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A learning game for SDG 14
MVP 3

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12/02/2021

SDG 14

- "Conserve and sustainably use the oceans"

The ocean drives global systems that make the Earth habitable for humankind. Our rainwater, drinking water, weather, climate, coastlines, much of our food, and even the oxygen in the air we breathe, are all ultimately provided and regulated by the sea.

Careful management of this essential global resource is a key feature of a sustainable future. However, at the current time, there is a continuous deterioration of coastal waters owing to pollution, and ocean acidification is having an adversarial effect on the functioning of ecosystems and biodiversity. This is also negatively impacting small scale fisheries.

Vision

- A learning platform that holds user's attention with a fun and interesting game(s).
- Encourage daily visits, which will provide more learning opportunities.
- Produce interesting trivia or direct to advanced resources, charities and activities.
- Browser game, reaching mobile and personal computer devices in the classroom

Current community climate

- Many websites are in disarray after the ending of flash.
- Most learning games of this topic/genre are unplayable.
- No multiplayer games
- No significant gameplay loops to retain users
- Very little content aside from reading material, which will not encourage return visits.
- Very little mobile options
- Most games follow a similar architype
- Experiences are personal and not community-oriented.
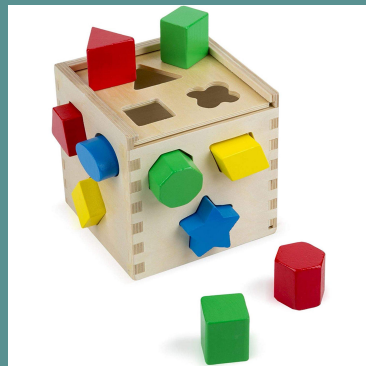
Current community climate

- Stagnant
- Tropey
- Broken
- On the wrong platform!
  - Only 20% of students use tablets
  - 42% use smartphones
  - 48% use desktops
- Bad combination of learning and gameplay loops

Impact

- In a way, we've seen this product before
- Encourage different types of learning game development
- Encourage games that bring the student/child back
  - User retention is key to the retention of facts
- Improved education
- Teach children the scale of sea waste
- Visualize the positive impact they and a community can have
- Introduce a platform that favors retention - not one-off activities
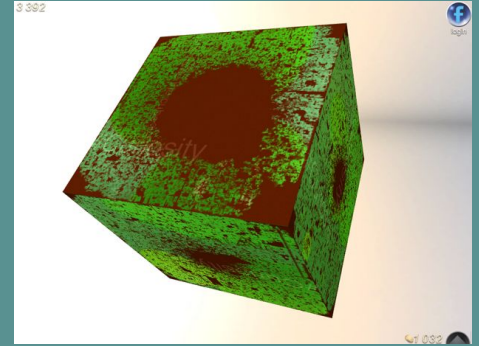
Development Stack

- Frontend
  - Flutter framework, using the Flame HTML5 game engine and written in Dart.
- Backend
  - Express + NodeJS query a MySQL database

Status: Yellow - Successes

- Backend for multiplayer gameplay - standard get and post
- Looked into using noise as a replacement for multiple DB rows
- Addressed some performance issues
- MySql db server
- NodeJS api
- Frontent sends requests to api, which then queries the db.

Status: Yellow - Shortcomings

- Cannot pan the game yet
- Performance is still sluggish, but with marked improvements.
- no ip tracking
- no pointer/net/particle effects.
- jarring popups. UI feels blunt.
- Not following a subscriber pattern for websockets

Potential Future

- Change to event listeners with a subscriber pattern. Move towards websockets instead of handshakes. Instead of asking the api for updates, the api should report to its subscribers of updates
- implement panning
- add more trivia
- performance improvements
- look into using a bitmap to track waste instead. This would likely improve performance as we would need to iterate far less.
- Move from local dev environment, and host a live version on the web.
- Convert my PC into a server using docker

HEY!

LISTEN!

Reflection

- Do you feel "on track"?

    - Despite not being a websocket, I'm quite happy with the multiplayer demo I was able to achieve.

- What progress do you particularly feel good (great) about?

    - Creating a nodeJS api with express which queries from mysql db. This was an excellent refresher, and much needed in my opinion. I think we need more full-stack projects. I have observed that students (myself included) are often exclusively familiar with frontend development. Most internships are full stack or frontend. I think we need more backend classes, especially following capstone.

- What barriers (if any) do you feel is/are a current impediment to success?

    - I will need to re-work my current multiplayer solution, so I question if the existing solution is of any value.

Thank You