

FINANCIAL CALCULATOR



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AIM: To provide an application where an individual can use this to perform various financial calculations that a basic calculator can't handle.

ABSTRACT:

It helps users to perform certain calculations that require some complex formulas and calculations which can't be done by normal calculators and It is not always possible to perform those calculations wherever you go so why not just use an application to make it simple.

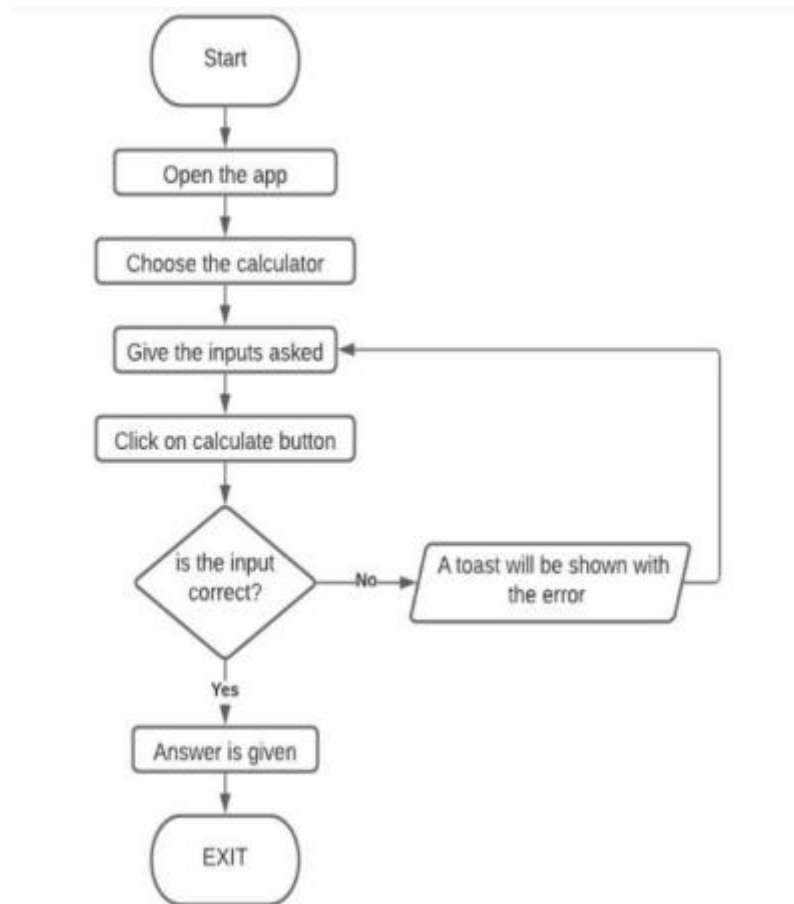
INTRODUCTION:

This project is designed for whom financial calculations are commonly needed in business and financial activities and it is also useful for handling many basic functions that can help anyone to plan their monthly expenses and potentially make better financial decisions. The project deals with various calculations like loan calculations, return on investment calculations, Amortization calculations, Sales Tax Calculations, Salary Calculations, Profit Margin Calculations, and many more.

PURPOSE:

The project is aimed at reducing the constant time delay for calculating various financial values which are needed to analyse and plan the profits, expenditure, interest, and many more in daily life situations. .This application is built for the ease of users and can be used by users with no financial background. It helps us by relieving the burden of remembering many formulas to calculate various values.

FLOWCHART:



USER CHARACTERISTICS:

The user of this product is supposed to be fairly educated about the usage of the application. The application is restricted to the group of working individuals who have basic financial knowledge about the things that are being used in the application.

APPLICATION FUNCTIONS:

The application is capable of performing various financial calculations on a single platform. It has a user-friendly GUI that will guide the user to easily achieve their goals.

The Application will include the following functions:

- Loan Calculator: It computes the fixed monthly instalment to be paid towards the loan repayment and it also calculates the total payment where a loan is a form of debt incurred by an individual or other entity.

