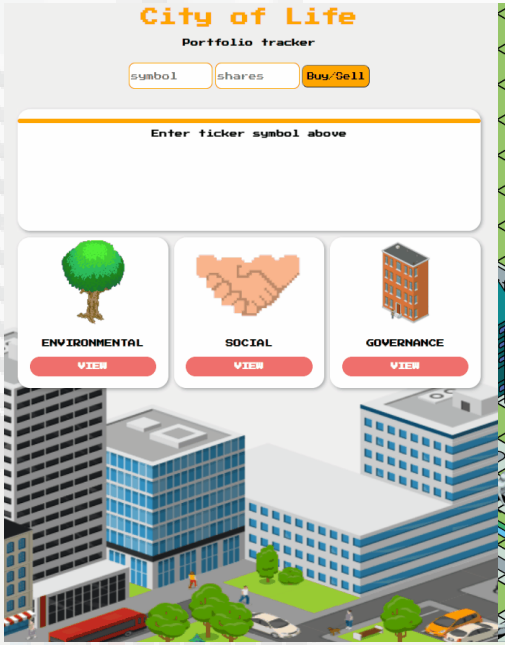
City of Life

Team Southperry

A gamification solution for ESG stock portfolio ratings



Team members

Jonathan Kong
Student

Ang Wen Zhong
Student

Tan Shi Huai
Student

Toh Jet Lee
Analyst

Table of Contents

- Problem statement
- Design considerations
- Product demonstration
- Overview of application
- Architecture and code structure
- Value proposition
- Moving ahead
- Q&A

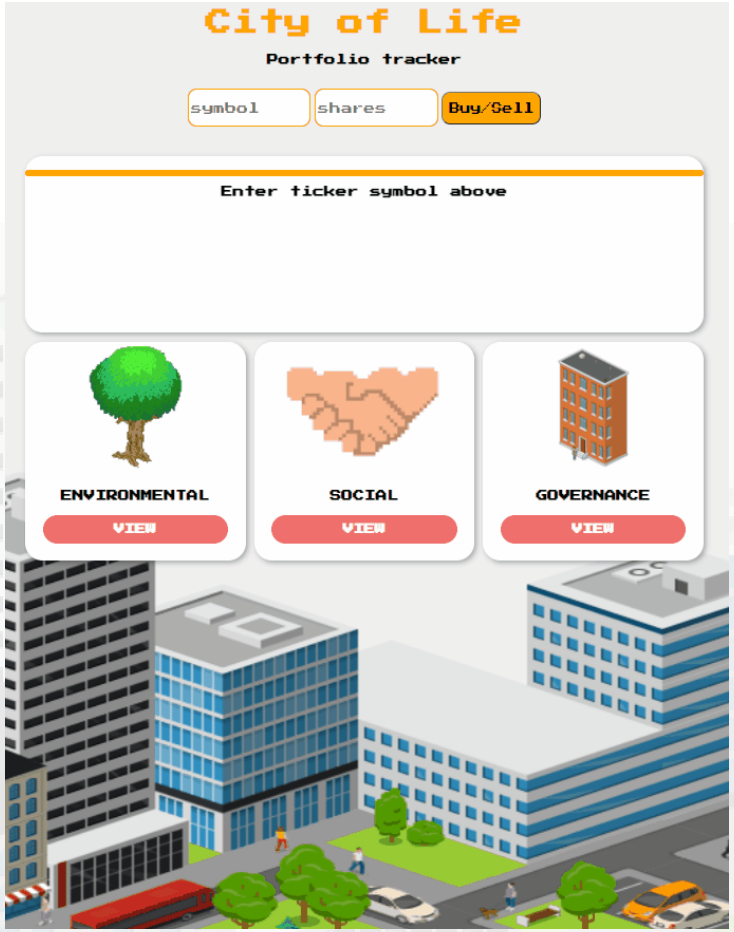
Problem statement

To build an **investment stimulation application** to help raise the **public awareness** of **sustainable investment**.

