CS 24-320

SENSING DRAWING FORCES IN PREWRITING SKILL ASSESSMENT IN CHILDREN

FORMAT

Use whatever format you and your faculty advisor deem appropriate.

Shall include:

1) Define the current state (3 pts)

2) Define the Problem to be solved (3 pts)

3) Define business requirements (7 pts)

4) Any constraints (1 pts)

5) Propose a solution(s) approach (deliverables) (5 pts)

6) Resources - hardware, services, skills, etc (3pts)

7) List of Stakeholders (3pts)

These are living documents - the project plan should be reviewed periodically and updated accordingly.

TEAM MEMBERS

- Benjamin To
- Emmanuella Asomani
- Femi Adepoju

FACULTY ADVISOR

- Dan Cranston

CURRENT STATE

This project is a continuation of a capstone project from last year, “Solving Early Childhood Prewriting Misevaluation”. This previous capstone project entailed the development of an application designed to facilitate drawing assessments for children between the ages of 6 and 12. Our current responsibility involves the extension of this project, encompassing the incorporation of additional features within the application to enhance its efficacy in the evaluation process. We met with Dr. Chu to discuss her needs and wants, assessing her most important features. We decided to incorporate a product tour to guide users so that they can get a smooth, seamless experience. We are also working on improving the security of stored data. The option to view the table of results will only be accessible to the admin users. Additionally, we are building a feature where the admin user can export the PDF file to their email.

PROBLEM TO BE SOLVED

The team last year developed a capable prototype, but it has various issues that must be addressed before it can be widely used by practicing clinicians. These include: a more friendly user interface, an explanation of results that is easier to interpret, and better authentication and user access controls. The project this year is to move the application to a state where it can be widely distributed to and used by other clinicians.

BUSINESS REQUIREMENTS

- Improve the user experience, particularly making it easy for a new user to understand how to use the application

- The application must employ more robust authentication and user access controls than in the current prototype
- The application must provide a PDF report at the end of the assessment that allows the clinician in charge to make evaluations based on the final score from the test.
- Applications must take in more useful information (age, gender) as well as, perform more calculations on the data in order to provide other potential valuable information such as norm data and pattern recognition.

CONSTRAINTS

- Prior to commencing our project, we had to gain a comprehensive understanding of the prior capstone team's contributions. We encountered challenges pertaining to the communication between the backend and frontend components, which necessitated a collaborative effort on our part. However, we successfully resolved these issues through diligent problem-solving.
- Lack of valid data necessary to perform some calculations, as this project hasn't been used in practice there is no "relevant" data currently present in the database.
- Currently, constraints may be found when attempting to implement changes in regards to the front-end/usability as we are not the target audience potential misunderstandings in regards to looks and functionality could cause issues and prevent progress.

POTENTIAL SOLUTIONS

- In terms of understanding the prior team's code, as with most things, consistent exposure as well as making proper use of the resources stated above should lead to an overall increased understanding as well as smooth transition. Progress has been made in terms of getting local environments fully functional for all members.
- Current potential solutions for the lack of valid data are using mock data in order to refine the system which could then be shipped with the methods for when enough real-world data is collected. Another potential solution is spending a considerable amount of time doing research in order to get a

fairly accurate base-line norm that could be used confidently without needing to rely on a live database.
- In regards to front-end design, proper communication with the stakeholder should hopefully catch, if not prevent, too many issues in regards to visuals and usability. This aspect has already been touched upon in our first sponsor meeting, so as more progress is made on that front proper updates and feedback will prove crucial. Personal research in regards to visually appealing CSS techniques and methods will most likely be necessary as well.

RESOURCES

The main resource available to the team is the code base from last year's project. Other resources include two of the members from that team who provided an overview of how the code functions (recorded as a video for reference), as well as those two team members, who have offered to answer any questions that arise.

- Front-end: Javascript/HTML (JSX), CSS (ReactJS)
- Back-end: Python (Flask)
- Data Management: MySQL

STAKEHOLDERS

- Dr. Virginia Chu
- Other local and regional clinicians