Peak Visualization

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Client information - Peak Mind

- Their goal: Improve stress levels and overall mental wellness in the workplace
- Current system: Webapp where both employees and managers can access various resources for tracking personal/team stress levels
  - Users can take surveys about possible workplace stressors and give feedback to management
  - Assistance offered through external resources (articles, videos, etc.)
- Working on integrating into VR: The HP Omnicept headset
  - Team at IU creating simulations designed to test stressors
  - Headset includes multiple biometric sensors that can be used to track stress levels
    - Heart rate, eye tracking/pupillometry (dilation), blood pressure, cognitive load
- Capstone team goal: Data visualization
  - Add a visual report section to the webapp
  - Visualize biometric data in VR headset

Business Requirements

- **BR1:** Allow employers to monitor the well-being of their employees
- **BR2:** Give employers an opportunity to support employees that are struggling with their well-being
- **BR3:** Develop a way for users to see the state of their own well-being and stress
- **BR4:** Teach users how to cope with their emotions and lower stress

Use Cases

Actors

- Employees: Workers who want to better understand their stress level and possible causes of it. Also may be looking for a way to lower stress and cope with their emotions.
- Managers / HR employees: Higher-level employees who want to analyze and target possible stressors in their workplace team to support employee morale.
- Executives: Users who will be able to monitor employees/managers, create surveys, and generally manipulate the system.

UC1: Access visualized biometric data post-simulation (Actors: Employees)

- After engaging in the VR simulation, an employee can access a data visualization app that will give a summary of various biometric values collected by the headset, including heart rate, eye gaze/pupil dilation, and cognitive load
- Program flow:
  1. Data is sent from the HP SDK through the AWS data API
  2. Request handler passes it along to the data handling interface
  3. Once processed, the visualization interface displays the data in a well-polished UI experience within the headset
- Corresponding business requirement: BR3

UC2: Access visualized employee mental health/stress levels (Actors: Managers, Executives)

- Using the Peak Mind webapp, managers can create comprehensive visual reports that aggregate the surveys and feedback data received from employees (i.e. what most urgently needs to be improved in the work environment). With the user's permission, biometric data is sent back through the AWS API and is also accessible by managers and executives, enhancing the survey data.
- Program flow:
    1. Data is stored from user surveys in webapp or VR biometric data interface
    2. Manager selects timeframe or specific employees and initiates the report creation
    3. Specified data is passed through visualization interface and report is displayed
    4. Manager can choose to save report if further analysis is needed
- Corresponding business requirements: BR1, BR2

