Part A: Identification of an Initial Design Opportunity

My project aims to focus on users that are concerned about environmental issues (i.e. climate change, pollution, deforestation), and how their investments into certain organizations/corporations will impact those issues. These users have an interest in investing or are invested in companies via the stock market or other means. The user's needs would be knowing how environmentally conscious a company is, to monitor a current investment or deciding whether a company is worth investing in. Monitoring the status of how well a company is performing financially or sustainably, along with how a company is environmentally "conscious", and how it is not. The users would typically check the profits made by an investment, a list of companies they are invested, and attributes about a company that tell whether it is environmentally conscious, and to what extent.

Part B: Brainstorming

1. Overall "environmental consciousness" rating system
2. Color coordination for rating system
3. Categories that define what makes a company conscious or not
4. Categories have different "weights" that can be changed based on user's specific environmental concerns
5. Categories also have a default weight
6. Categories are determined on data from an open source
7. Categories are determined by data from and API
8. Categories are made up of carbon emission data, financial risk, energy efficiency, etc.
9. To better understand certain categories, they will have pop-ups with more info about how they are measured
10. Each category can have a rating and color rating associated
11. Each user can have a "portfolio" of companies that they may track
12. They can add or delete companies from portfolio as they please
26. Allow users to log-in
27. User profile has preferences about category "weight"
28. User profile allows for saving of a portfolio
29. Allow forum discussion feature to talk about nuances of investing in specific companies
30. Aside from API/data driven rating system, also incorporate cumulative-user rating
31. Similar to social media, ability to follow other users
32. Ability to see their portfolios if public
33. Ability to make a portfolio private or public
34. Ability to have a public, private, or unlisted
35. Public/private profiles have username and profile picture that can be seen by others
36. Other users must request to follow private users

13. They can organize companies into customized groups or by industry
14. Users can be suggested similar companies to ones they are looking at or are invested in
15. Users can be recommended *more* conscious versions of companies they invest in
16. Users can sort companies in a ranked list of consciousness, profits, or how well they are doing in specific environmental categories
17. Ways to compare companies on their overall rating or specific categories
18. Be able to contact companies via phone or email to give feedback on how they can be more conscious
19. Timeline on how their rating has changed over time
20. Timeline on their financial status over time
21. Display recent news about a company that may affect stock price
22. Stock price graph
23. Features like market cap, % growth in a certain time period, etc.
24. Ability to search for companies within a specific industry
25. Ability to get email updates on companies by toggling a notify button
37. Unlisted users don't need a username or profile picture, since they cannot be searched for
38. Users can submit overall rating or rating based on their view of performance in specific environmental categories
39. Users can change ratings
40. App can make environmental recommendations, financial recommendations, or both at once
41. Recommendation influence from a category can be adjusted based on preference
42. Ability to import or export portfolio from existing stock trading app
43. Overall portfolio rating based on average each of the company's ratings
44. Ability to buy stocks using stock trading app
45. Be redirected to stock trading app to buy or sell stocks of a company
46. Accessibility features like color blind themes, text-to-speech, etc.
47. Export a report summarizing portfolio in a formalized way
48. Emailed a weekly/monthly/yearly report summarizing changes in portfolio
49. Rating ranges for overall and categorical scores
50. Filter when searching companies based on size, risk factor, rating range, etc.

Part C: Refining your Idea

1. *Idea 18*, which would allow a user to access a company's phone number or send an email to a company address via the application. This would be easy to implement, as it would just need to display a phone number on a page, or have imbedded email capability, which is highly achievable. However, it is a low impact idea because most large corporations wouldn't consider the opinion of an individual writing to them over email or over the phone.
2. *Idea 25*, which would allow a user to get automated emails about financial or environmental updates on companies they specify to be notified about. This idea has low achievability because of how many factors would need to be implemented,

including an automated email system, automatically determining important information to update users on, and implementing it for certain companies for certain users who toggle being notified. However, this certainly would have a high impact on users, as time-sensitive information about a company could sway an investor's opinion on their investments, and whether to buy/sell their current investments or to search for others.

3. *Idea 43*, which would allow a user to see the environmental standing of their portfolio, an overall portfolio rating, based on the average of the ratings of companies they follow or are invested in. The new idea would expand the portfolio rating system to include: a ranking of companies based on their overall ratings or certain environmental categories, portfolio ratings based on those categories, net portfolio earnings over certain time periods, or portfolio rating changes over certain time periods. This idea is built off the original by not limiting the portfolio rating idea to a small, low-impact feature, but one that has more potential to be useful for users.
4. *Idea 15*, which would recommend users more environmentally conscious companies, that are like those they have invested in or are following. The new idea would be a way to have curated company recommendations in a "featured" company section of the application. This could be implemented in the form of weekly featured companies and is a jump from the older idea since recommendations could be shown to every user at once, and time could be spent on meaningful curation of companies for all users, instead of algorithmically chosen ones for an individual.
5. Idea 26 and 45; one would allow users to have a personal login to store their portfolios, and the other would redirect users to their stock trading service of choice to buy/sell stock in companies they browse in this application. The new idea formed by combining these two would be to make it possible to login to the application using the credentials from a third-party stock trading service and allow the user to import their portfolio from this third-party to see their environmental standings, as well as more easily be redirected to buy stocks on this service. There would be no need to have a separate login for users who already use a third-party for trading, and they wouldn't need to manually import their portfolio, as it could be imported automatically through the login.