Formula used:

$$\text{Monthly Payment} = P \times (r \times (1 + r)^n) / ((1 + r)^n - 1)$$

$$\text{Total Payment} = \text{Monthly Payment} \times n \times 12$$

$$\text{Total Interest} = \text{Total Payment} - \text{Loan Amount}$$

where: P = Loan Amount

r = Annual Interest Rate

n = No. of Years

- ROI(Returns on Investment) Calculator: ROI is a performance measure used to evaluate the efficiency or profitability of an investment or compare the efficiency of a number of different investments. ROI tries to directly measure the amount of return on a particular investment, relative to the investment's cost. Computes total returns and investment gain when amount invested, ROI, & no. of years is given and vice-versa.

$$\text{Total Return} = \text{Amount Invested} \times (1 + \text{ROI})^{\text{No. of Years}}$$

$$\text{Invested Gain} = \text{Total Returns} - \text{Amount invested}$$

$$\text{ROI} = (\text{Gain from Investment} - \text{Cost of Investment}) / \text{Cost of Investment}$$

$$\text{Annualized ROI} = 100 \times (\text{ROI}^{(1/\text{no of years})} - 1)$$

- Amortization Calculator: It is used to determine the periodic payment amount due on a loan, based on the amortization process. It calculates the monthly payment, total interest, and total payment if loan amount, interest rate, and no. of years is given.

$$A = P \cdot i(1+i)^n / ((1+i)^n - 1)$$

where:

A= periodic payment amount

P = amount of principal, net of initial payments

i = periodic interest rate

n= total number of payments

- Future Value Calculator: The future value calculator can be used to determine future value. FV is simply what money is expected to be worth in the future. Typically, cash in a savings account or a hold in a bond purchase earns compound interest and so has a different value in the future.

$$\text{Future Value} = \text{Present Value} \cdot (1 + \text{rate of interest})^{\text{no. of years}}$$

- Present Value Calculator: PV is defined as the value in the present of a sum of money, in contrast to a different value it will have in the future due to it being invested and compound at a certain rate.

$$\text{Present Value} = \text{Future Value} / (1 + \text{rate of interest})^{\text{no. of years}}$$

- Salary Calculator: A salary is normally paid on a regular basis, and the amount normally does not fluctuate based on the quality or quantity of work performed. An employee's salary is commonly defined as an annual figure in an employment contract that is signed upon hiring. Salary can sometimes be accompanied by additional compensation such as goods or services.

$$\text{Gross salary} = \text{Basic salary} + \text{House rent allowance} + \text{Transport allowance} + \text{FBP allowance} + \text{Statutory bonus}$$

$$\text{Net Salary} = \text{basic salary} + \text{house rent allowance} + \text{transport allowance} + \text{FBP allowance} + \text{Statutory bonus} - \text{income tax} - \text{provident fund}$$

- Inflation Calculator: Inflation is defined as a general increase in the prices of goods and services, and a fall in the purchasing power of money. Inflation can be artificial in that the authority, such as a central bank, king, or government, can control the supply of the money in circulation.

Forward Flat Rate Inflation Value = Present Value *
 $(1 + \text{inflation rate})^{\text{no. of years}}$

Backward Flat Rate Inflation Value = Present Value /
 $(1 + \text{inflation rate})^{\text{no. of years}}$

- Sales Tax Calculator: A sales tax is a consumption tax paid to a government on the sale of certain goods and services. Usually, the vendor collects the sales tax from the consumer as the consumer makes a purchase. In most countries, the sales tax is called value-added tax (VAT), or goods and services tax (GST), which is a different form of consumption tax. In some countries, the listed prices for goods and services are the before-tax value, and a sales tax is only applied during the purchase. In other countries, the listed prices are after-tax final values, which include the sales tax.

After-Tax Price = original price $(1 + (\text{sales tax} + \text{GST})/100)$

- Discount Calculator: It is a deduction from the usual cost of something.