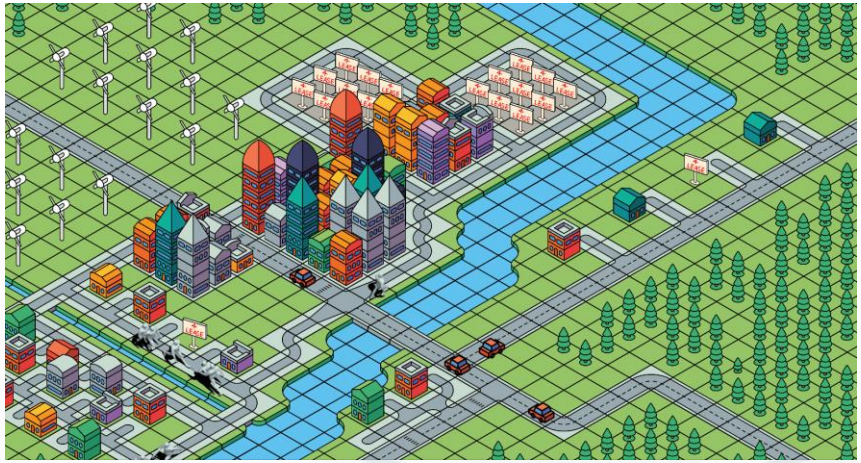
Table of Contents

- Problem statement
- Design considerations
- Product demonstration
- Overview of application
- Architecture and code structure
- Value proposition
- Moving ahead
- Q&A

Portfolio app



City of Life



Portfolio app

City of Life

Runtime environment

Front-End

Index.js

fetch APIs

1.ESG Data

2.United Nations SDG goals

3.Stock Data

4.Company logo

Back-End

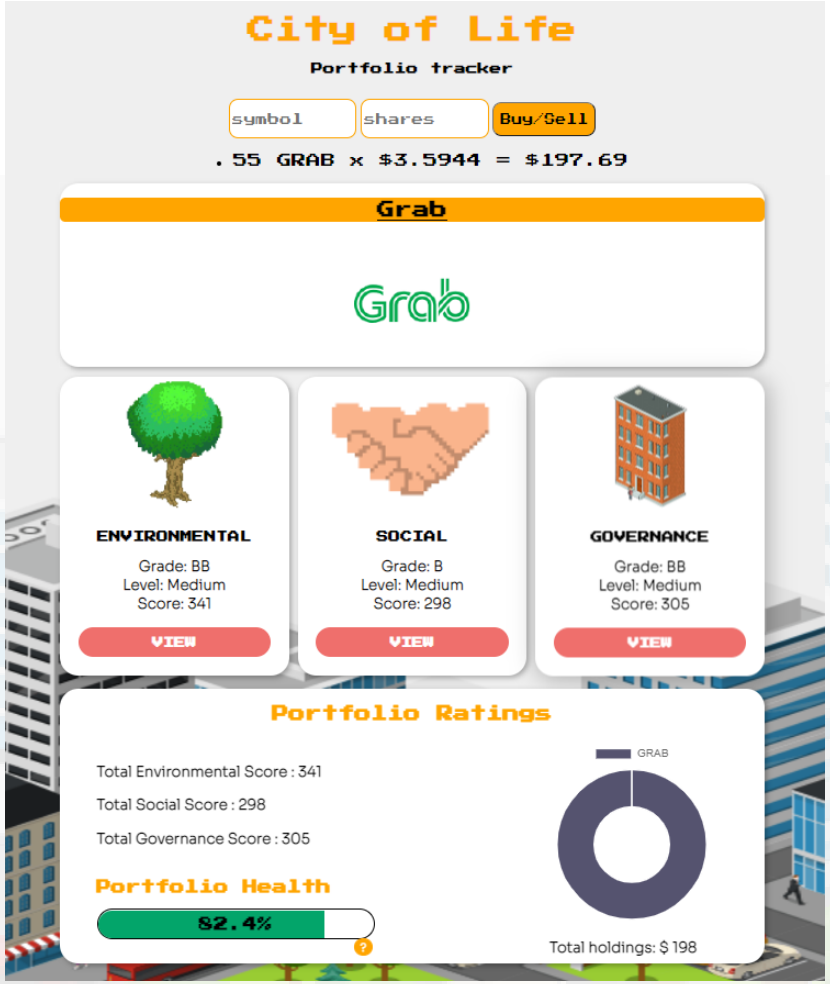
Server.js

Requires

Yahoo finance library

Back-end server

Design considerations
(Portfolio app)



Design considerations
(Portfolio app)

