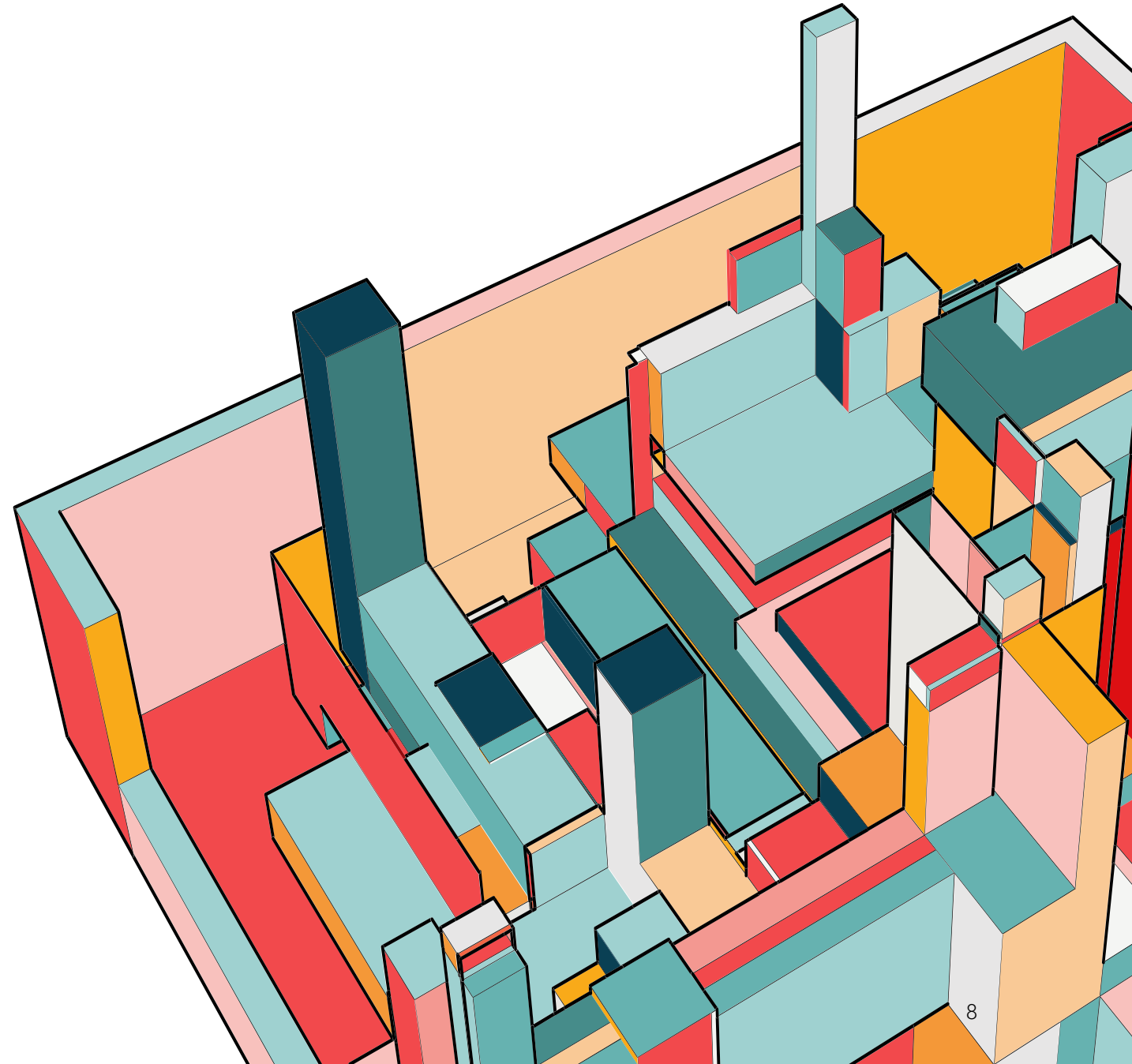
ANOTHER CASE STUDY

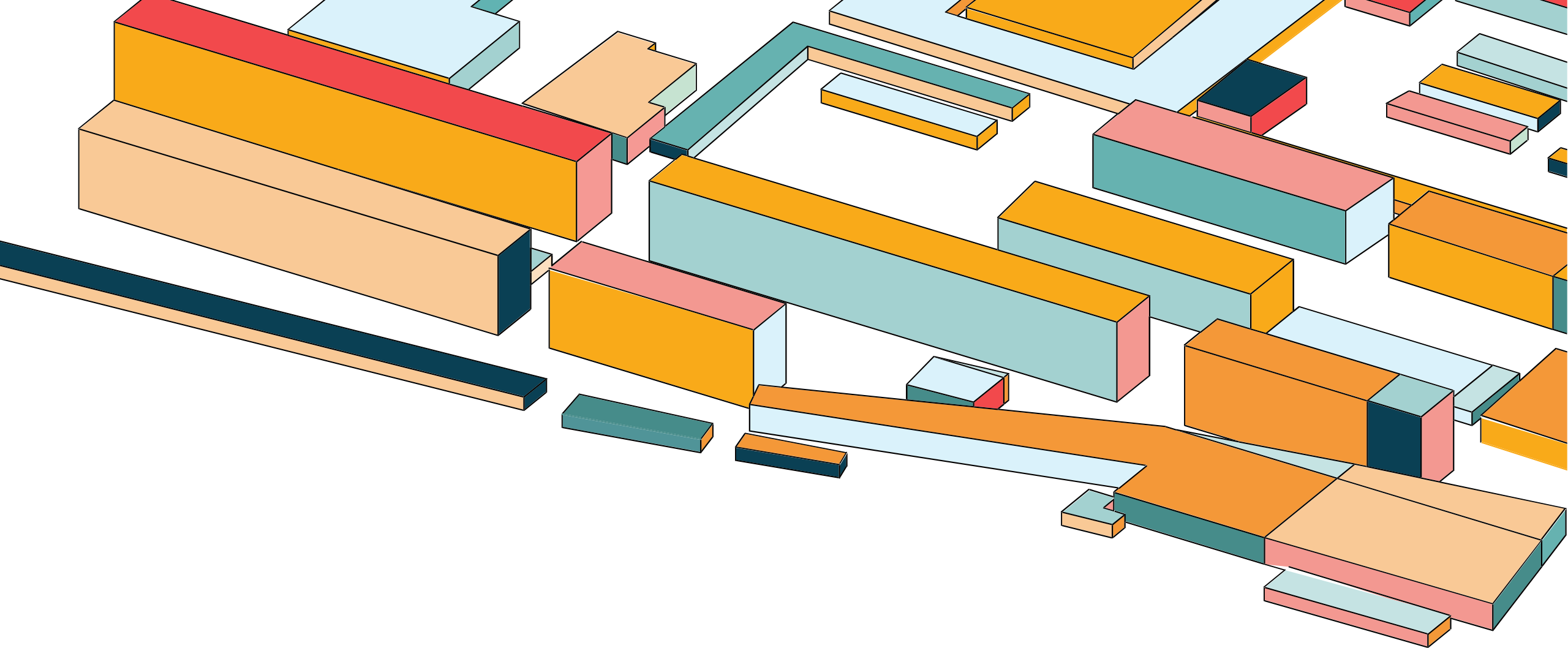
Another client offers a health management app that is available through employer healthcare plans. Their mobile code needs standardized data in order to function. Unfortunately, their clients all have different healthcare providers with different data layouts, formats, and naming conventions. They use Switchbridge to normalize their many client's data so their mobile apps can use a common API.



COACH OVERVIEW

Switchbridge ingests hundred of files every month containing enrollment, medical and pharmaceutical claims information for various employers via an SFTP server. Coach manages the SFTP connections, the files being processed and data validation. It prepares the data for normalization (turning it into a cohesive data set). Coach processes over 250,000 records every month and is still growing.

