Green University of Bangladesh

Department of Computer Science of Engineering (CSE)

Semester: (Fall 2024), B.Sc. in CSE(Day)

Lab Report- 4

Student Details

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Submission Date : 17 October 2024

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Status	
Marks:	Signature:
Comments:	Date:

Title: Design and Development of a Calculator Application

Introduction

Creating a calculator app in Android Studio is a great way to learn the basics of Android development. This project covers fundamental concepts such as designing a user interface (UI) with buttons and text views, handling user inputs, and performing basic mathematical operations.

You'll also learn how to manage activities, use layouts, and write Java code to make the calculator functional. By the end, we'll have a simple, fully functional calculator app that can perform basic arithmetic like addition, subtraction, multiplication, and division.

Objective:

- ✓ To design the User Interface of the Calculator App. Where individual button for each number, operator.
- ✓ To Implement necessary logic for Addition, Subtraction, Multiplication and Division.
- ✓ To handle divide by zero exception.
- ✓ To implement logarithm, exponential and power of x.

Implementation

User Interface Design:

- ✓ Developed a graphical user interface (GUI) using a suitable framework (Android XML layout for mobile).
- ✓ Created individual buttons for numbers (0-9), basic operators (+, -, *, /), and additional functions (log, exp, x^y). Designed a display area to show user inputs and results.

Basic Arithmetic Operations:

- ✓ Implemented functions to perform addition, subtraction, multiplication, and division based on user input.
- ✓ Ensured correct precedence of operators using appropriate logic or data structures (like stacks for more complex operations).

Exception Handling:

- ✓ Added checks to handle division by zero scenarios, displaying an error message instead of allowing the operation to proceed.

- ✓ Implemented general error handling to manage invalid inputs or other unexpected behavior.

Advanced Mathematical Functions:

- ✓ Added functions for logarithmic operations (e.g., log(x)), exponentials (e.g., e^x), and power calculations (e.g., x^y).
- ✓ Used built-in math libraries to ensure accuracy in calculations and reduce implementation complexity.