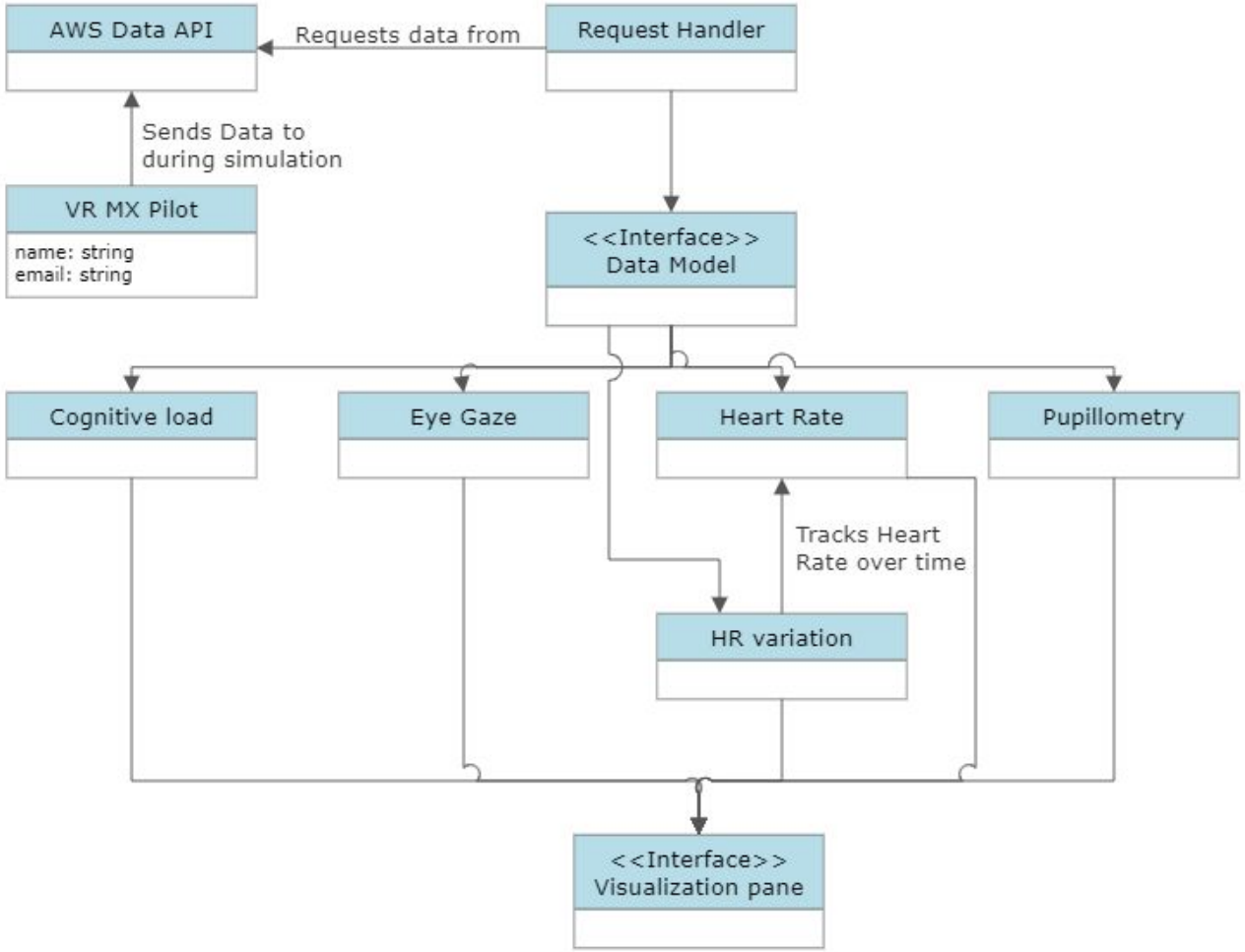
UC3: Privacy touchpoints for surveys and general feedback (Actors: Employees, Managers)

- When using the Peak Mind dashboard webapp, users have the ability to complete surveys regarding stress levels and also send in general feedback in case they just need to vent. Employees can to control who sees this data and if their name is attached to it through a dialogue box that allows them to specify between management, the HR department, or an anonymous submission.
- Program flow:
  1. User completes survey, or fills out feedback box
  2. Webapp prompts user to choose visibility of their data (management, HR, anonymous submission)
  3. Data is sent to managers/executives and is accessible to create visualized reports regardless of privacy level
  4. Usage statistics on the privacy touchpoints are made available to managers and executives

