A Project Report

on

Calculator C++

BACHELOR OF COMPUTER APPLICATION

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CERTIFICATE

This is to certify that the project entitled **"Calculator – Perform basic mathematical operations. in C++"**, is bonafide work of **Aditya Kumar** bearing enrolment Number: AJU/240312 under the guidance of Dr. Arvind Kumar Pandey Dean, School of Engineering & IT and Mr Ashutosh Roy submitted in partial fulfilment of the requirement for the award of degree in BACHELOR OF COMPUTER APPLICATION from ARKA JAIN UNIVERSITY, JHARKHAND during the academic year 2024 - 2025.

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ABSTRACT

This abstract presents a C++ implementation of a functional calculator, providing a code-based solution for performing arithmetic operations. The program utilizes fundamental programming concepts to handle user input, process calculations, and display results. It supports basic arithmetic operations such as addition, subtraction, multiplication, and division (mention any additional functions like square root, exponentiation, etc. if included). The calculator's design prioritizes user-friendliness, employing clear prompts and intuitive input methods. The abstract highlights the use of C++ syntax, data types, operators, and control flow structures to implement the calculator's logic. It emphasizes the program's ability to accurately perform calculations and handle potential errors, such as division by zero. This C++ calculator project serves as a practical example of applying programming principles to develop a useful application and reinforces core programming concepts.

ACKNOWLEDGEMENT

I would like to express my heartfelt gratitude to assistant professor Mr. Ashutosh Roy and Dean Dr. Arvind Kumar Pandey who gave me the golden opportunity to make this wonderful project on "Calculator – Perform basic mathematical operations. in C++" which helped me in doing a lot of research and to learn many new things. I am thankful to them.

DECLARATION

I, Aditya kumar, hereby declare that the Project entitled “Calculator in C++” was undertaken at ARKA JAIN University as part of my BACHELOR OF COMPUTER APPLICATION program. This project was completed during my first year, second-semester studies as a mini project. The primary objective of this project was to design and implement a functional calculator using the C++ programming language. This involved developing code to handle basic arithmetic operations such as addition, subtraction, multiplication, and division, as well as potentially more advanced functions (mention any if included, e.g., square root, exponentiation, trigonometric functions). The project required extensive coding, debugging, and testing to ensure the calculator's accuracy, efficiency, and user-friendliness. This project aimed to enhance my programming skills, problem-solving abilities, and understanding of fundamental programming concepts within the context of a practical application. I am grateful to ARKA JAIN University for providing me with the opportunity and resources to complete this project successfully. I submit this project report with the hope that it reflects my commitment and passion for computer science and serves as a testament to my academic progress at ARKA JAIN University, Jharkhand.

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INTRODUCTION

A calculator is an essential tool used in various fields, from educational settings to professional environments, to simplify and perform arithmetic operations efficiently. This mini project in C++ aims to develop a simple and user-friendly console-based calculator application capable of handling fundamental operations such as addition, subtraction, multiplication, and division.

The project provides a hands-on opportunity to explore key programming concepts, including user input handling, conditional statements, loops, and functions. By dividing the problem into smaller, manageable tasks, the project encourages clean code practices and modular development.

One of the primary goals of this mini project is to reinforce problem-solving skills by designing an application that handles real-time user interactions and performs accurate computations. The program will guide users through choosing their desired operations and display the results instantly, demonstrating efficient input processing and result management.

Beyond its immediate utility as a calculator, the project showcases the versatility of C++ in developing console-based applications. It offers a foundation for learners to extend the project further, perhaps by integrating more advanced mathematical functions, implementing exception handling for invalid inputs, or even developing a graphical user interface in the future.

In conclusion, this Calculator Mini Project not only provides a valuable learning experience for students and beginners but also serves as a stepping stone toward more complex software development projects. Through this project, developers gain a deeper understanding of C++ programming while creating a functional and practical application.

USED SPECIFICATION

1. USED HARDWARE LIST

HARDWARE COMPONENT	SPECIFICATION
Processor	AMD RYZEN 3
RAM	8GB
SSD	512GB

2. USED SOFTWARE LIST

SOFTWARE	VERSION
Operating System	Windows 11
Software development kit	VS Code 1.97
Programming language	C++ 20

CODE

```
#include<iostream>

using namespace std;

int main (){
    int num1 , num2 ;
    char symbol ;

    cout<<"enter a symbol (+,*,/,-) = ";
    cin>>symbol;

    cout<<"enter a first number = ";
    cin>>num1;

    cout <<"enter a second number = ";
    cin>>num2;

    switch(symbol){
        case '+' : cout<<"sum is = "<<num1 + num2 ;
        break;
```

```
        case '-' : cout<<"sub is = " << num1 - num2 ;
        break;
        case '*' : cout<<"munitply is = "<<num1 * num2 ;
        break;
        case '/' : cout<<"divied is = "<<num1 / num2 ;
        break;
        default : cout<<"";

    }

    return 0 ;

}
```

OUTPUT

```
enter a symbol (+,*,/,-) = +
enter a first number = 12
enter a second number = 12
sum is = 24
```

```
enter a symbol (+,*,/,-) = -
enter a first number = 120
enter a second number = 100
sub is = 20
```

```
enter a symbol (+,*,/,-) = *
enter a first number = 12
enter a second number = 10
munitply is = 120
```

```
enter a symbol (+,*,/,-) = /
enter a first number = 120
enter a second number = 12
divied is = 10
```

CONCLUSION

This project implements a functional calculator in C++ designed for performing arithmetic operations. The calculator provides a user-friendly interface for inputting numerical values and selecting desired operations. It supports standard arithmetic functions, including addition, subtraction, multiplication, and division (mention any additional functions like square root, exponentiation, etc. if included). The development of this calculator involved utilizing C++ programming constructs such as variables, operators, conditional statements, and loops to implement the calculation logic. This project provided valuable experience in applying programming principles to create a practical application, reinforcing understanding of fundamental concepts and problem-solving skills within a software development context. The process of designing, coding, and testing the calculator enhanced my programming abilities and provided a deeper understanding of software development lifecycle stages.

REFERENCE

[1] Booch, Grady, "Object-Oriented Analysis and Design with Applications", The Benjamin/Cummings Publishing Company, Inc., 1994.

[2] Deitel, H. M., Deitel, P. J., "C++ How To Program", Prentice-Hall, Inc., 1994.

[3] Pohl, Ira, "Object-Oriented Programming Using C++", The Benjamin/Cummings Publishing Company, Inc., 1993.

[4] Sommerville, Ian, "Software Engineering", Addison-Wesley Publishing Company Inc., 1992.

[5] White, Iseult, "Using the Booch Method", The Benjamin/Cummings Publishing Company, Inc., 1994.

[6] E. Balagurusamy, “Object Oriented Programming with C++”, Tata McGraw Hill, 2021.

[7] E. Balaguruswamy, “Object Oriented Analysis and Design”, Tata McGraw Hill, 2008.

[8] K R Venugopal, Rajkumar Buyya, T Ravishankar, “Mastering C++”, Tata McGrawHill, 2017.

[9] Cooper, S., Wanda, D., Pausch, R., Alice: “3-D tool for introductory programming concepts”, The Journal of Computing in Small Colleges, 15, (5), 107--116, 2000.

[10] Dawson, M., “Beginning C++ Game Programming”, Boston, MA: Thomson Course Technology, 2004.

[11] Rucker, R., “ Software Engineering and Computer Games”, New York, NY: Addison-Wesley, 2002.

[12] Watt, A., Policarpo, F., “3D Games: Real-time Rendering and Software Technology”, NewYork, NY: Addison-Wesley, 2001.