■ Interactive Loan Calculator Documentation

■ Overview

The Interactive Loan Calculator is a Streamlit-based web application that helps users simulate and analyze different loan scenarios in real time.
It allows you to enter borrower details, loan parameters, and advanced options like interest-only periods, extra payments, fees, escrow, and inflation adjustments.
The app generates amortization schedules, interactive charts, summary tables, and downloadable reports.
This tool is useful for borrowers, financial analysts, and real-estate professionals to understand the impact of interest, repayment frequency, and extra payments on a loan.

■ Features

- User Inputs (Borrower details, loan parameters, repayment options)
- Advanced Options (extra payments, interest-only period, fees, escrow, inflation adjustments)
- Amortization Schedule with full breakdown
- Interactive Visualizations (Balance over time, Payment breakdown, Cumulative totals, Yearly summary, Pie charts, Inflation-adjusted payments)
- Summary Tables for key figures
- Downloadable CSV and Markdown reports

■■ Project Structure

streamlit-loan-calculator/
■■■ loan_calculator.py # Main Streamlit app
■■■ requirements.txt # Dependencies
■■■ README.md # Documentation
■■■ amortization_schedule.csv # (Generated after download)
■■■ loan_report.md # (Generated after download)

■■ Installation & Setup

1. Clone repo: git clone https://github.com/your-username/streamlit-loan-calculator.git
2. Create virtual env: python -m venv venv && source venv/bin/activate
3. Install dependencies: pip install -r requirements.txt
4. Run app: streamlit run loan_calculator.py
5. Open in browser: http://localhost:8501

■■ How to Use

1. Enter Borrower Info (Name, age, region)
2. Set Loan Parameters (Price, deposit, amount, interest, term, etc.)
3. Configure Advanced Settings (extra payments, fees, escrow, inflation)
4. Explore Results: summary, graphs, tables

5. Download Reports (CSV, Markdown)

■ Analytical Outputs

- Amortization Schedule (payment breakdown, balances, adjusted payments)
- Interactive Graphs: Balance, Payment Breakdown, Cumulative Totals, Yearly Summary, Pie Chart
- Key Metrics: Loan amount, APR, totals, extra payments, escrow, final cost

■ Download Options

- CSV amortization schedule
- Markdown summary report

■ Example Use Cases

- Compare monthly vs biweekly
- Test extra payments effect
- Analyze interest-only vs amortizing
- Calculate fees & escrow impact
- Estimate inflation-adjusted burden

■■ Future Enhancements

- PDF & Excel export
- Multiple loan comparison
- Refinance calculator
- Real-time interest rate integration

■■■ Author

Built with ❤■ using Streamlit, Plotly, Pandas, NumPy, and Python Dateutil.