PrevWorks Deliverable Schedule

Functionality:

PrevWorks is a platform that allows for employees and managers to gain insight into workplace injuries and avoid discomfort and cost that come with them.

Employees:

Employees will have the ability to make profiles that store information about their history of injuries and work. This platform will also provide information on techniques to minimize injuries and resources on what to do when injuries do occur.

Front End:

- Login: Login page for employees
- Create Profile: Allows users to create an employee profile
- Home Page: Includes information about current health of the employee
- History Page: Includes fields about medical and work history that the employee can fill out and change
- Recommendations: This page includes specific recommendations for the employee based on the their health issues, this also includes a diagram of the body that outlines certain areas of interest
- Reporting Page: Allows the employee to report either an injury or covid related event

Backend:

- API: Ability to interact and change employee data
- Recommendations: Ability to pull resources from the internet to help patients prevent injuries or recover from current ones
- Predictions: Ability to extract predictions for at risk injuries from “Modeling” Section

Data:

- Login Information: employee ID, Username, Password
- Injury information: Anatomy location, Name, Date, and Severity
- COVID information: Vaccine, Test, date of tests, contact tracing
- Employee Information: Name, employee ID, email, weight, height, gender, sex, Job position
- History: Medical History, Work history

Employers:

Employers will have the ability to monitor the health of their employees and see the overall metrics on injuries and COVID-19 cases.

Frontend:

- Login: Allows employers to login
- Create Employer: Allows users to create an employer profile
- Home: Displays analytics about general health of employee population
- Employee: Allows employer to look at the health of a given employee

Backend:

- API: Ability to interact with company data, manager data, and employee data
- Predictions: Populations and employee level predictions
- Analytics: Statistical information about employee population

Data:

- Employees: employee ID
- Company: Name, company Id
- Managers: Name, employee ID employees
- Permissions: Permission ID, employee ID

Modeling:

The goal of modeling is to help predict when an employee is at risk for an injury.

Tasks (Subject to change base on data availability):

- Anatomical injuries: Multi-label problem, returns that probability that a specific location on the body is at risk
- COVID acquisition: Binary classification problem, returns a probability that an employee will acquire COVID in the workplace
- COVID spreading: Binary Classification problem, returns a probability that an employee will come to work with COVID

Data Sources:

- CDC: Data on COVID infection rates related to work
- OSHA: Data on work-based injuries

Deliverables:

- Sept 5 (Deliverable #1)
    - Schedule: This Document
- Sept 19 (Deliverable #2)
    - Login pages: HTML or equivalent framework working with dummy data, integration testing complete (Isaac, Karalee)
    - General pages: HTML or equivalent framework working with dummy data, integration testing complete (Isaac, Jeff)
    - Profile page: HTML or equivalent framework working with dummy data, integration testing complete (Karalee, Robert)

    - Data Sources for ML algorithms decided/ML Tasks finalized: Datasets are fully downloaded and cleaned, data labels acquired for supervised methods, and Description of each model and its purpose (Jeff, Cole)
    - Database schema design: Document with the schema of the database is complete (Robert, Cole)
- Oct 3 (Deliverable #3)
    - Body diagrams UI: HTML or equivalent framework working with dummy data, integration testing complete
    - ML Tasks Version 1: For each task decided in the previous deliverable there is a prototype model that is trained and validated. Include common performance metrics for the task
    - Employee injury report page: HTML or equivalent framework working with dummy data, integration testing complete
    - Database set up: All tables are made with accompanying views and stored procedures
- Oct 17 (Deliverable #4)
    - ML Tasks Version 2: For each task decided new model that is trained and validated or a decision that current model is the final model
    - Employee covid report page: HTML or equivalent framework working with dummy data, integration testing complete
    - Recommendations for employees/employer page (lower injury risk): HTML or equivalent framework working with dummy data, integration testing complete
    - API for recommendation: API endpoints get the recommendations for given employees based on rick areas, All code and APIs tested
- Oct 31 (Deliverable #5)
    - ML Tasks Version 3: For each task decided new model that is trained and validated or a decision that current model is the final model
    - API for predictive models: API endpoints that allow for inference on employee data, All code and APIs tested
    - API for analytics: API to interact with the aggregate of employee data and return statistics and data based on the population, All code and APIs tested
- Nov 14 (Deliverable #6)
    - Aggregate data visualization/ML algorithms: HTML or equivalent framework working with dummy data, integration testing complete
- Dec 5 (Deliverable #7)
    - Documentation for all pages and algorithms used is complete: This would include a database schema, description of algorithms used and how they were implemented, description of data used and how algorithms were trained, schema for all API endpoints, description of pages including what functionality exists on each page, description of codebase structure, All test cases complete and description on how to run testing suite