

# FACTORIAL CALCULATOR

## DESCRIPTION:

Imagine you need to find the factorial of a number but want to see how it can be calculated differently. This **Factorial Calculator Web App** lets you do just that! With this simple tool, you can enter a number and choose how you want to calculate its factorial—**using loops (iterative method) or function calls (recursive method)**.

1. **Enter a number** – Type any non-negative integer into the input field.
2. **Choose a method** – Select either **Iterative** (loop-based) or **Recursive** (function-based).
3. **Get instant results** – The factorial appears immediately based on your chosen method.
4. **Try both methods** – Switch between them to see the difference in how they work.

## OBJECTIVES:

The **main objective** of this project is to develop a user-friendly web application that calculates the factorial of a given number using both **iterative** and **recursive** methods. The project aims to:

1. **Provide a Choice-Based Calculation** – Allow users to select between iterative and recursive methods for computing factorials.
2. **Enhance Understanding** – Help users learn the differences between loop-based and function-based calculations.
3. **Ensure Usability** – Design an intuitive and responsive interface for easy interaction.
4. **Handle Errors Gracefully** – Prevent invalid inputs (negative numbers, decimals, non-numeric values).
5. **Optimize Performance** – Ensure smooth execution and real-time results for better user experience.

## USAGE:

1. Enter a Number – The user inputs a positive integer in the provided field.
2. Choose a Calculation Method – The user selects either:
  - Iterative Method (Uses a loop to calculate the factorial).
  - Recursive Method (Uses function calls to compute the factorial).
3. View the Result – The factorial is displayed instantly based on the selected method.
4. Reset and Recalculate – The user can clear the input and result using the Reset button and perform new calculations.

## ADDITIONAL FEATURES:

- ✓ Drop-Down Selection – Users choose the calculation method via a <select> tag.
- ✓ Instant Calculation – Results are displayed dynamically without page reload.
- ✓ Reset Button – Clears the input field and result for a fresh calculation.
- ✓ Error Handling – Ensures only positive integers are entered.
- ✓ Responsive Design – Works seamlessly across devices.