



A Client-Side Web Application for Loan Eligibility and EMI Calculation

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Abstract – A Loan Eligibility and EMI Calculator is a financial assessment tool designed to help individuals evaluate their eligibility for a loan and estimate their monthly repayment amount. The system enables users to input key financial parameters, such as income, credit score, existing liabilities, desired loan amount, interest rate, and repayment tenure. Based on this information, it determines whether the applicant qualifies for a loan and calculates the corresponding Equated Monthly Installment (EMI). The primary objective of this tool is to simplify and automate the loan evaluation process, making it more accessible to potential borrowers. Loan eligibility is determined based on various factors, including the applicant's income-to-debt ratio, creditworthiness, and financial stability. The EMI calculation follows a standardized formula that considers the principal amount, interest rate, and tenure, allowing users to assess their financial commitments before applying for a loan. This tool serves as a valuable resource for both individuals and financial institutions. Borrowers can use it for informed decision-making regarding loan affordability, while lenders benefit from a streamlined pre-qualification process. The system can be implemented as a web-based or mobile application, integrating real-time data to enhance accuracy.

Index Terms – Loan calculator, EMI, Web Application, EMI calculator

I. INTRODUCTION

A Loan Eligibility Calculator evaluates whether an applicant qualifies for a loan by analyzing essential financial parameters such as income level, credit score, employment status, existing loans, and



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debt-to-income ratio. It provides a clear understanding of the maximum loan amount that can be availed based on financial stability. On the other hand, an EMI Calculator helps in determining the monthly repayment amount required to repay the loan over a specified period. The EMI is calculated using a mathematical formula that takes into account the loan amount, interest rate, and tenure. This allows borrowers to plan their finances effectively and make informed decisions about loan repayment. The use of a Loan Eligibility and EMI Calculator benefits both borrowers and lenders. It helps borrowers understand their financial commitments, avoid unnecessary debt, and choose loan options that suit their repayment capacity. Lenders benefit from a streamlined loan approval process, as applicants who use such calculators are more likely to be financially prepared for loan obligations. With technological advancements, Loan Eligibility and EMI Calculators are now available as online tools and mobile applications. They provide instant results, allowing users to compare different loan options, select the best financial plan, and ensure responsible borrowing. This tool enhances financial literacy and empowers individuals to make well-informed loan decisions, ultimately contributing to a more efficient and transparent lending system.

Existing Solutions & Their Limitations

1. Web-Based Loan Calculators – Most banking websites provide simple EMI calculators, but they lack personalized loan eligibility assessments based on income, credit score, and financial history.
2. Mobile Loan Apps – Some applications offer loan estimation features, but they may require users to manually input interest rates and financial details, leading to inaccuracies.
3. Bank Loan Pre-Approval Systems – While banks have internal pre-qualification tools, they are often restricted to their customers and do not provide real-time comparisons across multiple lenders.

Proposed Solution

Automate loan eligibility verification based on income, credit score, debt-to-income ratio, and existing liabilities. Provide real-time EMI calculations with dynamic interest rate integration. Allow loan comparisons across different lenders for better decision-making. Offer detailed amortization schedules to improve financial planning.

Comparative Analysis

| Feature | Bank EMI Calculators | Mobile Loan Apps | Proposed Solution |
|--------------------------|----------------------|------------------|-------------------|
| Loan Eligibility Check | No | Limited | Yes |
| Real-Time Interest Rates | No | No | Yes |
| Loan Comparison | No | Some | Yes |
| Amortization Schedule | Limited | Limited | Yes |
| Multi-Platform Access | Yes | Mobile Only | Yes |

II. METHODOLOGY

The methodology encompasses interface design, EMI calculation, eligibility logic, and data validation, ensuring a robust system



A. User Interface Design

The interface, built with HTML and CSS, includes input fields for loan amount, CIBIL score, monthly income, and tenure. A submit button triggers calculations, and results display dynamically.

B. EMI Calculation

$$EMI = \frac{P \cdot \tilde{r} \cdot (1+r)^n}{(1+r)^n - 1}$$

The EMI is calculated using the formula:

where P is the loan amount, r is the monthly interest rate (annual rate / 100 / 12), and n is the tenure in months.

