Concordia University
CART 451

Coffee Overflow

Documentation

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TECHNOLOGIES

- **Unity Game Engine:** the entire app was built using the Unity 3D game engine, a program specifically made for creating interactive projects such as this one. Unity facilitated the conception of the project thanks to the built-in physics engine and the Unity C# libraries that are built for handling a lot of the user inputs and functionalities that projects like this one need.. The Unity environment also has an extensive Asset Store that contains paid and free content such as 3D models, plug-ins, animations, etc. This facilitated the development because it provided most of the 3D environments and models.
- **SQLite:** this is the bridge between Unity and the database. Queries are made to the database through the buttons and sliders in the app in order to display dynamic data.

FEATURES

- **Production trigger button**: this spawns coffee beans in the environment, alongside an explanation of the data. There is no restriction on the number of times the user can click (other than the computer's processing power..), so they can continue until the entire environment is covered in coffee beans.
- **Consumption slider:** this is used to slide through the years, with each one raising the coffee level in the environment, representing the amount of coffee consumed in that year up until 2020, where so much coffee is consumed that the whole environment is flooded.
- **Spinning Earth:** to showcase the countries that produce the most coffee, the user can interact with a 3D model of planet Earth by spinning it around and pressing on each one of the top countries. This spawns coffee beans from the country location and shows a data explanation.

DESIRED BUT NOT ACHIEVED FEATURES

- **More data:** I wanted to display more information about the data in the database, such as the types of coffee and the amounts of coffee exported by large producing countries.

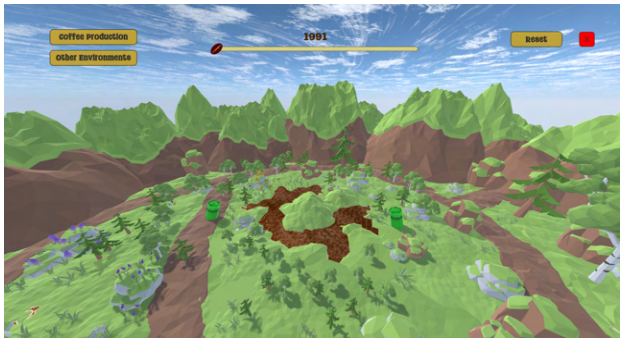
  Another data related feature I wish I had done was spending more time analyzing the trends of production and consumption changing over time, and how it relates to the change in living standards and customs in different countries.

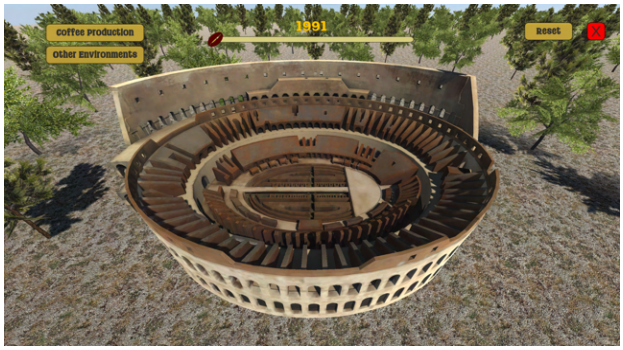
- **Interactivity:** I would have liked to add more interaction options, for example, visualizing how many people it takes to consume the coffee for each year, and having a user controlled raft that moves around on the coffee that flooded the places.

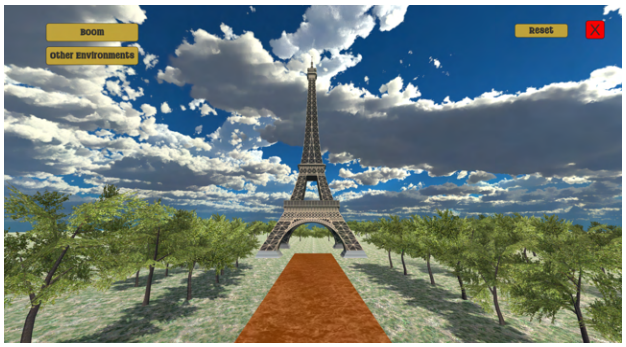
HOW WAS THE IDEA IMPLEMENTED?

