Word Explorer: An AI-Driven Text Adventure Odyssey

Based on NLP

FINAL PROPOSAL

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I. Problem

The development of today's technologies is definitely a dramatic plot in the history of mankind, but what comes with it is the increasing social pressure, leading to a higher portion of people suffering from mental illnesses. There are lots of mental health resources, however, individuals might not aware of——or refuse to admit——the underlying fact that they suffered from these illnesses, making it difficult for timely psychological treatment services. Consequently, there is a growing demand for applications that can assist in psychological therapy and serve as a safe, healthy, and stable outlet for emotional and stress release.

Another problem is that the rapid pace of development and ever upgrading demands for life burdens people with pressure, making people yearn for a moment to escape from reality to fulfill emotional needs and relax their weary minds.

II. Solution

To address these problems, World Explorer can do the following things:

1. **Provide accessible spiritual support**: offer immediate spiritual support at any time, without waiting for appointments or queues.
2. **Promise a secured environment for emotion release**: Design a closed, personal platform without gathering users' private information.
3. **Satisfy various tastes of users**: offer a customizable experience using NLP technology which can generate plots of different styles.

III. Objectives

- **Find NLP Model**: Provide an open-ended storytelling platform where players can freely create and explore various possible narrative paths.

- **Dataset Preparing and Preprocessing**:
    i. Create datasets that encompass a wide range of themes and genres to ensure diversity in gameplay and Fancy Experiences.
    ii. Preprocess data to allow for the introduction of random events and multiple story branches which makes the game more fun and exciting to play.
    iii. Incorporate educational material into datasets to be used in game narratives.
    iv. Design scenarios for the model to simulate real-life decision-making and incorporate life skills teaching.
- **UI Design**:
    i. Design a well-structured, easy-to-use and beautiful UI.
    ii. Design a user interface that enables players to easily create and modify characters and plot-lines.
    iii. Implement UI features that allow for the visualization of different narrative paths.
    iv. Create UI components that facilitate puzzles, strategic choices elements.
- **Deployment as a Website**:
    i. Let more people attached to this game and experience the excitement and entertainment of this game. Also easy for Beta test and white box test.
    ii. Deploy a fully functional website for the text generation game.
- **Fine-tuning Model**: Introduce the ability to customize characters and events, giving players the opportunity to design unique characters, create specific challenges, and plot-lines.

IV. Benefits

1. By providing accessible metal support, individuals that refuse to ask for proper therapy can try to address their issues on their own.
2. A secured place for emotional outlet means individuals can express their pressure without worrying their privacy security.
3. By satisfying the emotional needs of individuals, they can engage in their life with better metal status.

V. Timeline

Phase 1: Research and Preparation

Description: Search for appropriate model and evaluate the feasibility; Prepare dataset for training.

End date: 05/10/2024.

Phase 2: Fine-tuning

Description: Enhance the NLP model for improved performance and story adaptation.

End date: 05/28/2024.

Phase 3: Deployment

Description: Deploy the model as a website.

End date: 05/31/2024.

VI. Action Plan

Objective 1: Find NLP Model

Actions:

i. Select an optimal NLP model that adapts the game narrative dynamically based on player choices.

ii. Research existing NLP models and document findings, select an algorithm that allows for dynamic story branching based on player decisions to foster creativity.

iii. Set up criteria for adaptability, performance, integration ease, and cost.

iv. Run prototype tests on top models and document performance issues.

Assignments:

Jiaxu to lead model research and initial testing.

Yudong to oversee performance evaluations and cost analysis.

Deadlines:

Complete research by 04/15/2024.

Finish evaluations by 04/25/2024.

Decide on model by 04/30/2024.

Progress Tracking: Maintain a weekly progress report and a model evaluation scorecard.

Objective 2: Dataset Preparing and Preprocessing

Actions:

i. Identify and collect datasets aligned with the game's genre.

ii. Perform data cleaning to remove irrelevant entries.

iii. Execute data preprocessing tasks like tokenization and vectorization.

