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Description automatically generated**Report**

**Project Name:** SCIENTIFIC CALCULATOR

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| **Course Title** | **Programming Fundamentals** |
| **Semester** | **SPRING – 2024** |
| **Class Time** | **Monday 8:30/11:30** |

**Submitted to:**

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| **Course Instructor** | **Syed Muhammad Daniyal** |

**Presented by**

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**Overview:**

This is a C program that implements a with 12 options for performing various mathematical operations. It program provides a simple and user-friendly interface for performing various mathematical operations.

**Header Files:**

This program includes two header files:

* stdio.h for input/output operations
* math.h for mathematical functions (e.g. ‘sqrt’, ’pow’, ‘log’, ‘cbrt’)

**Functions:**

**int factorial(int n):** This function calculates the factorial of a given integer ‘n’. The factorial of a number ‘n’ is sum of all positive integers less than or equal to ‘n’. It is denoted by ‘n!’ and calculated as ‘n \* (n-1) \* (n-2) \* …. \* 1’. It uses a switch statement to determine the daily rate based on the room type and multiplies it by the number of days.

**main():** This is the entry point of the program. It contains a while loop that continuously prompts the user for input until the user chooses to exit. It also contains switch statement which uses user input to determine which operation to perform. It executes the corresponding code block which involves:

* Reading additional input values (e.g. numbers to operate on)
* Performing the mathematical operation
* Displaying the result

**Choices:**

**The program provides the following choices:**

**Addition:** This option adds up the two numbers input by the user.

**Subtraction:** This option subtracts the second number from first number input by the user.

**Multiplication:** This option multiplies the two numbers input by the user.

**Division:** This option divides the two numbers input by the user.

**Square Root:** This option provides the square root of a number input by the user.

**Exponential:** This option calculates the power of a number input by the user.

**Logarithm:** This option calculates the natural logarithm of a number input by the user.

**Square of a number:** This option calculates the square of a number input by the user.

**Cube of a number:** This option calculates the cube of a number input by the user.

**Cube Root:** This option provides the cube root of a number input by the user.

**Factorial:** This option calculates the factorial of a positive integer (using the factorial function).

**Exit:** This option exits the program.