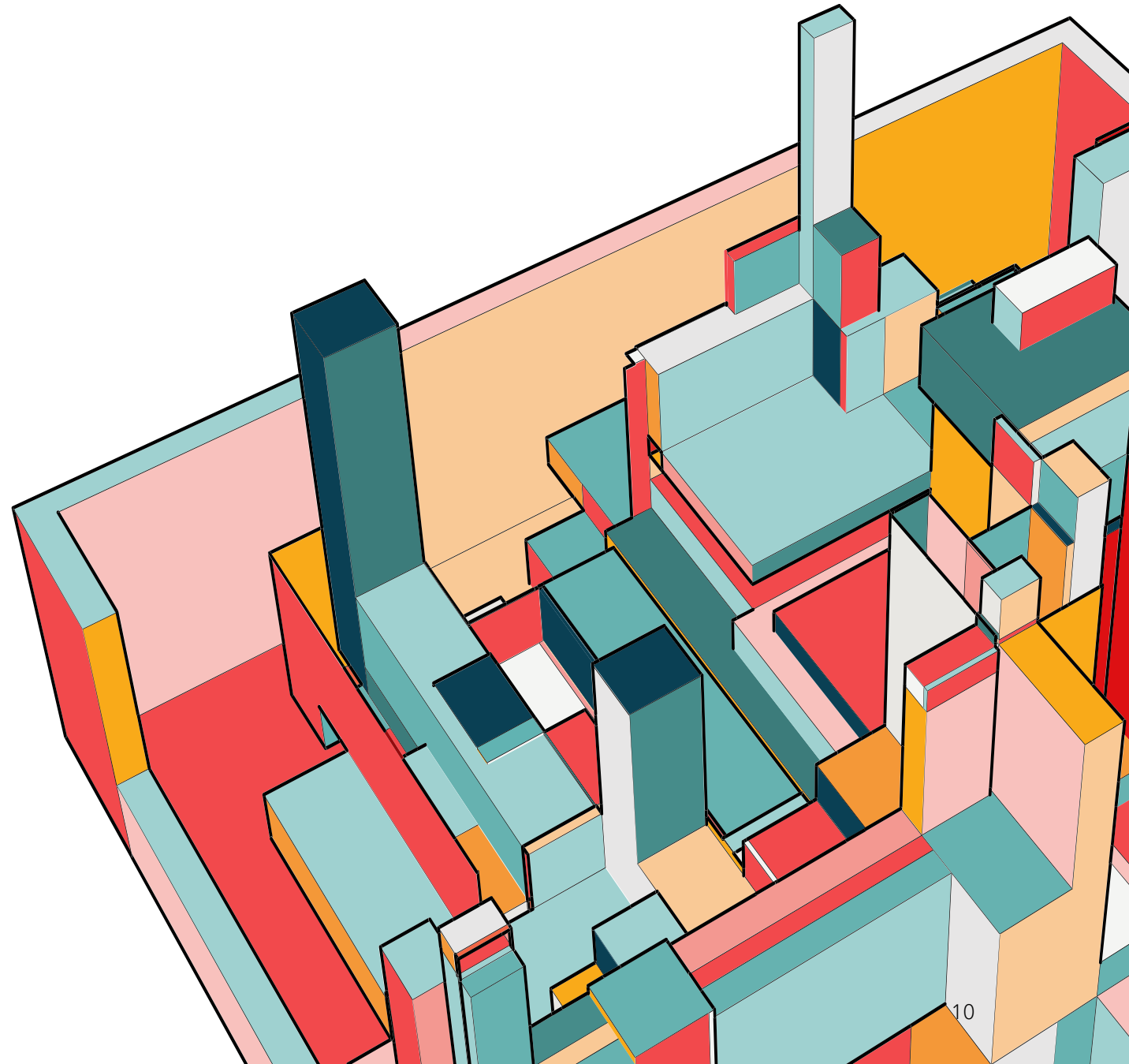




MY CONTRIBUTIONS

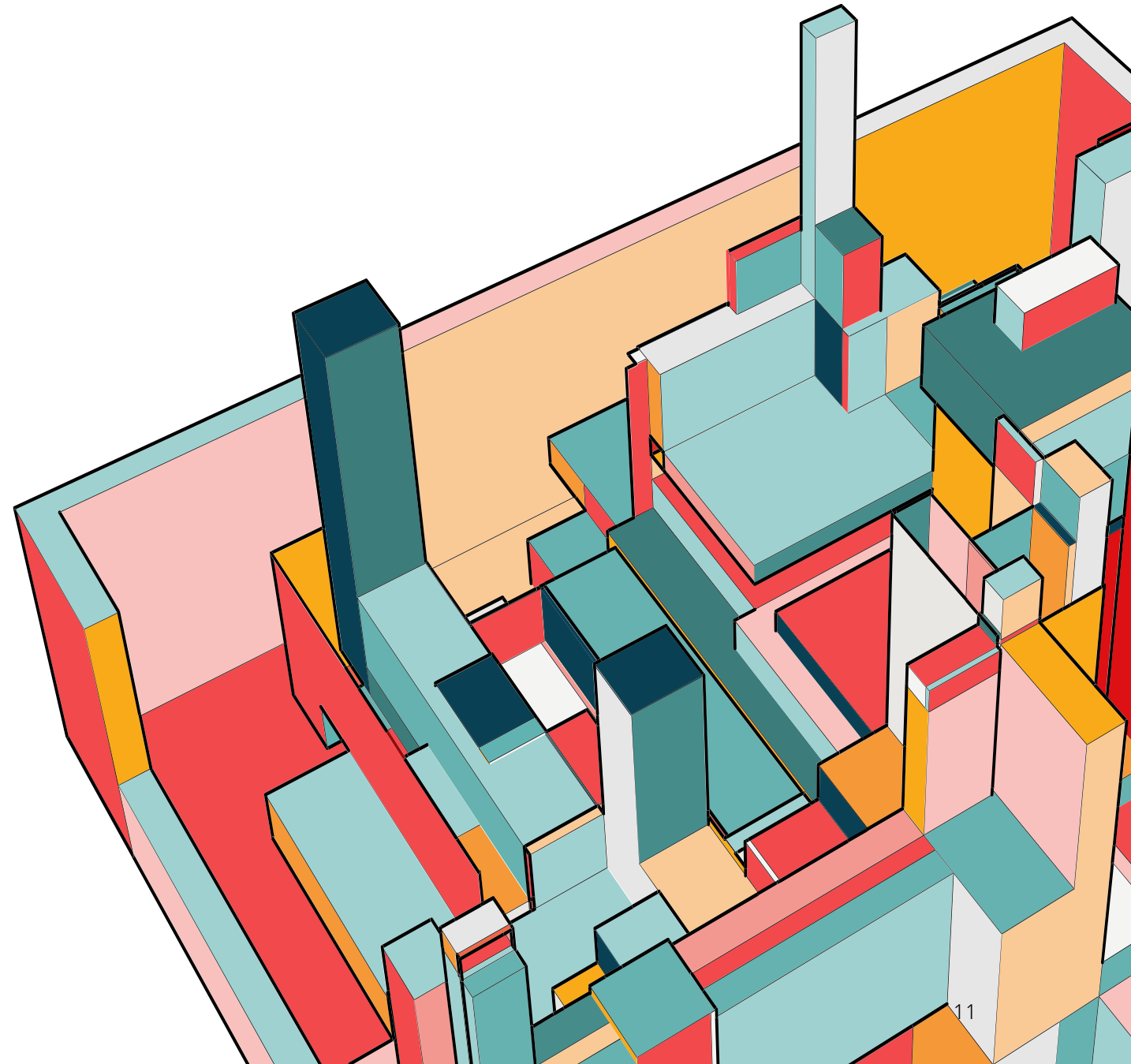
REVAMPED ERROR REPORTING

After the data files are imported, they are run through a validation process. When I arrived, this validation process would stop as soon as an error was found in the data. This led to having to find an error, communicating with the data providers to fix the issue and then finding another error and having to repeat the process. I modified the error reporting system to track issues during validation and present a full report of all errors at the end.



