PROJECT PROPOSAL FOR GAMERPEDIA

Project Title: Gamerpedia

Investigators:

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Statement of the Problem:

Many video game enthusiasts face difficulty in choosing the right game due to the overwhelming number of options available. There are a myriad of issues discouraging potential gamers from exploring new titles, often leading to hesitation in purchasing new games, driven by the fear of spending money on games they might not enjoy. (*Digital Trends* 2022).

Gamerpedia aims to address this issue by providing a comprehensive database that helps users select games based on their preferences. The database will feature two main functionalities:

1. A recommendation system that suggests video games based on preselected parameters and ranks them using ChatGPT.
2. An information hub that provides users with key details about video games, including predicted playtime, news, popularity, and top streamers.

Both features are designed to operate independently, ensuring users can either find game recommendations or access detailed information about specific games.

Research Methodology:

To develop Gamerpedia, we will adopt a structured approach involving the following steps:

1. **Website Development:**
   - **FrontEnd:**
     - **Technology:** HTML, CSS, and a front-end framework such as React, Angular, or Vue.js.
     - **Design:** A user-friendly interface for searching games, inputting preferences, and viewing suggestions.
     - **Responsive Design:** Ensure compatibility across various devices.
     - **Interactive Elements:** Implement search filters, game detail pages, and user reviews.
     - **Data Visualization (optional):** Display relevant data in an intuitive manner.
   - **Backend Development:**
     - **Technology:** Python Django, Node.js, Ruby on Rails, JavaScript, and SQL.
     - **User Authentication:** Enable user registration, login, and authentication.
     - **CRUD Operations:** Manage game data and user preferences with Create, Read, Update, Delete functionalities.
     - **Recommendation Engine:**
       1. Develop algorithms to suggest games based on user preferences.
       2. Integrate SQL join tables for efficient data management.
       3. Utilize ChatGPT for ranking recommendations.
     - **API Integration:**
       1. Fetch and update game data from external APIs such as RAWG, IGDB, and Giant Bomb.
     - **Optional Cloud Platform:** Use free cloud services like AWS, Google Cloud, or Azure if data volume becomes substantial.
2. **Database Schema Design:**
   - **Attributes:** Some of the attributes include Genre, Platform, Release Date, & Ratings.
   - **Relationships:** Define tables and relationships to efficiently manage data.
3. **Recommendation Algorithm Implementation:**
   - **Preference Matching:** Develop logic to match user preferences with game attributes.
   - **Machine Learning (Optional):** Enhance recommendation accuracy using machine learning algorithms.
   - **User Feedback:** Allow users to rate suggestions to refine the algorithm over time.

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PREVIOUS WORKS

Our projects takes inspiration from previous works done by various companies and individuals. Here is a comprehensive list of each of them.

- **Quantric foundry**: It is a web page that takes 3 of the user's preferred games as input and suggests a list of various games the user might be interested in. It also suggests the rating of each game (rated 1-15). Each item is attached to a list which redirects the user to a website that discusses extensively about the game. The suggestion varies based on the option the user selects like platforms, type of game, and release year. (Quantic Foundry, 2018)
- **IGN:** This is a webpage that displays the latest contents about various media forms. The media forms includes videogames, animations, movies, comic books, etc. The contents can be guides, walkthroughs, news and reviews. This will be a good inspiration for showing the latest contents of the game our user selects. (ign.com, 1998).
- **Youtube:** Youtube is a video database that conrtains and displays an huge amount video content from different creators. It is really popular as its user friendly and its the number one source for free video content in the world. We plan on using it to display the top gameplays of the games selected by the user. (*YouTube* 2005).
- **Twitch:** This is a free interactive livestreaming service that shows various streaming contents from various streamers. It is the number one site to access streaming content around the world. We plan on using it to display to video game streamers of the game selected by the users. (*Twitch* 2002).
- **Games Finder:** This website is self proclaimed as the number one source of self curated video game recommendations. It recommends a list of video game recommendations, their ranking, where to buy them and their available platforms based on a video game the user selects, This will be a great inspiration for our video game recommendation feature. (GamesFinder, 2013).

TIMELINE & MAJOR MILESTONES

List of timeline and major milestones towards completing the project.

- Wed May 29th - Draft of Project proposal
- Sun June 2nd - Final Project Proposal WriteUp
- Mon June 3rd - Project Proposal due
- Wed June 5th - Researching the web design and scraping
- Wed Jun 19th - Final draft for web design / scraping
- Wed Jun 26th - Schema Final design
- Sun Jun 29th - Start the Project draft Project
- Mon Jul 8th - Final Project draft due
- Sun Jul 13th - Final Integration of all the features
- Wed Jul 24th - Begin Powerpoint preparation
- Mon July 29th - Project Presentation due
- Mon Aug 5th - Project Final Paper Due

RESOURCES NEEDED

Here are the list of resources that are needed towards the successful completion of the project:

- **AWS**: As lots of data would be analysed and managed during the project, a cloud service platform like AWS will be needed during the project. Amazon S3 will be needed to store data and run for the app's backend services. Amazon EC2 will also be used if high computational resources are needed. Considering the accessed data might be around 1 TB in size, the estimated cost will be $90.
- **PowerBi**: Power BI will be used to publish individualized reports from each user's search. The premium version will be needed to access such features. The service costs $10 per month for each user, which gives us a total of $60/month for the entire duration of the projects.
- **ChatGPT API**: This is a free API used to access ChatGpt. As of now, ChatGPT-4 charges $0.03 per 1000 input tokens, and $0.06 per 1000 output tokens. 1000 token contains approximately 750 words. So we will need an estimate of $5 for the project.
- **Python Django app**: This is a free Python web framework for creating websites.
- **MySQL workbench:** This is a free software by Oracle for designing the database's schema and relationships.
- **IDE**: We plan on using various IDEs to write/edit our code. They include Python 3.9, Ubuntu 24.04 LTS, and VSCode version 1.89.

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CITATIONS

Quantic Foundry. (2018, January 15). *Video game recommendation engine*. Quantic Foundry. https://apps.quanticfoundry.com/recommendations/gamerprofile/videogame/

Recommending games like your favourites. Games Finder. (2013, April 14). https://gameslikefinder.com/

Twitch. (2002, July 5). https://www.twitch.tv/

Video game news, reviews, and walkthroughs. IGN. (1998, December 3). https://www.ign.com/

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