A STOCK PORTFOLIO TRACKING APP THAT ALLOWS USER TO KEEP TRACK OF THEIR INVESTMENTS

ABLE TO RETRIEVE ESG DATA OF THE COMPANIES THAT THE USER OWNS

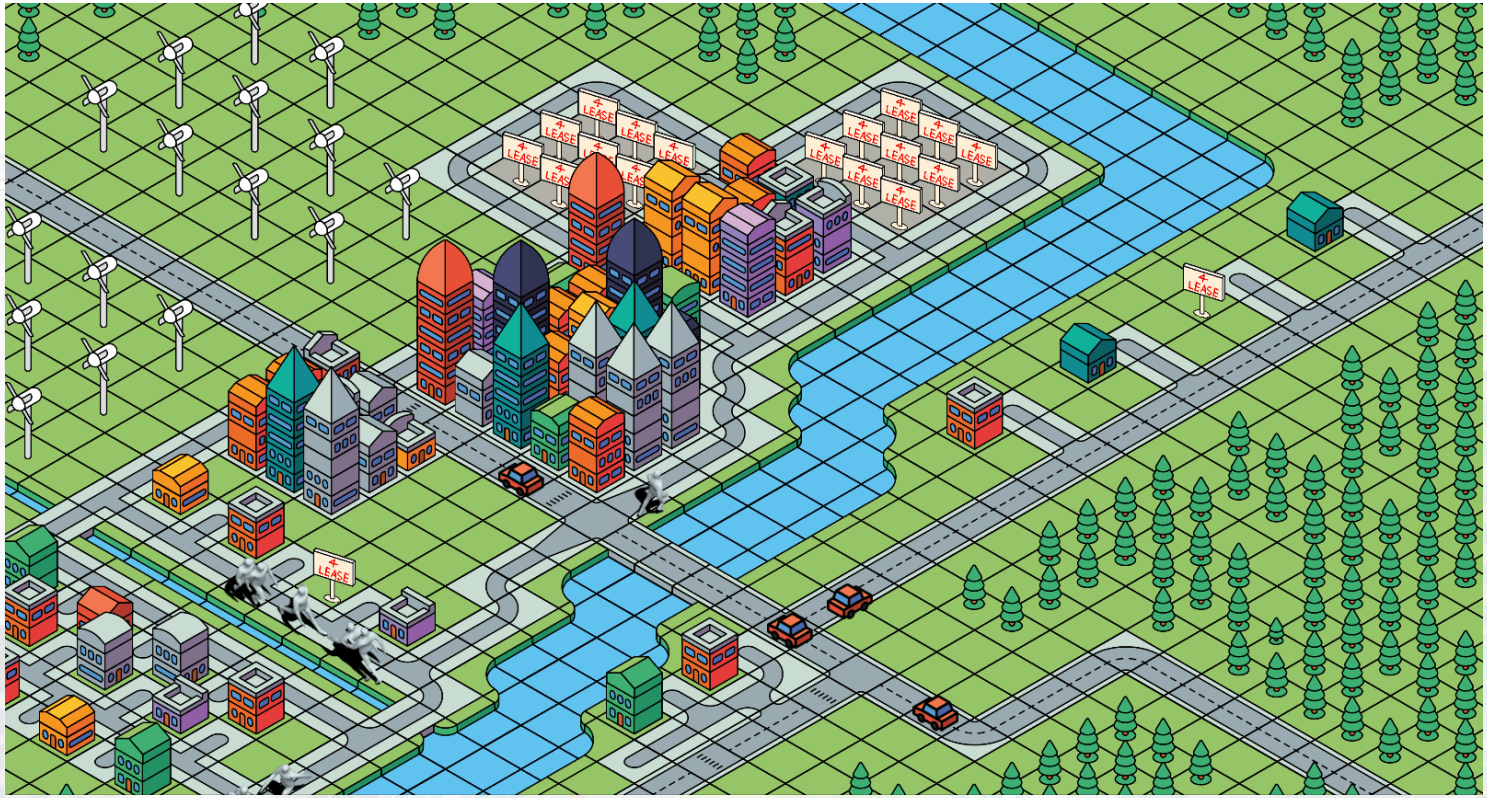
ABLE TO MANIPULATE AND WEIGH ESG DATA ACCORDING TO USER'S STOCK ALLOCATIONS

ABLE TO FEED OVERALL WEIGHTED E, S AND G DATA INTO CITY OF LIFE

ABLE TO BOOST USER'S KNOWLEDGE ON ESG

ABLE TO RAISE GENERAL PUBLIC AWARENESS ON ESG

Design considerations
(City of Life)



Design considerations
(City of Life)

A PLATFORM THAT CAN BRING OUT THE BEST OF A "GAMIFICATION SOLUTION"

