Business Requirement Document (BRD) Project

Name: Diamond In The Sky - Interactive Space Learning Game for Kids

Version: 1.0

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1. Executive Summary:

The Diamond In The Sky project aims to develop an interactive space learning game specifically designed for children aged 10 to 12 years. The game will provide an engaging and educational experience, allowing kids to explore the dynamic nature of the night sky, learn about stellar variability, recognize star patterns, understand colors and brightness, and develop an interest in astronomy. This Business Requirement Document outlines the key features, functionalities, and scope of the project.

2. Project Overview:

The project aims to create an interactive game-based learning tool that combines entertainment with education. The primary goal is to engage young learners in astronomy by offering an intuitive and visually appealing platform for exploring space concepts.

3. Business Objectives:

- Develop an interactive game that fosters an understanding of stellar variability, star patterns, colors, and brightness.
- Engage children in learning about the dynamic night sky in an entertaining and educational manner.
- Create a cross-platform application using Dart programming language and Flutter framework.
- Collaborate with NASA to incorporate accurate astronomical data into the game.

4. Features and Functionalities:

- **Learn to Play:**
  - Users can access information about stars, constellations, and the night sky.
  - Educational content will cover basic astronomy concepts.
  - Information provided must be engaging and age-appropriate.
- **Play with Stars:**
  - Users can draw star constellations based on provided patterns.
  - Successful completion of constellations unlocks higher levels.
  - Users can modify star attributes (distance, temperature, mass) and observe corresponding changes.
- **Visualizing Stellar Changes:**
  - Incorporate Cepheid Variables data to predict star lifetimes and brightness variations.
  - Utilize Cataclysmic Variables data to demonstrate binary star system behavior.
  - Implement Light Curves to showcase changes in brightness over time.
- **Interactive UI:**
  - Implement a user-friendly and visually appealing interface using material design principles.
  - Provide clear instructions and tooltips for users.

5. Technology Stack:

- Dart Programming Language
- Flutter Framework for cross-platform compatibility

6. User Flow:

User installs the app and creates an account.
User can choose between "Learn to Play" and "Play with Stars" options.
In "Learn to Play," users access educational content.
In "Play with Stars," users draw star constellations and modify attributes.
As levels are completed, users gain a deeper understanding of stellar behavior.

7. Collaboration with NASA:

- Utilize Cepheid Variables data to predict star lifetimes and brightness variations.
- Incorporate Cataclysmic Variables data to enhance binary star system understanding.
- Implement Light Curves to showcase changes in star brightness over time.
- Present temperature-color relationships using charts.

8. Success Criteria:

- Positive feedback from users, indicating engagement and learning.
- Increased interest in space science among the target audience.
- High user retention rates, signifying ongoing engagement.
- Collaborative relationship with NASA to ensure accurate data integration.

9. Future Enhancements:

- Incorporate community engagement features for users to discuss astronomy.
- Add advanced levels with more complex scenarios.
- Localization to expand the app's global reach.

10. Project Timeline:

- Phase 1: Requirements Gathering and Planning
- Phase 2: Application Development
- Phase 3: Testing and Quality Assurance
- Phase 4: Launch and Deployment
- Phase 5: Ongoing Maintenance and Enhancements

11. Conclusion:

The Diamond In The Sky project aims to create an interactive space learning game that captivates young learners and provides them with a comprehensive understanding of astronomy concepts. By combining entertainment and education, the project seeks to

spark interest in space science and create a memorable learning experience for children aged 10 to 12 years.