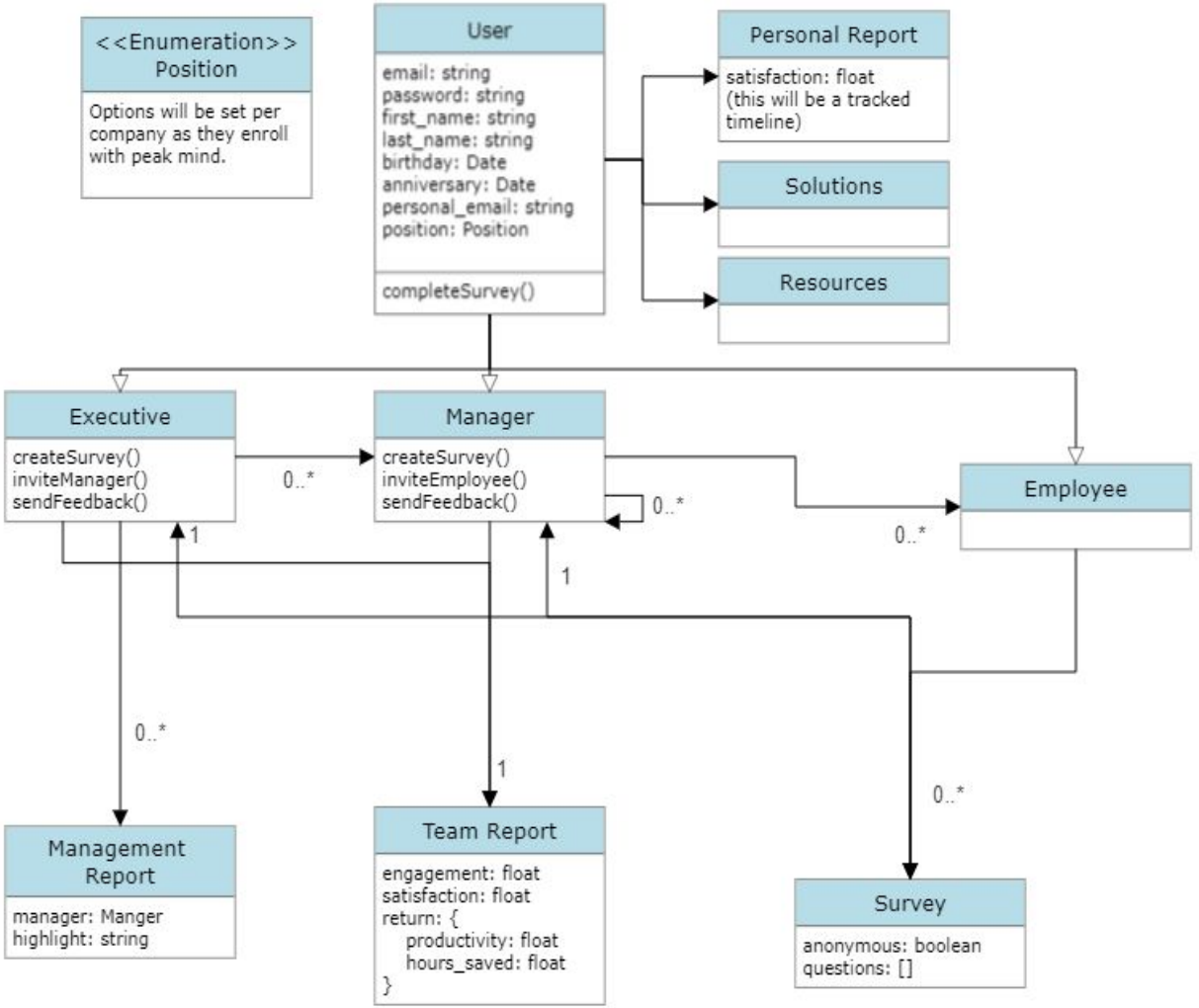
Requirements

- Functional Requirements
  - Display data for biometric feedback (heart rate, eye gaze/pupil dilation, and cognitive load) in a visually pleasing way.
  - Segment and sort the data that is given from the headset to the data that will be needed for the visualizations.
  - Lay out the biometric modules in Unity.
  - Compare data from a baseline to the current or most recent test.
  - Data can be monitored by the employee and the employers.
  - Employers can choose to create reports from specifically chosen data, user surveys, and user feedback.
- Non-Functional Requirements
  - Anonymity preference for the user.
  - Pull data from the cloud where it is stored from the headset, to be put into the visualizations.