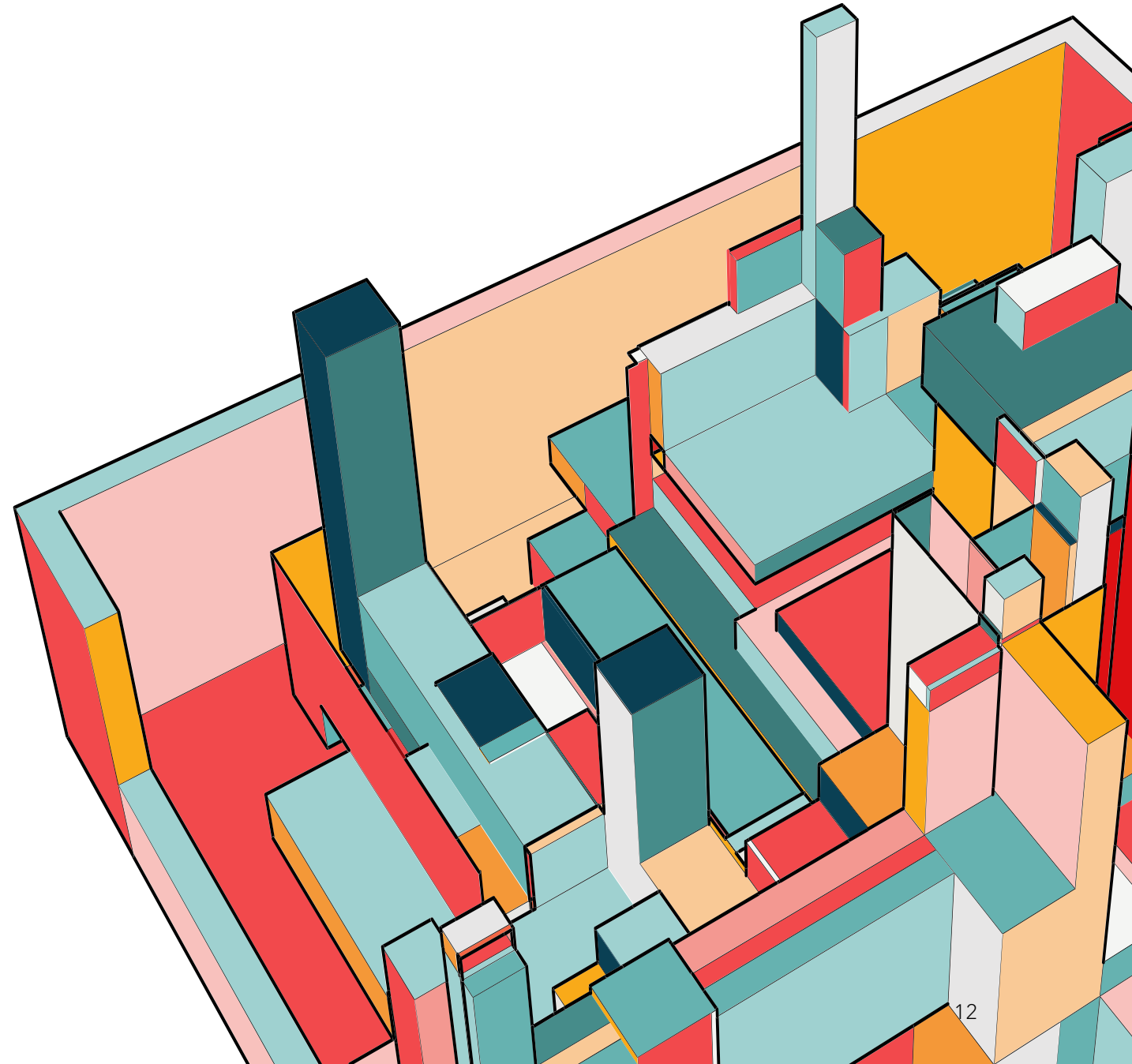
DYNAMIC VALIDATION SETTINGS

In order to validate and normalize data, we have a validation engine that takes in config files that specify what format the file is (file type, header row, column names, date formats, ID number validation, etc.). When I arrived at OPG the connection between the config files and the incoming files was done in a hard coded array. I turned this into a table in the database and refactored the application to be able to select the validation settings from the user interface.