Result & Discussion

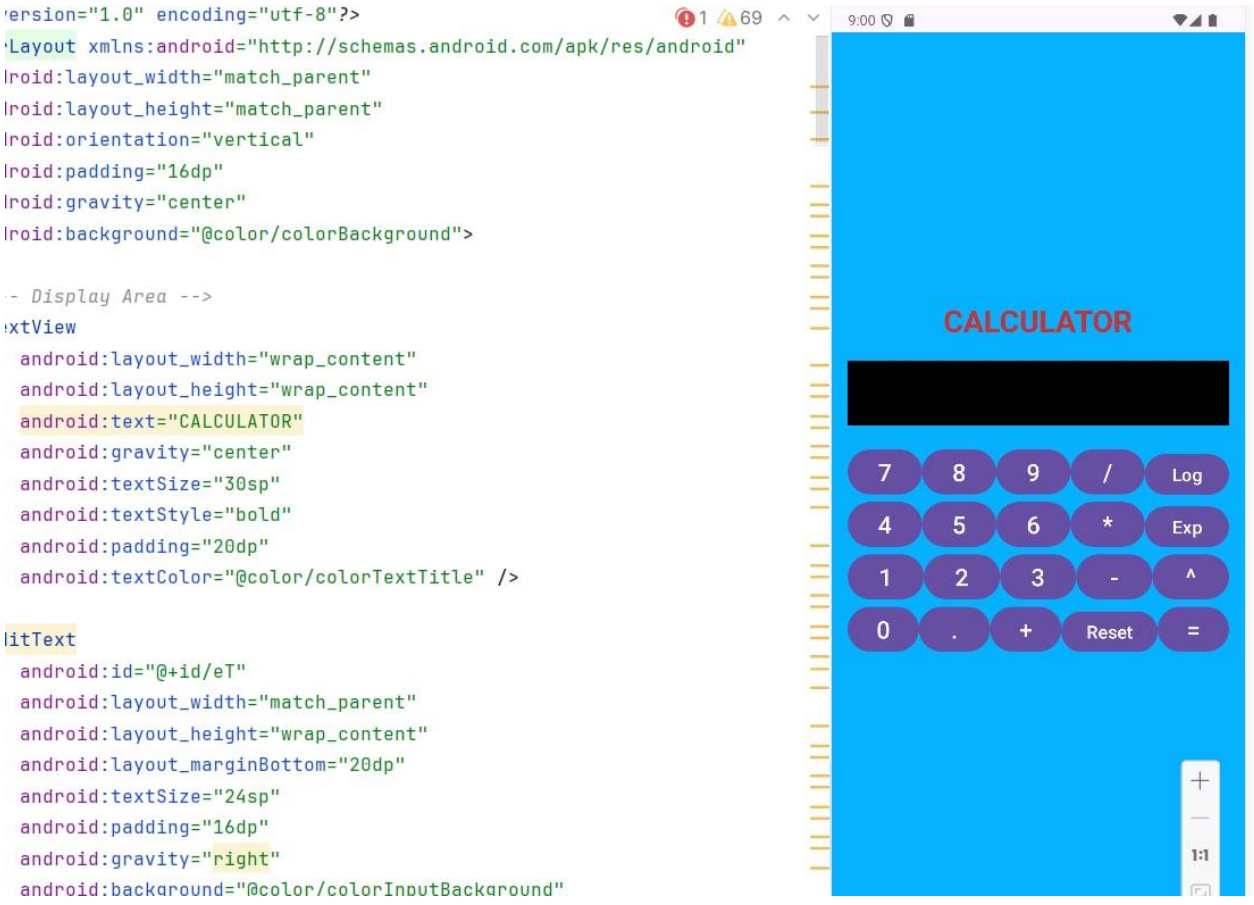

Fig-1: UI Design Section

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EditText;
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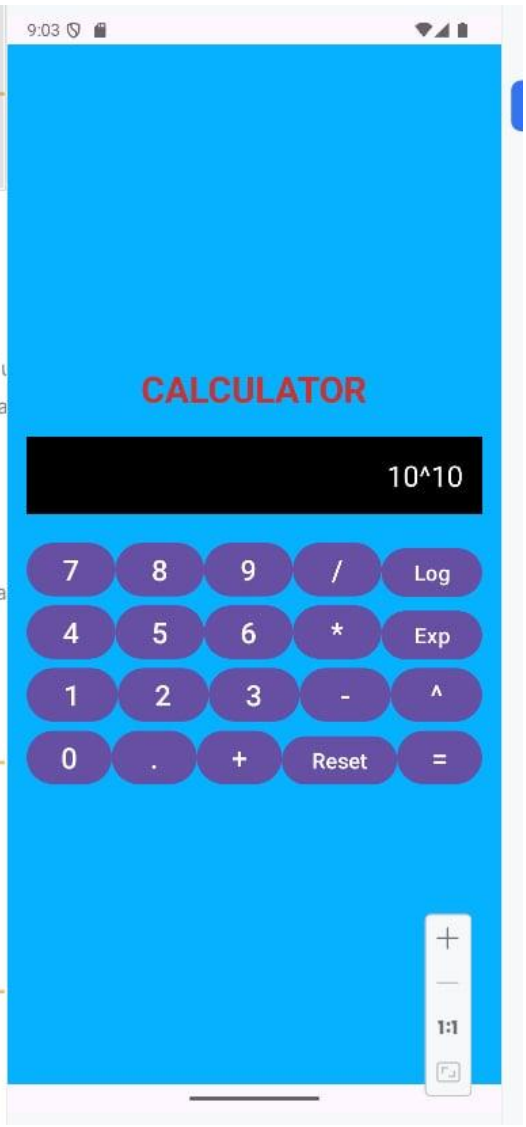

Fig-2: Power of x calculation (01)

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 findViewById(R.id.btnTwo);
 findViewById(R.id.btnThree);
 findViewById(R.id.btnFour);
 findViewById(R.id.btnFive);
 findViewById(R.id.btnSix);
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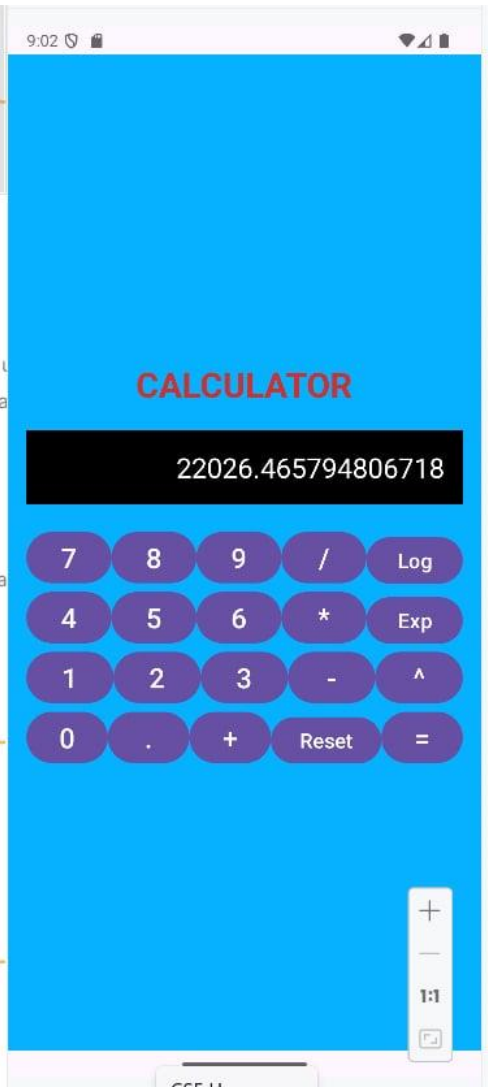