ESG RATINGS WILL BE REPRESENTED THROUGH A REAL-WORLD CITY SIMULATION INSTEAD OF MERE NUMBERS

ABLE TO READ ESG DATA FED FROM THE PORTFOLIO APP

ABLE TO INTERPRET INDIVIDUAL E, S AND G DATA AND CHANGE INTO DIFFERENT CITY STATES ACCORDINGLY

GRAPHICS ABLE TO IMPACT THE USER'S PERCEPTION OF ESG INVESTING

ABLE TO RAISE GENERAL PUBLIC AWARENESS ON ESG

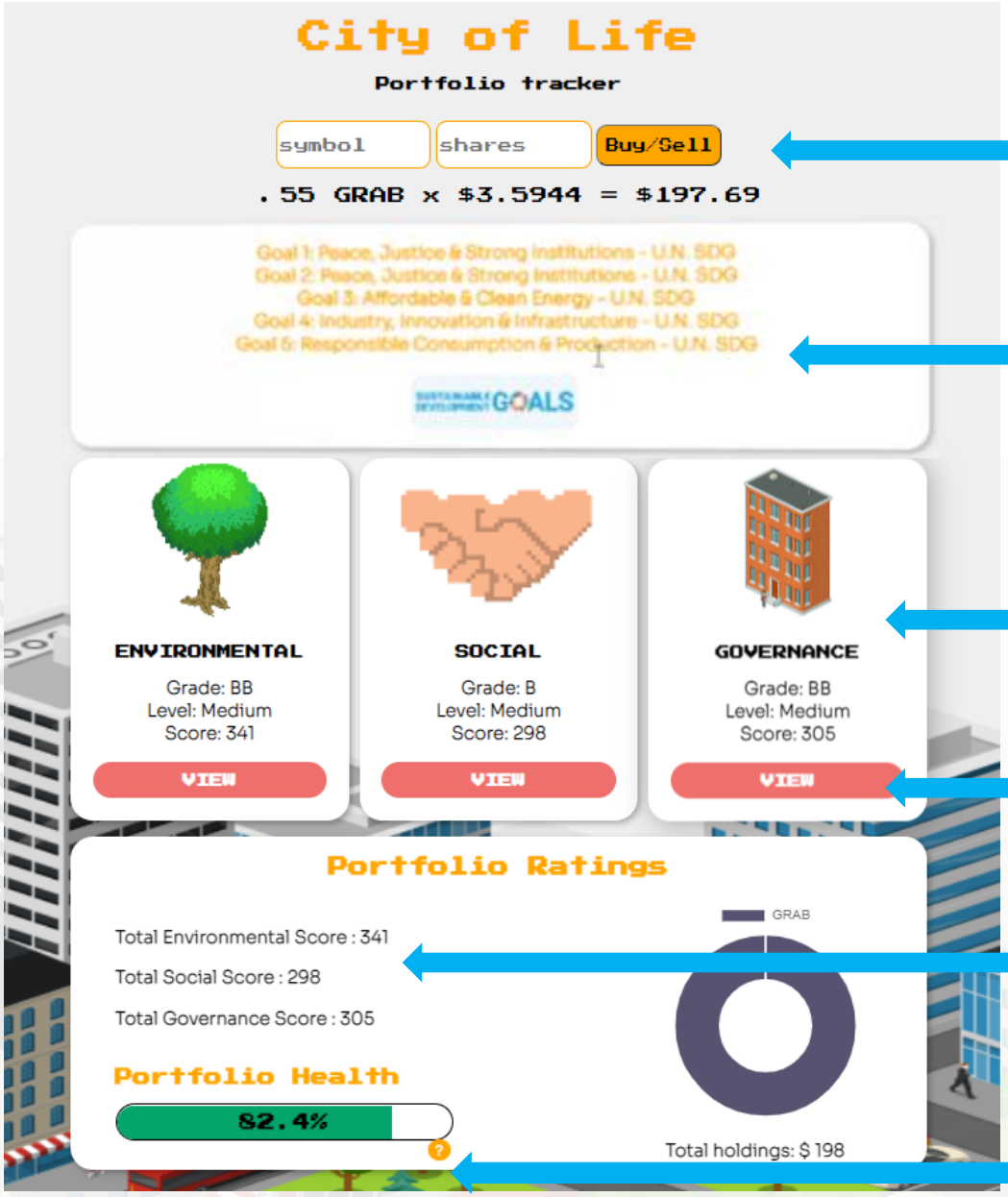
Table of Contents

- Problem statement
- Design considerations
- Product demonstration
- Overview of application
- Architecture and code structure
- Value proposition
- Moving ahead
- Q&A

Product demonstration

Table of Contents

- Problem statement
- Design considerations
- Product demonstration
- Overview of application
- Architecture and code structure
- Value proposition
- Moving ahead
- Q&A



Users are able to buy / sell stocks.