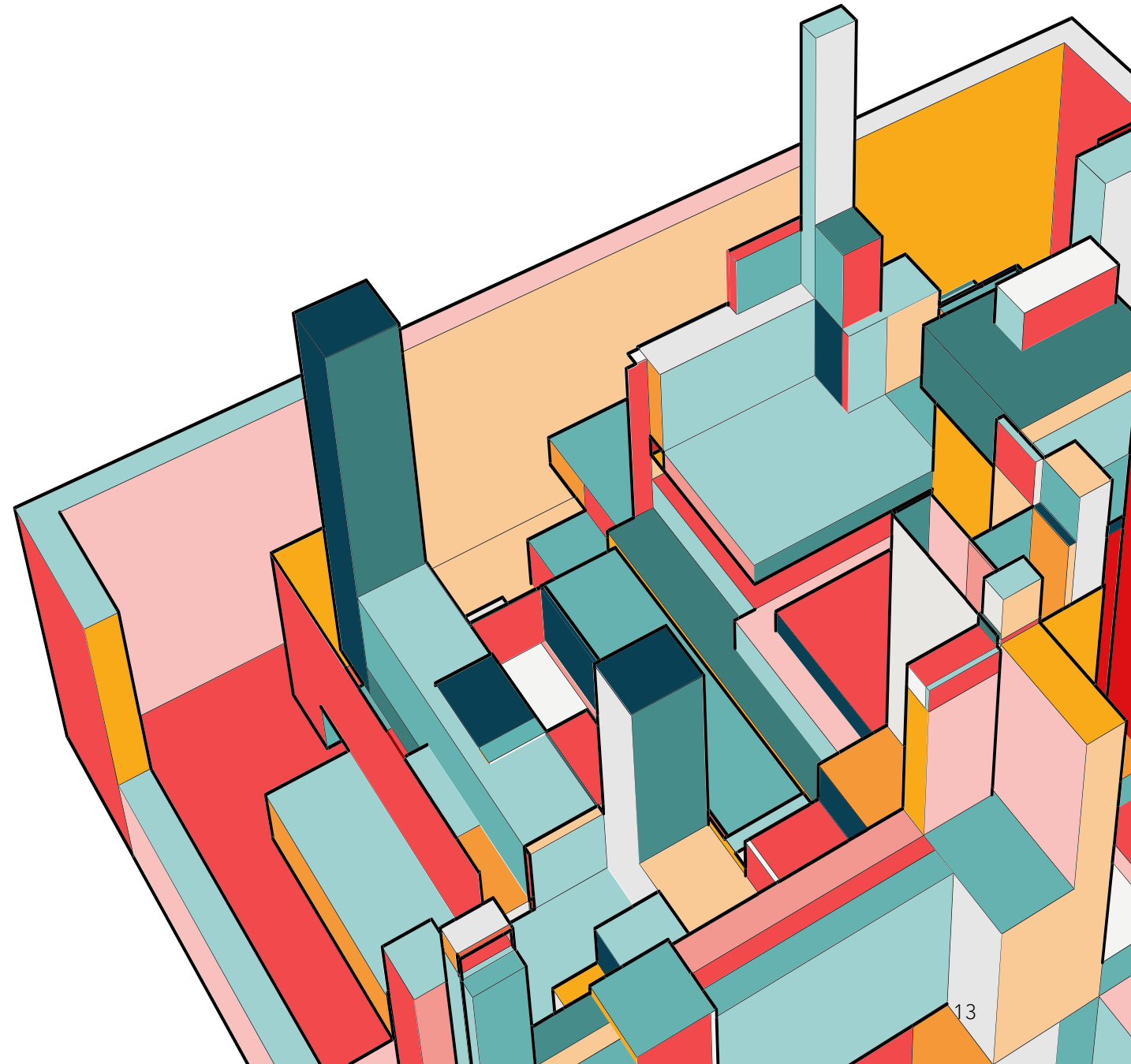
FORM REPOPULATION

Many of the forms in Coach did not repopulate correctly if the form validation failed. This wastes time and is frustrating for users. I fixed all the forms to repopulate all prior values correctly.

