**TITLE: CodeTech IT Solutions Internship - Task Documentation: Advanced Calculator Application**

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**INTRODUCTION**

In the realm of computational tools, calculators play a crucial role, providing users with the ability to perform various mathematical operations quickly and accurately. This project focuses on developing an Advanced Calculator application using Java, which offers a range of mathematical functionalities in a user-friendly interface. By leveraging the power of Java programming language, this application aims to provide users with a versatile tool for performing arithmetic operations efficiently.

**IMPLEMENTATION**

* **Java Programming Language**: The application is developed using Core Java, harnessing its robust features and libraries for building the backend logic.
* **User Interface**: Although the application operates through the console interface, efforts have been made to enhance the user experience by incorporating colored text and intuitive prompts.
* **Mathematical Operations**: The calculator supports addition, subtraction, multiplication, division, and exponential operations, catering to a wide range of computational needs.
* **Modular Design**: The application is designed with modularity in mind, separating different functionalities into distinct classes to promote code organization and maintainability.

**CODE EXPLANATION**

1. **AdvancedCalculator Class**:
   * This class serves as the entry point for the application, providing users with a menu to select various mathematical operations.
   * It utilizes the Rainbow class to add color and styling to the console output, enhancing the visual appeal of the application.
   * Users can choose different operations such as addition, subtraction, multiplication, division, exponential calculation, and exit.
2. **MathOperations Class**:
   * This class contains methods for performing different mathematical operations.
   * Methods such as addition(), subtract(), multiplication(), division(), and exponential() handle the respective operations.
   * Input from the user is received via the console, and results are displayed with appropriate formatting.
3. **Rainbow Class**:
   * This class provides ANSI escape codes for colors and text formatting, enhancing the aesthetics of the console output.
   * Colors such as red, green, yellow, and purple are used to highlight specific text elements, improving readability and user experience.