(1) Display company name and logo.
(2) <On hover> Display company's pledge of United Nations sustainable development goals(SDG).

Displays company ESG grade, level and score.

<On click> Displays educational ESG materials.

Displays total weighted ESG scores of the user's total holdings.

<On click> Displays tips on how to improve ESG ratings.

Grab

Considerations for the environmental score

Environmental issues fall under the categories of climate change, natural capital, pollution and waste, and environmental opportunities.

Climate change issues include:

- Carbon emissions
- Product carbon footprint
- Financing environmental impact
- Climate change vulnerability

Natural capital issues are:

- Water sourcing
- Biodiversity and land use
- Raw material sourcing

The pollution and waste category encompasses:

- Toxic emissions and waste
- Packaging material and waste
- Electronic waste

CLOSE

GRAB

Total Environmental Score : 341

Grab
Considerations for the social score
Social score issues fall into four categories: human capital, product liability, stakeholder opposition, and social opportunities.
Human capital issues are:
How labor is managed
Health and safety practices and protocols
Worker training
Supply chain labor standards
Product liability areas of focus include:
Product safety and quality
Chemical safety
Privacy and data security
Insuring health and demographic risk
Stakeholder opposition includes:
Controversial sourcing
Community relations
CLOSE
GRAB

Grab

Considerations for the governance score

Governance falls into two categories: corporate governance and corporate behavior.

Corporate governance includes:

- Composition of the board in terms of diversity and independence
- Executive compensation
- Ownership
- Accounting practices

Corporate behavior encompasses:

- Business ethics
- Tax transparency

CLOSE

GRAB

Total Environmental Score : 341

```
Total portfolio allocation = 83% TSLA, 17% NIO (Total sum $1200)

<TSLA> E, S, G scores = 500, 250, 300
<NIO> E, S, G scores = 400, 300, 350

Weighted <TSLA> E, S, G scores = (500*83%, 250*83%, 300*83%) ---> 415, 207.5, 249
Weighted <NIO> E, S, G scores = (400*17%, 300*17%, 350*17%) ---> 68, 51, 59.5

Overall E, S, G scores** = (415+68, 207.5+51, 249+59.5) ---> 483, 258.5, 308.5
```

What does your Portfolio Health say about your investments?

Here are some rewarding reasons to consider ESG when investing:

Portfolio Health equal to or above 75%

Portfolio Health below 75%

Great job! Below are some proven effects of ESG:

- Smoother operations
- Positive morale
- Market enthusiasm for the ethical state of the company
- Improved financial returns

Consider investing in better ESG companies.

- Read up on sustainability initiatives of companies
- Ensure companies are in alignment with your moral compass
- Know your own ESG policies

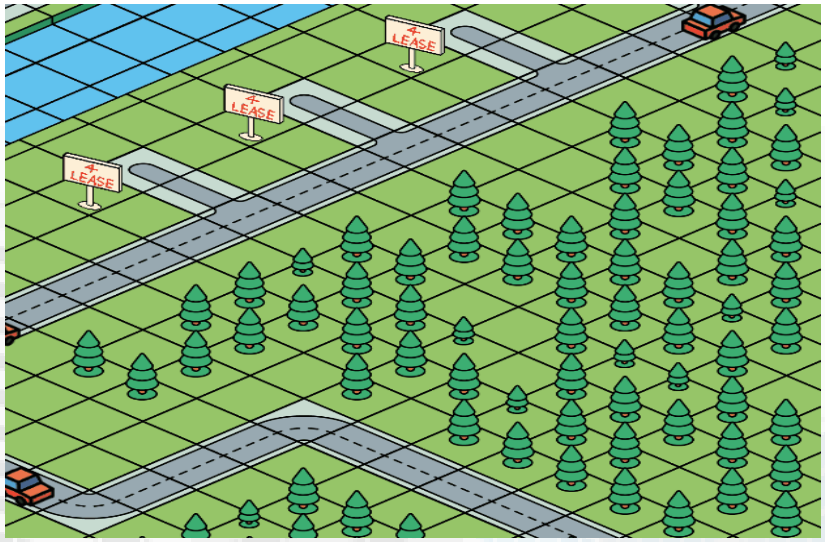
Goldman Sachs ESG report

CLOSE

Total Governance Score : 305

ENVIRONMENTAL (E) score

Oxygen (Trees)