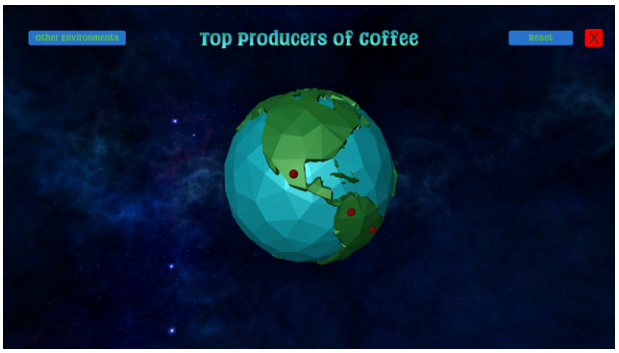
The initial idea for this project was based on making learning and visualizing data fun. There is so much data out there, but it is not easy to learn about it because it is either in a hard to read format, or the way it is presented is just plain boring, which is why the concept of this project is the user actively interacting and influencing the data in order to make it engaging. This was achieved through the features listed above, because unless the users manually interacted with the program, not much happens.

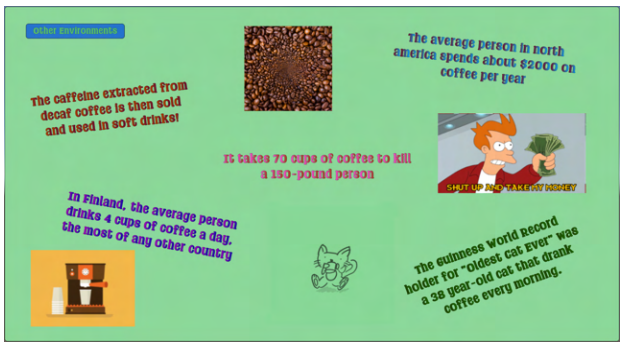
SCREENSHOTS

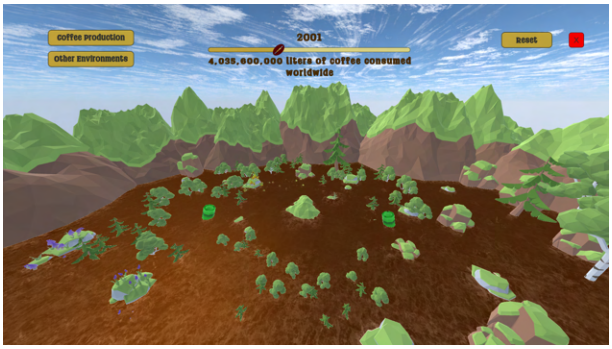