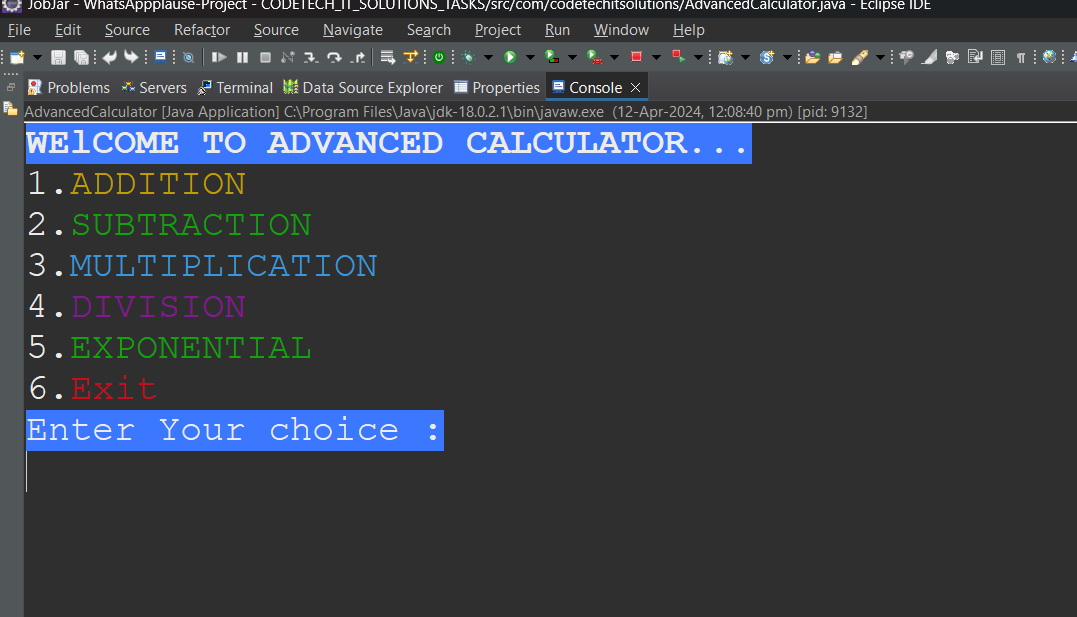
**USAGE**

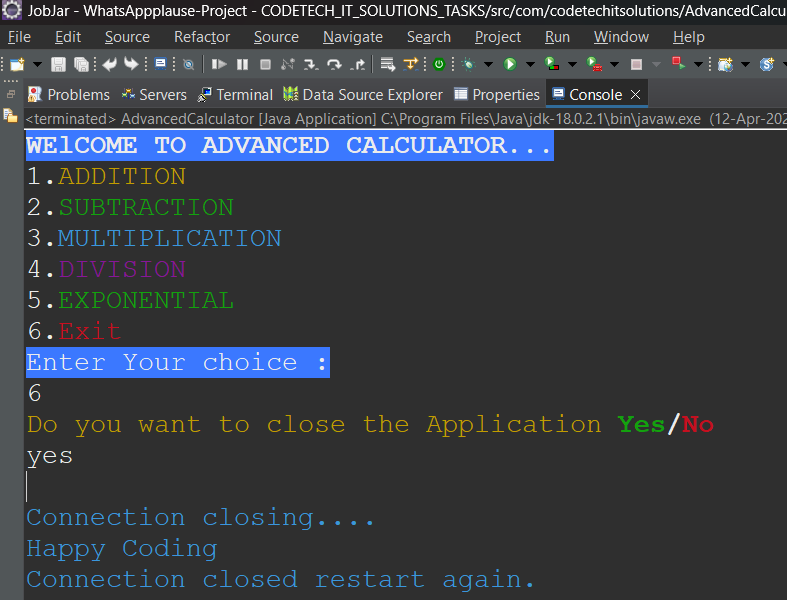
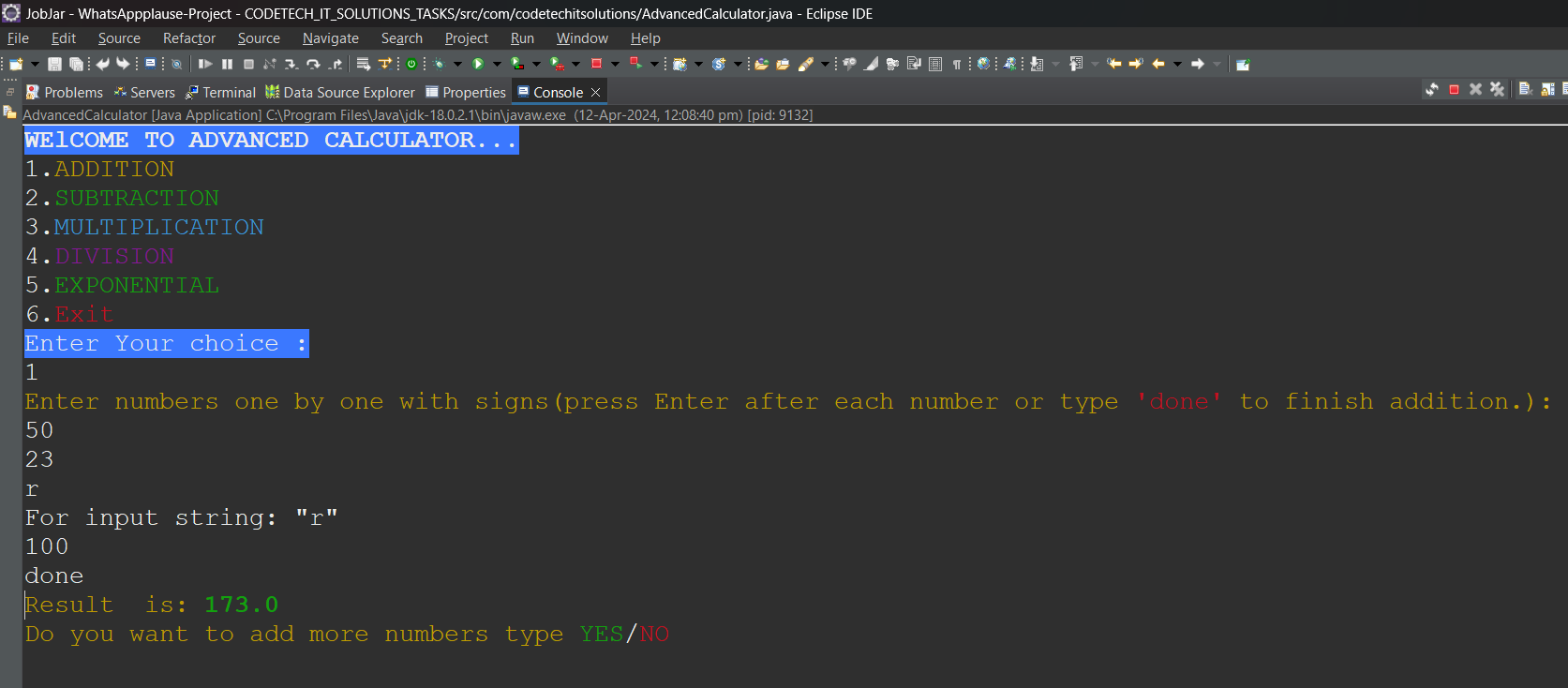
* **Performing Operations**: Users can select the desired mathematical operation from the menu and follow the prompts to input operands and view results.
* **Exiting the Application**: The option to exit the application is provided in the menu, allowing users to terminate the program when done with calculations.

**CONCLUSION**

In conclusion, the Advanced Calculator application demonstrates the capabilities of Java in implementing a functional and user-friendly computational tool. By offering a range of mathematical operations and incorporating intuitive features, the application serves as a valuable resource for users in various educational and professional contexts. With further enhancements and refinements, the Advanced Calculator has the potential to become a go-to solution for users seeking efficient arithmetic calculations.

**OUTPUT**

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