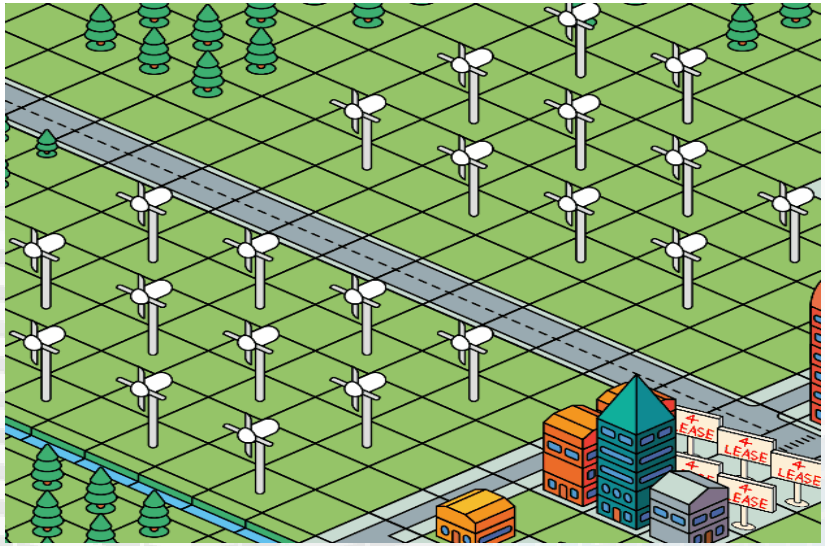


More trees will appear as the E value increases.

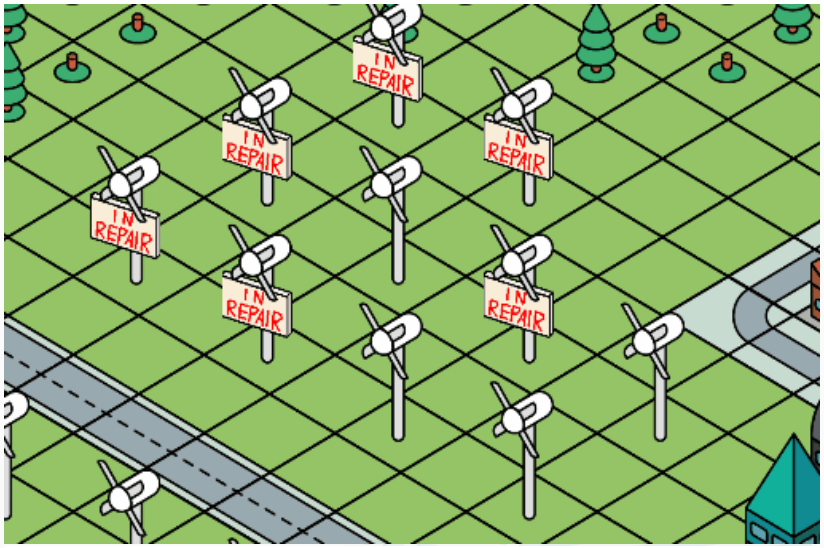
Trees will be chopped down as the E value decreases.

ENVIRONMENTAL (E) score

Energy (Windmills)



More windmills will be planted as the E value increases.



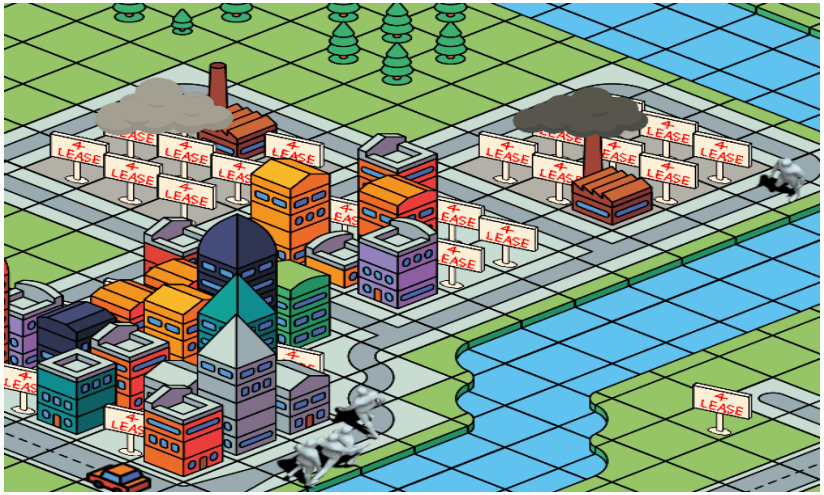
Windmills will start to get damaged as the E value decreases.