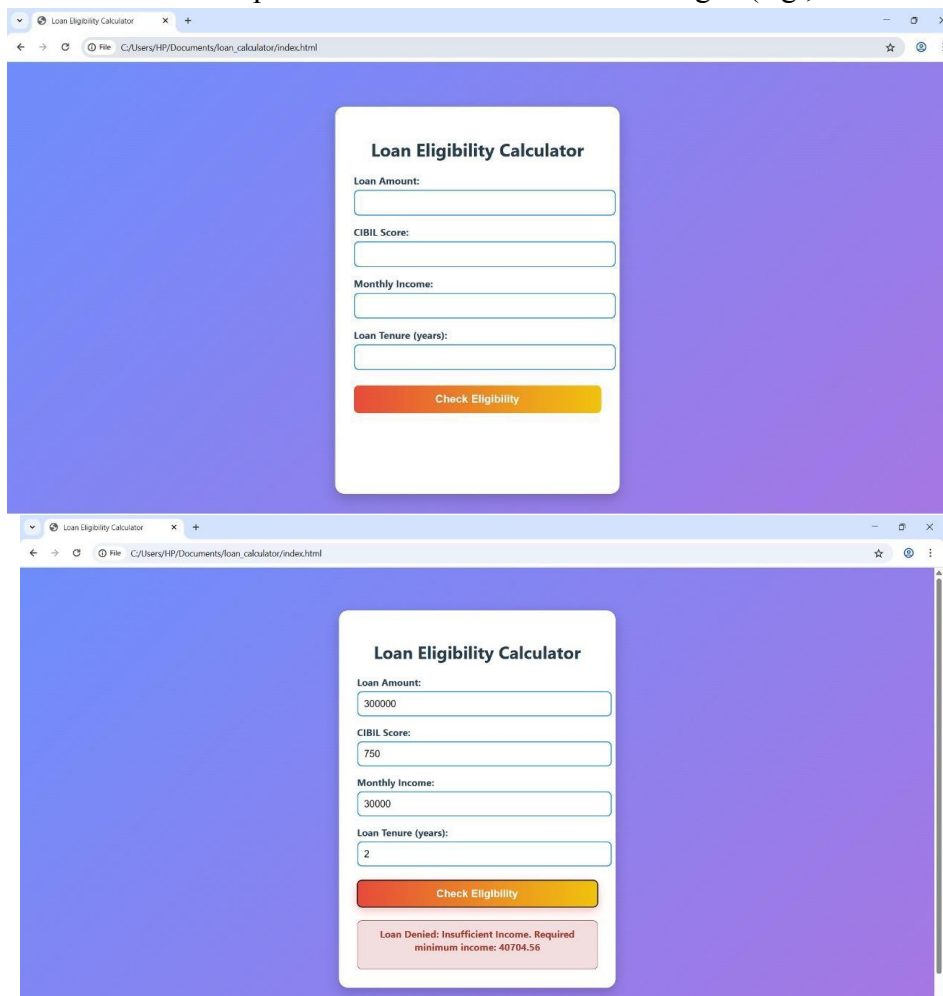
C. Eligibility Logic

Eligibility is determined by:

CIBIL Score: Assigns interest rates (8% for ≥750, 10% for 700–749, 12% for 650–699, rejected if <650). Income: Must be at least 3× EMI.

D. Data Validation

Inputs are validated to ensure positive numbers and realistic ranges (e.g., CIBIL score 300–900



The screenshot displays a web browser window with a single tab titled 'Loan Eligibility Calculator'. The address bar shows the file path 'C:/Users/HP/Documents/loan_calculator/index.html'. The main content area has a purple gradient background. Centered on this background is a white rounded rectangle containing the calculator form. The form is titled 'Loan Eligibility Calculator' and contains four input fields: 'Loan Amount' with the value '300000', 'CIBIL Score' with '750', 'Monthly Income' with '50000', and 'Loan Tenure (years)' with '2'. Below these fields is an orange 'Check Eligibility' button. At the bottom of the form, a green box displays the result: 'Loan Approved! Interest Rate: 8.00%, EMI: 13568.19 per month'.

III. CONCLUSION

The Loan Eligibility and EMI Calculator has been developed as a comprehensive financial tool to help users determine their loan eligibility, calculate monthly installments, and compare various loan options with ease. By integrating essential financial parameters such as income, credit score, interest rates, and loan tenure, the system ensures accurate and reliable calculations. The user-friendly interface makes it accessible to individuals with varying levels of financial knowledge, providing a seamless experience for evaluating loan options. The successful implementation of the calculator has demonstrated its effectiveness in simplifying complex financial computations. Users have found the system useful in understanding their repayment obligations and selecting the most suitable loan based on their financial capabilities. The inclusion of a loan comparison feature has further enhanced decision-making, allowing users to analyze multiple loan offers in one place. Despite its effectiveness, certain areas for improvement have been identified. The integration of real-time interest rates from multiple financial institutions can make the tool even more dynamic and accurate. Additionally, incorporating personalized loan recommendations using AI-based analysis can provide tailored financial advice to users. Expanding the tool into a mobile application will further enhance accessibility, ensuring that users can perform loan assessments on the go. In conclusion, the Loan Eligibility and EMI Calculator serves as a valuable financial resource, empowering users with the knowledge needed to make informed borrowing decisions. With future enhancements, the system can evolve into a more advanced and intelligent financial assistant, benefiting a larger audience and promoting better financial literacy.

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