Fig-3: Power of x Calculation result

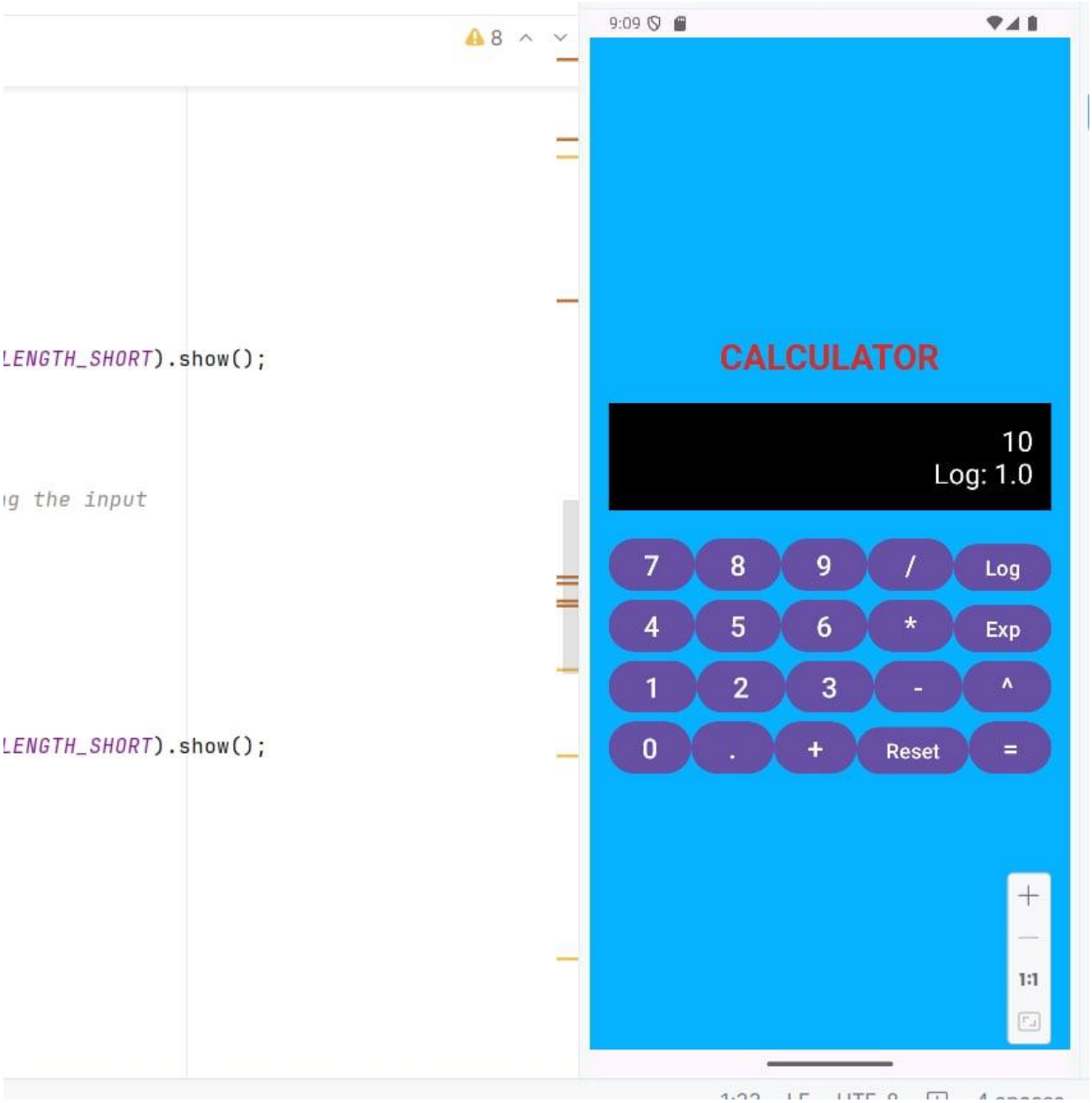

Fig-4: Logarithm Calculation

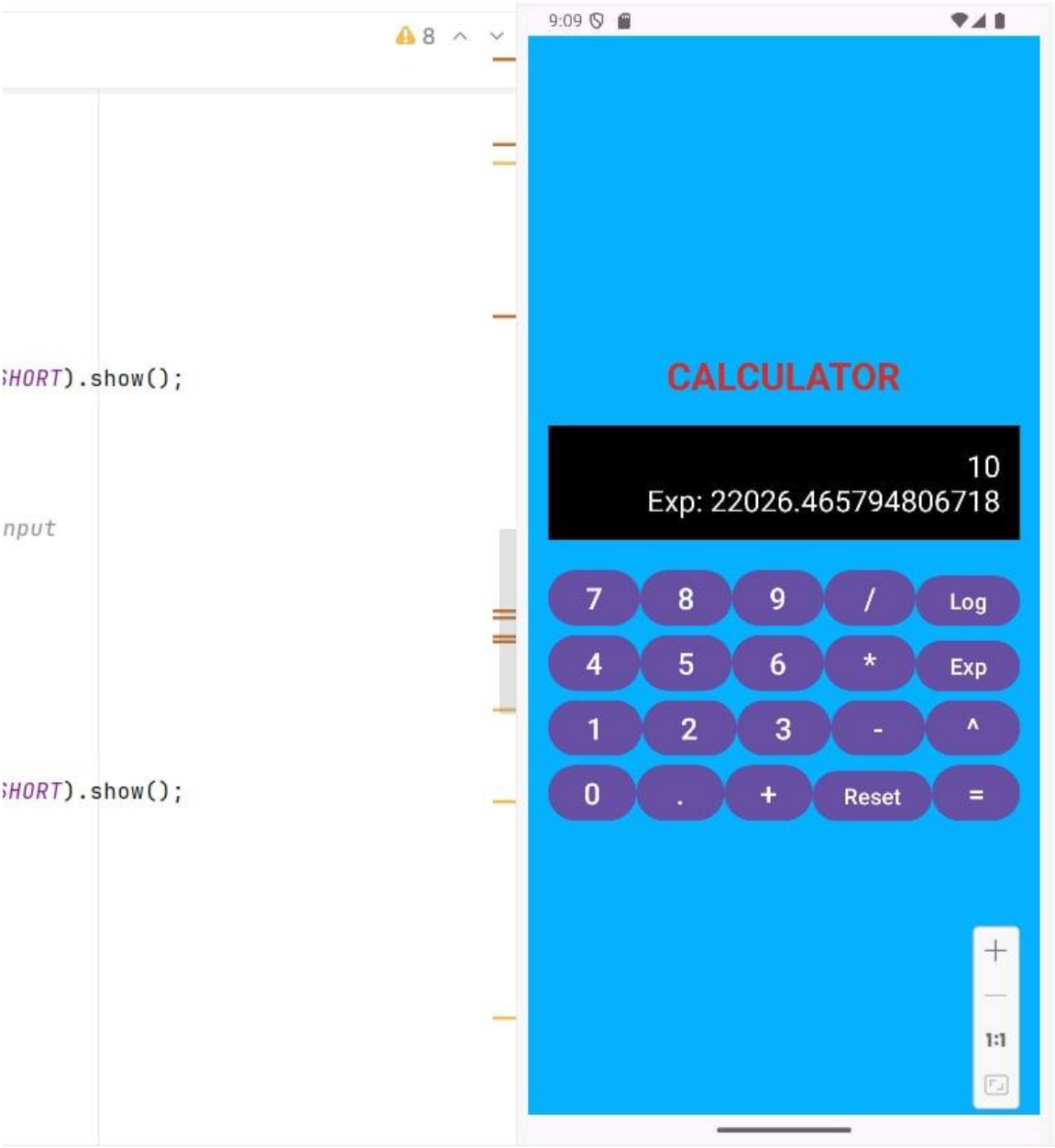

Fig-5: Exponent Calculation

Conclusion:

Building a calculator app in Android Studio is an excellent project for beginners to get hands-on experience with Android development. It helps you understand core concepts such as UI design, event handling, and basic programming logic in Java or Kotlin.

Once completed, you'll have a solid foundation to build more complex apps and explore advanced features of Android development. Plus, the skills you've gained can be applied to

other projects, making this a valuable steppingstone on your journey to becoming a proficient Android developer.