ENVIRONMENTAL (E) score

Air pollution (Factories)

Air will not be as polluted as E value increase

(Lesser factories built)



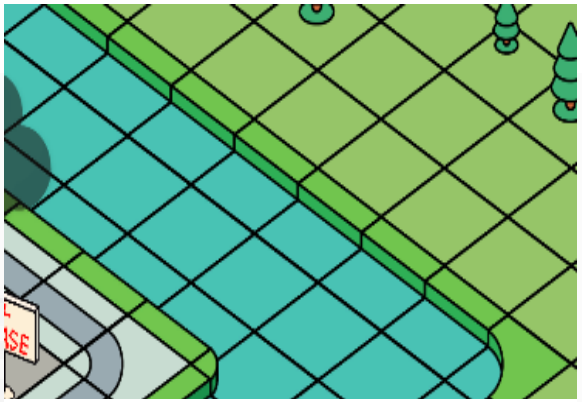
Air will start to get polluted as E value decreases

(More factories built)

ENVIRONMENTAL (E) score

Water pollution (Rivers)

Rivers will be dyed dip blue when E score is good.



Rivers will start to turn green as the E score decreases.

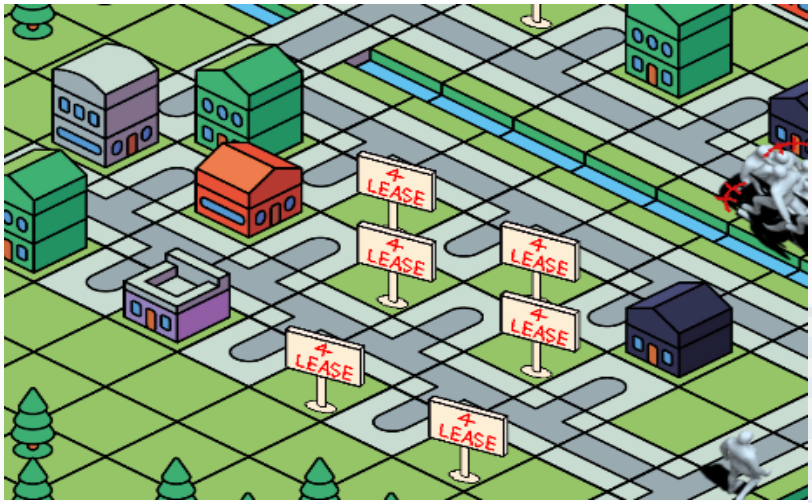
Yucks!

SOCIAL (S) score

Standard of living (Houses)

More occupied houses will appear as S score increases.

This signifies that more people wants to live in the city.



Houses will start to be vacant as the S score decreases.

SOCIAL (S) score

Happiness (People)

Happier citizens will roam the city as the S score increases.

