ASHESI
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Bright Minds: An Interactive Gamified Learning Web Application for kids

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Project Document

DESCRIPTION OF THE FUNCTIONALITY

- **Login**
  The Login page provides the user interface for the login functionality in the web application. Its main function is to allow users to enter their credentials, which are then validated for secure access to the system.
- **Sign Up**
  The sign-up page allows new users to register unt the system and gain access when they log in. It requires the user's credentials which are then stored into the system for furure reference.
- **Menu**
  The Menu page provides users with a simple and clear navigation panel to move between the main sections of the application including Games, Stories, Interviews, and the Parent Dashboard. It serves as the central hub from where users can quickly access different parts of the platform.
- Parent Dashboard
  The Parent Dashboard serves as the main control and overview screen for parents. It offers real-time insights into their child's activities, progress, and learning schedule. The dashboard displays important updates, such as game and quiz scores and story completions
- **Games**
  The Game page provides an interactive environment where users can play educational games designed to reinforce learning concepts
- **Stories**
  The Stories page offers a collection of interactive stories for learning and entertainment. Users can navigate through story pages, read content tailored to their age group enables new users to register with the system and gain access upon logging.
- **Interview**
  The Interview page provides users with a structured question and answer format to simulate interviews or quizzes. It allows learners to practice responses, receive feedback, and track their progress over time

USER GUIDE

- To get started, you enter your username and password in clearly marked fields. The login form is simple and easy to use, with icons and helpful placeholders guiding you along. There are quick links for to sign up if you are a new user.

- The Menu page acts as your gateway to all main sections of BrightMinds. Use this page to quickly access Games, Stories, Interviews, or the Parent Dashboard. The menu is designed for easy navigation, with clear links and visual cues indicating your current.

- The Dashboard gives parents a quick overview of their child's progress, recent activities, and learning task.
  The Games section offers fun educational games. Pick a game from the list and start playing. The interface gives you immediate feedback to keep you motivated.
- There is also an eractive Stories section designed to engage you. You can browse, read, and navigate stories easily, with visuals that make learning enjoyable.
- At the Interview page, there are practice interview questions through a simple Q&A format. Type or select answers and get feedback

TEAM CONTRIBUTION SUMMARY

Joycelyn Allan – I did the frontend of the quizzes, stories and games portion of the project using JavaScript, CSS, and HTML.

Gertrude Akagbo - I built the login and signup system for BrightMinds, creating an engaging entry experience with animated elements, form validation, and smooth transitions that welcome users into our educational platform.

Nana Akua Amponsah – Research on resource materials, compilation and documentation

Vanessa Logan – I designed the Menu page to ease navigation through all the pages on the website and the parent dashboard to enable parents track their kids' activities and most importantly set controls using HTML, CSS and JavaScript. I also worked on creating the website flow diagram that details the entire use journey on the website

TESTING STRATEGY

For our testing strategy, we checked our HTML file on various devices to ensure its compatibility, not just on one person's laptop. We also compared what we had done so far with our user guide to make sure we were following the right framework for how we wanted our project to look.

RETROSPECTION

These are some of the things that went well
* The system has a user-friendly design. The have clear, easy-to-use interfaces with helpful icons and guidance. Users can quickly log in or sign up, which supports smooth onboarding.
* The separation of the modules into distinct HTML, CSS, and JavaScript files helped keep the project organized and maintainable.
* The games, quiz and stories sections create an immersive learning experience tailored for children aged 6-12, balancing fun and education effectively.
* The application adapts well to different devices, providing consistent usability on desktops and mobile devices

Areas which require improvement
*While basic accessibility is present, there is room to improve and add on to the conetent

available for users to interact with.
* The login process lacks implementation details about advanced security features like encryption, multi-factor authentication, or secure session management.

ARCHITECTURE DETAILING
How We Built BrightMinds - Our Technical Approach

When our team started building BrightMinds, we wanted to create something that would be straightforward to maintain but had room to grow. We ended up with a structure that feels like modular building blocks where each piece stands on its own but connects seamlessly with the others.

OUR CORE FRAMEWORK

We organized everything around five key components:

The **Menu** serves as the central hub that ties everything together. From there, users can navigate to games, quizzes, stories, or the parent dashboard. Each section has its own dedicated files, which means our developers can work on different parts simultaneously without stepping on each other's toes.

For the **Games** section, we implemented a random selection system that cycles through different game descriptions. It keeps the experience fresh without being predictable. The **Quiz** component required more complex logic since it needed to track progress, validate answers, and manage scoring. We built it as a simple state machine that handles these transitions cleanly.

The **Stories** module follows a similar pattern to games, offering varied content with each visit. Meanwhile, the **Parent Dashboard** provides the oversight features that parents requested, with basic controls and activity monitoring.

Creating Consistency Across the Platform

What makes our architecture work is the shared design system we established early on. We created a consistent color palette and typography scheme that all components follow. The light blue and cream color scheme with Comic Sans MS font give us that friendly, approachable feel we were aiming for across all sections.

This modular approach means our team can fix issues or add features without everything becoming tangled. If we want to introduce new game types, we simply add them to the games array and the existing structure handles the rest. The same goes for stories or quiz questions as the foundation supports easy expansion.

Building for the Future

While our current implementation serves its purpose well, we've designed it with growth in mind. The data currently resides in memory, but we've structured it so we can easily integrate persistent storage when we're ready to save user progress. The navigation uses straightforward page transitions.

What we're most satisfied with is how organized and logical the codebase feels. Each component has its clear place and purpose, and our team doesn't waste time hunting through messy code. It's a solid foundation that meets our current needs while giving us flexibility for whatever features our users request next.

GITHUB

https://github.com/JoycelynAllan/Bright-Minds