

Specification

Dev Calculator console app Specification



Developers: Andrii Velko & Vladyslav Doroshenko

Version: 1.0

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Dev Calculator console app Specification

1. Overview:

1.1 Name:

-Dev Calculator.

1.2 Developers:

-Andrii Velko, Vladyslav Doroshenko.

1.3 Purpose:

-Convert numbers between different number systems, perform arithmetic operations, maintain a history log, provide educational resources, and offer a unique test to improve conversion skills.

2. Features:

2.1 Number System Conversion:

- Convert numbers between decimal, binary, octal, and hexadecimal.
- Support for both directions of conversion (e.g., decimal to binary and vice versa).
- Conversion of numbers in Ones' complement and Two's complement.

2.2 Arithmetic Calculator:

-Perform addition, subtraction, multiplication, and division of numbers in various number systems.

-Handle both integer calculations.

2.3 History:

- Maintain a history log of all calculations and conversions.
- Allow users to review and delete entries from the history.

2.4 Settings:

-Display usage statistics, including app open and close times.

2.5 Educational Resources:

- Step-by-step instructions on number system conversion methods.
- Literature and references for further learning.

2.6 Note Taking:

- Allow users to take and save notes within the app.

2.7 Unique Test:

- Implement a unique test to assess and improve the user's skills in number system conversion.

3. Security:

3.1 Data Security:

- Ensure secure storage of user data.

4. Development Timeline:

4.1 Phases:

- Design and Planning: 2 weeks
- Development: 6 weeks
- Testing and Debugging: 4 weeks
- User Feedback and Iterations: 2 weeks

5. Conclusion:

5.1 Goal:

- Create a versatile and educational tool for developers and enthusiasts to facilitate number system conversions and arithmetic calculations.

6. Advanced Calculator Functions:

6.1 Scientific Calculator:

- Integrate advanced functions like trigonometry, logarithms, and exponentials.
- Provide a scientific mode for users requiring complex mathematical calculations.

6.2 Matrix Operations:

- Include the ability to perform matrix addition, subtraction, multiplication, and inversion.
- Cater to users working with linear algebra and related fields.

7. Interactive Tutorials:

7.1 Interactive Learning Modules:

- Offer engaging exercises to reinforce concepts related to number system conversion and calculations.

7.2 Progress Tracking:

- Introduce a feature to track user progress through tutorials and educational resources.

8. Continuous Improvement:

8.1 Agile Development Approach:

- Adopt an agile development methodology for continuous updates and improvements.

Conclusion:

- Dev Calculator aims to be a dynamic and evolving tool for users involved in numerical computations and conversions.

9. AR Learning Games:

- Develop AR-based learning games to make the educational process more interactive and engaging.
- Combine education with entertainment to keep users motivated and entertained.

10. Language Localization:

- English.

11. Program functions:

- Multiplication in binary;
- Division in binary code;
- Summation in binary code;
- Subtraction in binary code;
- Remembering written numbers;
- Ability to write in notes;
- Access to training materials;
- Translation to as a modulus sign, U1, U2;
- Standard mathematical calculus;
- Check of knowledge;
- Matrix operations;
- Converting numbers to binary code;

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