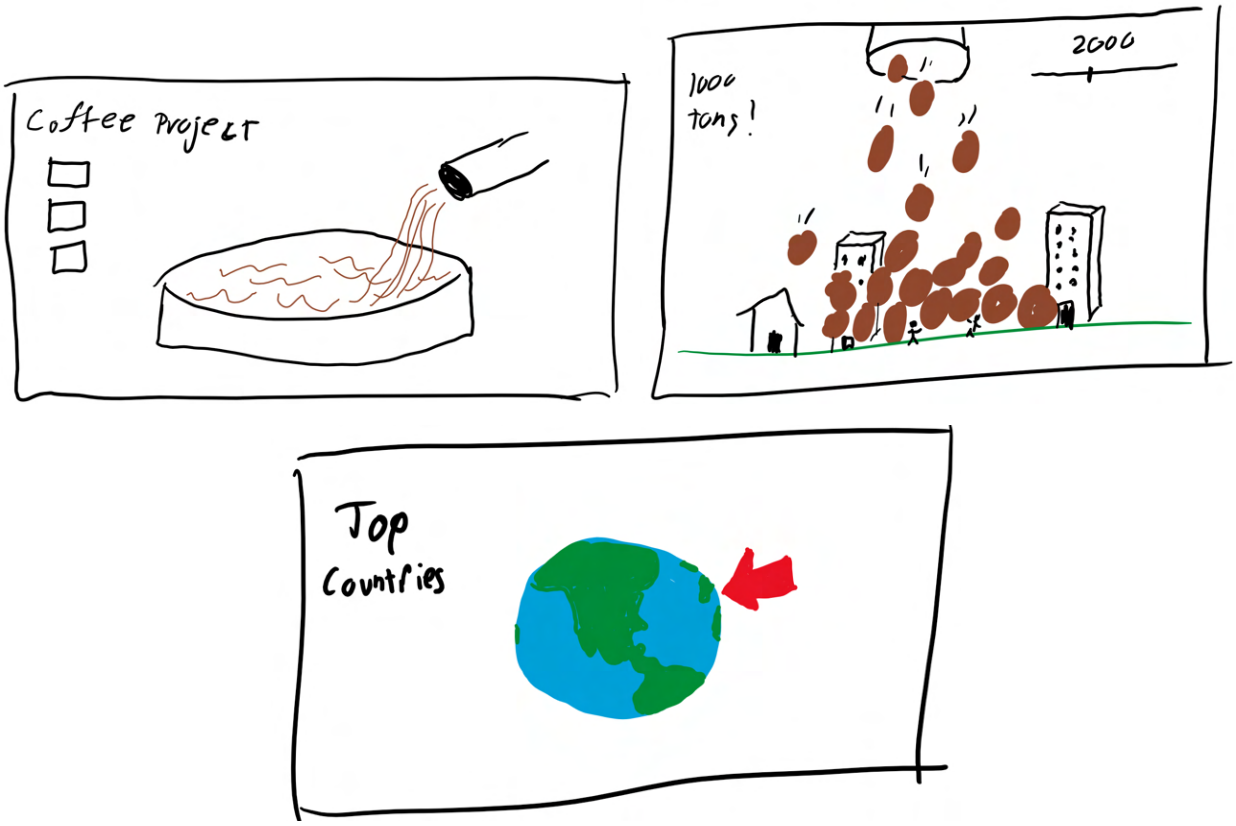






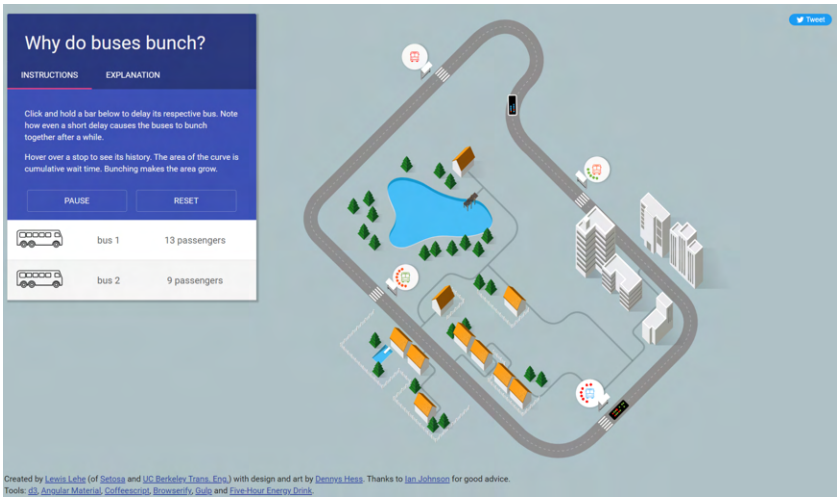


STORYBOARDS

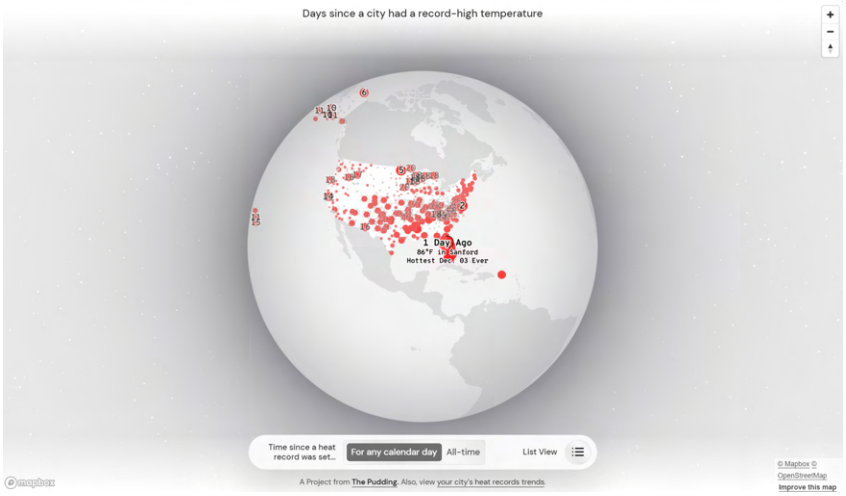


INSPIRATIONS

- **Bus Bunching Project:** the idea for 3D environments being used to represent an idea was inspired by this project that explains the concept of buses bunching in cities. [1]



- **Mapping Record-High Heat:** the 3D interactive planet Earth was directly inspired by this project that uses a planet Earth model that shows how many days it has been since a city had a record-high temperature.



REFERENCES

[1] https://setosa.io/bus/

[2] https://pudding.cool/projects/heat-records-map/