Domain Model



Domain Model Part 2



TechStack

VR Data visualization

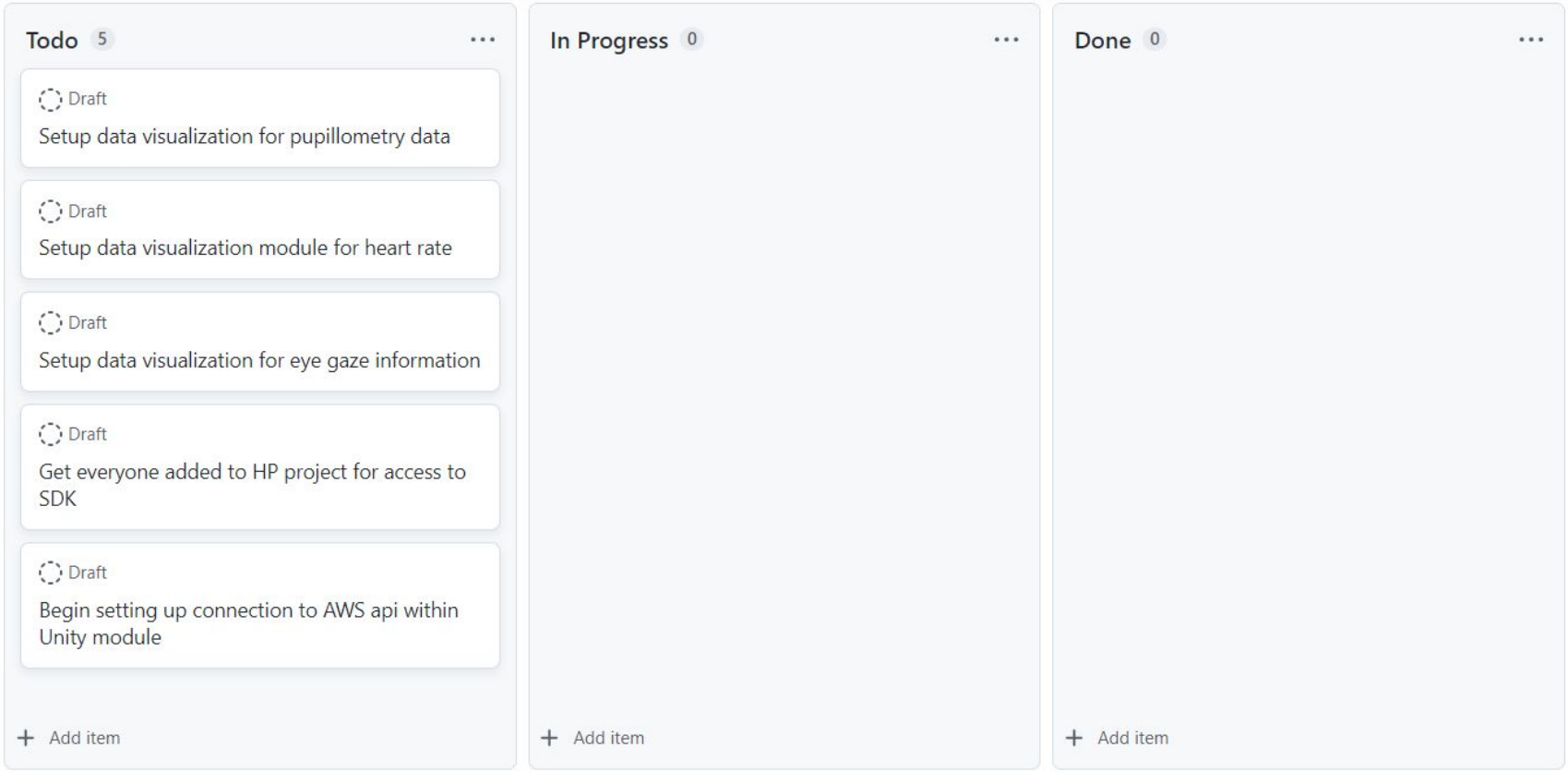
- Unity
- HP Omnicept SDK
- AWS

Web App

- ReactJS
  - JavaScript
- AWS
- Docker

Prototype

First Iteration Features



Client meetings feedback

- We changed the color palette for the data visualization prototype to be more similar to the Peak Mind colors.
- For our requirements and use cases we changed the vocabulary away from the term “Mental Health” to the term “Mental Wellbeing” because mental health is something that is diagnosable meaning mental wellbeing is more accurate to what is being represented.

Functions aren't the only things professionally misspelled