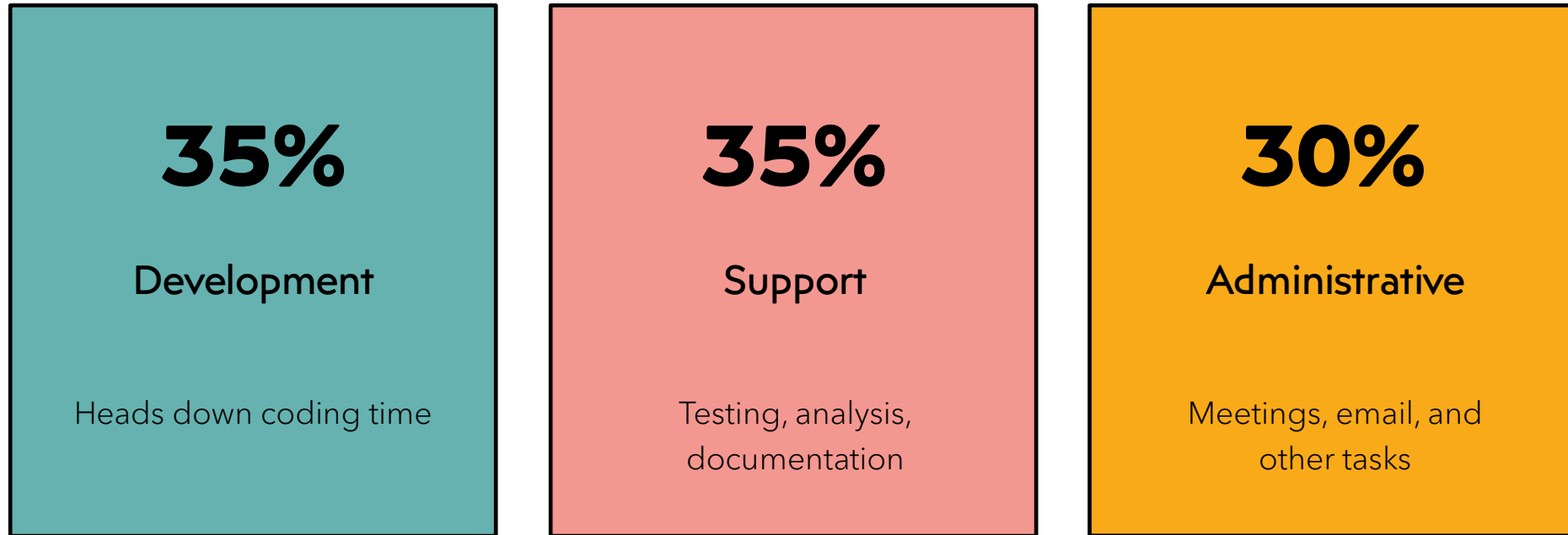


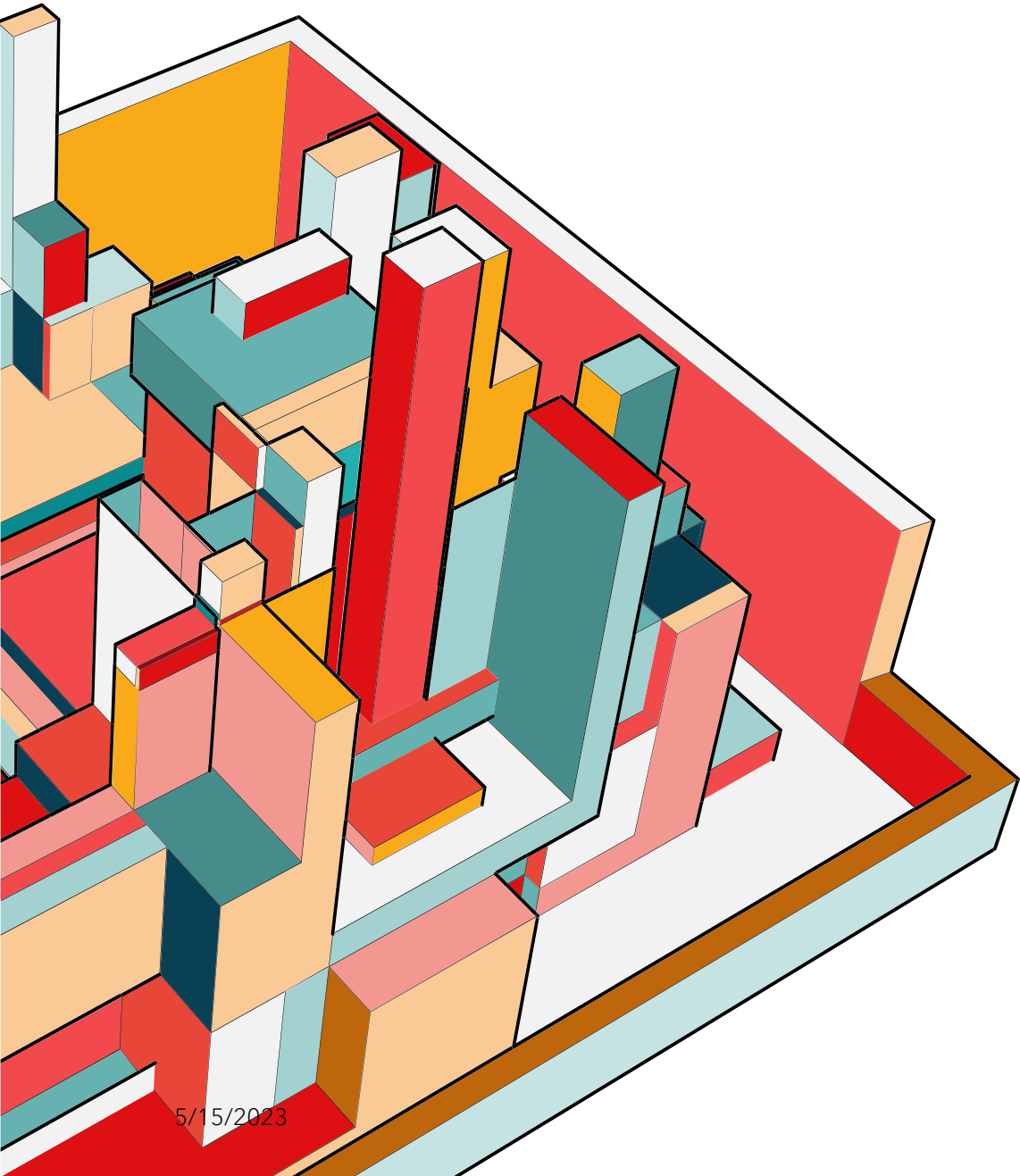
TESTING

I was responsible for testing the features built by my teammate Niles. He built several features I assisted in testing and deploying including a report to alert us of files that were not received as scheduled, a dashboard to display errors that occurred during the import process and a set of customer facing profile pages so non-technical users can utilize the site.



TIME SPENT (480 HOURS)





SUMMARY

This semester I learned so much about how software engineering works in the real world. I was surprised at how important communication and teamwork are, as well as how much I still have to learn. I'm excited to continue working with OPG this summer and am very grateful for the wonderful opportunity I have had so far.

THANK YOU

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