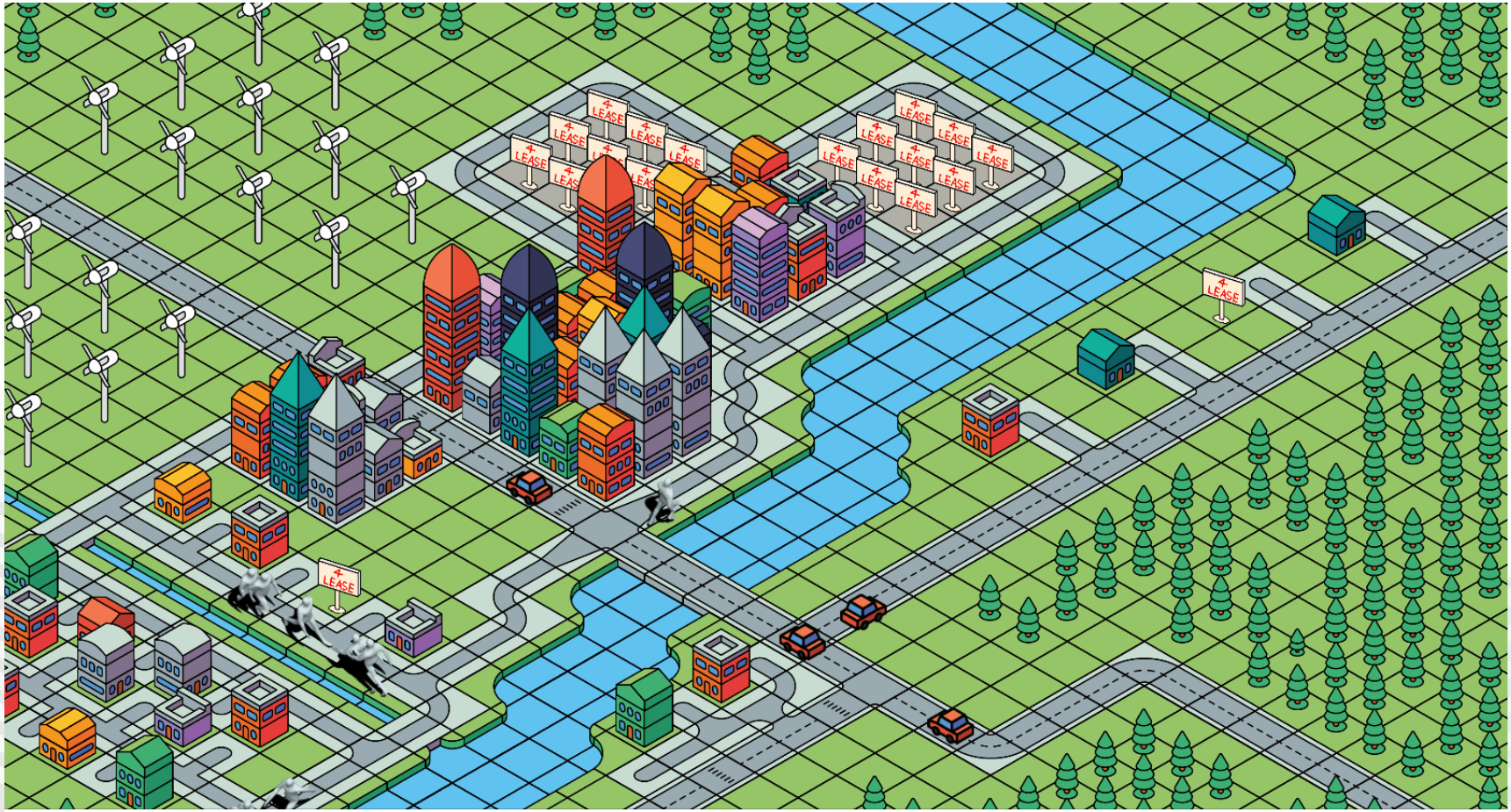
Citizens start turning frustrated as the S score decreases.

GOVERNANCE (G) score

Thriving Economy (Companies)

More businesses will flourish as the G score increases.

Demand for building plots drop as the G score decreases.



How a city with good ESG score looks

And in every seed of good,
there is always a piece of bad.

Table of Contents

- Problem statement
- Design considerations
- Product demonstration
- Overview of application
- Architecture and code structure
- Value proposition
- Moving ahead
- Q&A

Portfolio app

Runtime environment

Front-End

Index.js

fetch APIs

1.ESG Data

2.United Nations SDG goals

3.Stock Data

4.Company logo

Back-End

Server.js

Requires

Yahoo finance library

Back-end server

City of Life

Portfolio Application

APIs consumed

1. ESG Data https://www.esgenterprise.com/esg-enterprise-data-api-services/

2. UN SDG Goals https://unstats.un.org/sdgapi/swagger/

3. Company logo https://clearbit.com/blog/logo

4. Yahoo finance-npm https://www.npmjs.com/package/yahoo-finance

Hyperlinks

1. Goldman Sachs ESG report https://www.goldmansachs.com/investor-relations/corporate-governance/sustainability-reporting/

2.United Nations SDG https://sdgs.un.org/goals

City of Life

WHY Unity ?

EASY TO DEPLOY

GOOD DOCUMENTATION

UNITY ASSET STORE

SCALABILITY

Table of Contents

- Problem statement
- Design considerations
- Product demonstration
- Overview of application
- Architecture and code structure
- Value proposition
- Moving ahead
- Q&A

Value proposition

Allow ESG to be more understandable, digestible and useable.

For average investors who have heard of, but don’t know about ESG investing.

For new investors or non-investors who have completely zero knowledge of ESG investing.

Table of Contents

- Problem statement
- Design considerations
- Product demonstration
- Overview of application
- Architecture and code structure
- Value proposition
- Moving ahead
- Q&A

Moving ahead, we would want to…

- **Implement** “multi-user” cross sharing of cities to compare portfolio and city states between peer to peer.
- **Implement** leadership board between peers to boost friendly competitiveness and encourage learning from better ROI and ESG investors.
- **Implement** and induce more scenarios within City of Life.
- **Include** more impactful educational content and modals.
- **Create** a database to store user’s portfolio value and ESG scores.
- **Restructure** the portfolio tracker app using MERN stack.
- **Improve** the look and assets of the city, more realistic AI.

Our world is **changing faster** than anyone predicted.

We believe **responsible investing** has a **huge role** to play in shaping a better world and building a **sustainable future.**

Q&A