

# Construction Cost Calculator

## Web Application

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### Project Title

A web-based tool to calculate total construction cost based on material and labour inputs.

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### Introduction

The Construction Cost Calculator is a simple, user-friendly web application designed to compute the total cost of building materials and labour required for a construction project.

It helps users estimate:

- Material cost
- Labour cost
- Grand total

The application is built using **HTML**, **CSS**, and **JavaScript**, and features a clean black-and-white UI with smooth animations and input validations.

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### Problem Statement

Construction projects require accurate cost estimation. Doing these calculations manually can lead to mistakes, especially when the number of materials and labour types increases.

This application solves the problem by allowing users to:

- Add multiple materials
- Add multiple labour categories
- Automatically compute costs
- Prevent invalid data entry

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## Objectives

- To provide an easy-to-use interface for construction cost estimation
- To calculate individual and total material costs
- To calculate individual and total labour costs
- To show the final combined total in a structured output
- To ensure proper validation for accurate calculations
- To offer a clean, minimal, and responsive UI

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## Technologies Used

Component	Technology
Frontend Structure	HTML5
Styling / UI	CSS
Interactivity & Logic	Javascript

## Hardware Requirements

- Any device that supports a modern web browser
- Minimum 1GB RAM

## Software Requirements

- Browser: Chrome / Firefox / Edge / Safari
- Code Editor (optional): VS Code / Sublime / Notepad++

# Features

## 1. Add Material Inputs

- Enter material name
- Enter price
- Enter quantity
- $\text{Material cost} = \text{Price} \times \text{Quantity}$

## 2. Add Labour Inputs

- Enter labour type
- Enter daily wage
- Enter number of days
- $\text{Labour cost} = \text{Wage} \times \text{Days}$

## 3. Total Cost Display

Inside the TOTAL box:

- Material Cost
- Labour Cost
- Grand Total

## 4. Smooth Tab Navigation

- Switch between Material Calculations and Labour Calculations
- Slider animation for switching tabs

## 5. Input Validations

- Names cannot contain numbers
- Numbers cannot contain letters
- No empty fields allowed
- Inline error messages

## 6. Lightweight and Fast

- No backend required
- Runs locally in any browser

# System Design

## UI Layout

- Title section
- Tab navigation
- Total cost box
- Material section
- Labour section
- Add input buttons
- Calculate button

## Advantages

- Easy and fast to use
- Error-free calculations
- No installation required
- Neat UI with animations
- Works on any device
- Helpful for students, engineers, contractors

## Limitations

- No data saving option
- Not connected to a backend
- Only calculates cost (no tax, profit, etc.)

Workflow Diagram