Assignments:

Yueju responsible for data collection.

Dingyu tasked with data cleaning.

Both Yueju & Dingyu to handle preprocessing.

Deadlines:

Collection by 04/25/2024.

Cleaning by 05/02/2024.

Preprocessing by 05/10/2024.

Progress Tracking: Daily stand-up meetings to review Kanban board progress.

Objective 3: UI Design

Actions:

i. Draft initial UI designs and share with the team for feedback.

ii. Develop interactive UI prototypes using tools like Figma or Sketch.

iii. Conduct user testing sessions and refine UI based on feedback.

Assignments:

Zhenhao to manage all aspects of UI/UX design and testing.

Deadlines:

Drafts by 05/13/2024.

Prototypes by 05/17/2024.

Testing by 05/20/2024.

Progress Tracking: Regular design review sessions and user feedback compilation.

Objective 4: Deployment as a Website

Actions:

i. Set up the hosting environment and deploy the web server.

ii. Integrate the chosen NLP model with the website backend.

iii. Conduct thorough quality assurance tests and security audits.

iv. Run pre-launch checks and address any deployment issues.

Assignments:

Jiaxu to lead server setup and deployment.

Zhipei to oversee backend integration and pre-launch testing.

Deadlines:

Hosting setup by 05/23/2024.

Backend integration by 05/28/2024.

QA and security by 05/30/2024.

Pre-launch testing by 05/31/2024.

Progress Tracking: Deployment checklist and CI/CD pipeline monitoring.

Objective 5: Finetuning Model

Actions:

i. Enhance the NLP model for improved performance and story adaptation.

ii. Optimize NLP model to handle complex game mechanics like decision impacts interactive elements and customized elements.

iii. Conduct initial model training with curated datasets.

iv. Analyze performance metrics and adjust model parameters accordingly.

v. Retrain the model with augmented datasets for optimization.

vi. Validate the model's capability to introduce and reinforce knowledge in various subject matters.

Assignments:

Jiaxu, Zhipei, Yudong to manage model training, tuning, and validation.

Deadlines:

Initial training by 05/10/2024.

Parameter tuning by 05/18/2024.

Retraining by 05/25/2024.

Validation testing by 05/28/2024.

Progress Tracking: Track performance indicators and maintain a tuning log.

Testing & Feedback

Objective: Ensure all functionalities are thoroughly tested and adjusted as necessary throughout the project lifecycle.(no abstract objectives included)

Actions:

i. Establish an automated testing framework.

ii. Implement continuous integration and deployment (CI/CD) processes.

iii. Carry out user acceptance testing (UAT).

iv. Collect test feedback and iteratively improve.

Assignments:

all team members to manage testing and feedback collection.

Deadlines: Concentrated testing one week prior to the end of each phase.

Progress Tracking: Test case management and defect tracking system.

Agile Practices

Objective: Implement agile practices for rapid adaptation to changes and continuous improvement.

Actions:

i. Schedule bi-weekly sprints and sprint reviews.

ii. Conduct daily stand-up meetings to track progress and identify blockers.

iii. Organize sprint retrospective meetings to reflect and plan ahead.

Assignments: Full development team participation.

Deadlines: End of every two-week sprint.

Progress Tracking: Agile Kanban board and sprint review documentation.

VII. Technical Specifications

Firstly, for the software's UI design, we will use the widely popular Adobe XD software for our prototype designs, and integrate the front and back end of the web to design functional blocks for the software.

For the web deployment module, we will use React to create interactive interfaces, build cloud server web applications with Node.js, test JavaScript code blocks with Jest, and deploy and run web servers using Docker containers.

For the NLP model block, we will primarily build models using Python and the existing framework PyTorch, while employing fine-tuning techniques for parameter adjustments on downstream tasks.

The software development process will be conducted using an integrated IDE like VS Code, and tasks will be assigned to team members through Trello.