Part D: Project Proposal

EnvironMarket: Investments that make an Impact

When trying to build wealth as an individual, a common tool to do so is through stock-market investments. However, it is becoming ever apparent that the organizations you put your money into will have a direct impact on the environment in the future. While it is not up to the sole investor to change the sustainability practices of a corporation, an individual *can* choose to be more environmentally responsible in their investment options. How can a company's environmental practices be measured and rated? Current investing management tools like Betterment allow users to set ESG (Environmental, Social, Governance) goals for their portfolio, which recommends a trader to buy stock in specific companies that fit their social responsibility preferences. The limiting factors of these investment management tools is that it is not a free service, and there is not full transparency on the data that is used to make certain investing recommendations. It is also not very friendly to the "curious" investor with little experience in trading but an interest in the impact of certain investments and doesn't wish to spend money to seek out these curiosities. The approach to solving these issues is to make a free-to-use, fully data-transparent platform that allows beginner investors to be curious and allow more experienced traders to make informed decisions for themselves with a plethora of data to draw conclusions from.

Users can login to EnvironMarket via a generic username/password system, or if a user already has a portfolio on a third-party service, their EnvironMarket account can be linked to the pre-existing portfolio for ease of use. Once logged-in, a user can either look at their current portfolio, or search for new companies to invest in or follow. If a user is curious about looking at new companies, they can search by keywords like company name, filter, or sort companies by factors like size or industry or look through a curated list of recommended companies to investigate. If a user clicks on a company from the list after making a search, they will be brought to a page with trading information about the company like current stock price, a graph of the price over different time periods, and other features found on various trading platforms. The company's profile will also contain an overall environmental rating, which is a weighted average of ratings from several categories of environmental practices that a company has. The weight of each category's rating can be adjusted to the user's preference. For example, a user cares a lot of a company's carbon emissions, so the category for carbon emissions is weighted more heavily. A profile for the company will also show those individual category ratings, as well as graphs of the changes in the rating data over time. When looking at their own portfolio, users can see similar figures seen on the company profiles, however with the added ability to see a cumulative overall environmental rating, as well as cumulative ratings for the environmental categories mentioned before. The portfolio will also display cumulative financial standings of the user's investments, like net gain/loss, current balance, etc. These are the basic features, while other features like public portfolios, user-submitted ratings, and company news/updates are all ideas that may be implemented but aren't integral to the design.

The intended users of this system range from someone who is curious to learn about the environmental impact of different companies, to the experienced investor who cares about the sustainability practices of the companies they have invested in. While most users would probably have an interest in using the system to be more informed while investing, this tool can be just as useful to those without a desire to invest, as it may be helpful to see the performance of a company's environmental practices for other purposes. However, this system's focus most closely aligns with the needs of an investor, as their primary needs are what this system was meant to solve. Environmentally conscious, financially focused, or curious people fit the demographic of this system, or any combination of these three attributes. To have the most benefit from this system, familiarity with stock trading platforms and environmental practices would be useful since the system would allow the user the most functionality by knowing these topics well. While it would most likely not be possible to implement a way to buy the stocks within the system, this limitation can be mitigated somewhat by redirecting users to a third-party stock-trading platform. The stakeholders for this system would be the companies that are analyzed by the system, and the users who have invested in those companies. The companies are affected if the users choose to invest or not to invest based on the system, and the users are affected as they gain or lose based on stock price fluctuations.

Usability Goals:

- Effectiveness
- Efficiency
- Utility
- Learnability

User Experience Goals:

- Satisfying
- Engaging
- Helpful
- Motivating
- Rewarding
- Emotionally Fulfilling

The three most important goals are *effectiveness*, *helpful*, and *rewarding*. Being effective is important because being able to display environmental data in an effective manner will allow users to make critical financial decisions, without having to second guess the validity of how the data is being represented. Having a helpful system is important because if a user believes that the system has helped them fulfill their personal needs, then the user is more likely to use the system for future needs, and possibly inform others of their success with the software. A rewarding system is important because one of the main goals for this system is to allow users of all demographics to share a common interest in the environmental impacts of investments, so if users feel rewarded investing in companies that are environmentally conscious, then not only has the user been positively affected, but so has the environment.

- Effectiveness:
    - Is the environmental data conveyed in a way that is immediately useful, and allows the user to easily make informed decisions?
    - Is the user-interface able to be navigated and operated with ease?

    - Is the system easy to learn for the less experienced users, but not over-explained for more experienced users?
- Helpful:
    - Does the system fulfill a wide variety of user needs, including making financial decisions and environmental curiosity?
    - Does the system offer resources that other platforms don't offer, or resources that other platforms don't execute well?
    - Does the system allow the user to feel successful in their personal goals, enough to recommend other people use it?
- Rewarding:
    - Will the user feel as though their investments have an impact because of how they system may have helped them?
    - Will the user feel rewarded by making investments that are based on environmental data?
    - Will the user continue to use the system because of the positive choices they chose to make with this system?

The application Betterment is like this system in some ways, although it offers a few main differences. The application described above is intended to be free-to-use, and while it is intended mostly for investment, there are plenty of ways to apply the data in this system for other uses. Users are also the ones who interpret the data, not the system itself, which is more like what Betterment does. This system is intended to have data transparency wherever possible, and let users make informed decisions on their own.

Betterment, https://www.betterment.com/.