Discounted Price = original price $(1 - (\text{discount})/100)$

- Profit Margin Calculator: Cost: The cost of the product, Mark Up: The percentage of profit vs. cost, Sale Revenue: The revenue generated by selling the product, Gross Margin: The percentage gross profit of the product vs. revenue, Gross Profit: The money amount gross profit of the product.

Gross Margin = $(1 - \text{cost/sale revenue}) * 100$

Gross Profit = Sale Revenue - Cost of products

SCOPE:

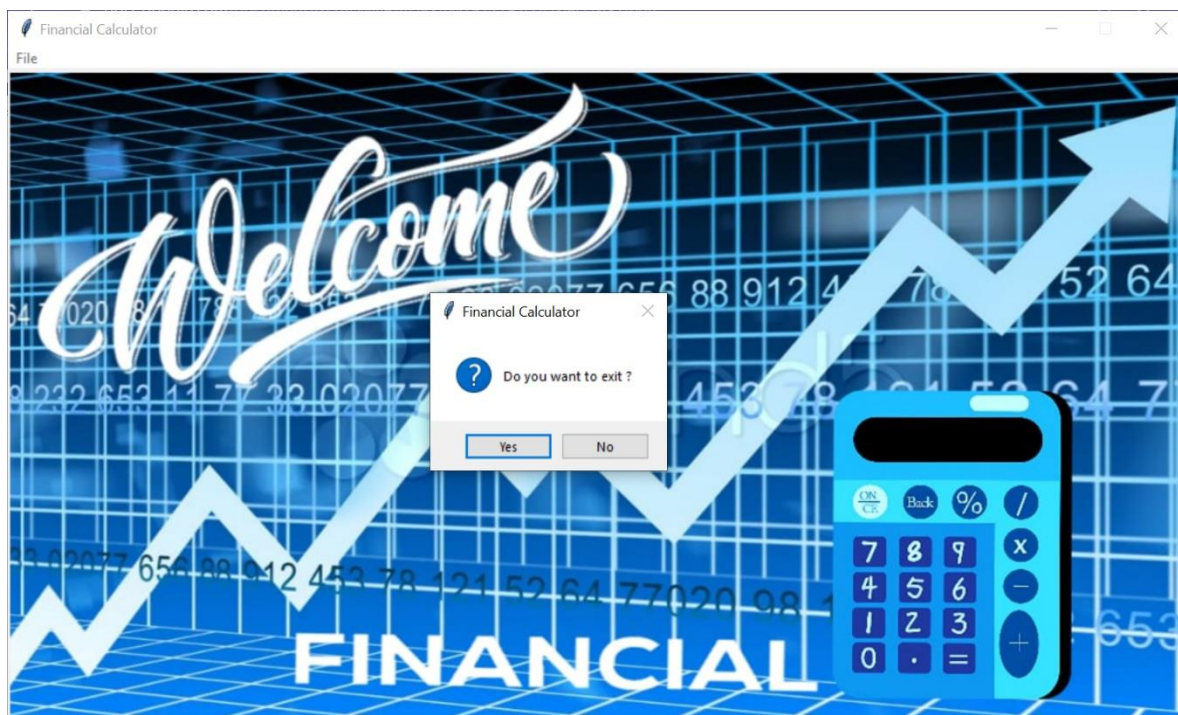
This application will have a lot of scopes in present as well as in the future, as financial calculations are something that can never get outdated. Whether it be a common person or a financial advisor, everyone needs help in financial calculations and our application will serve this purpose. In the future, we can add more financial calculators in further updates which will help the user to easily calculate complex financial calculations with 100% accuracy.

PROGRAM:

[Link](#)


SCREENSHOTS:





Loan Calcul...	
Loan Amount	1000
Annual Interest Rate	10
Number of Years	3
Monthly Payment	32.267
Total Interest	161.612
Total Payment	1161.612
<div>Exit</div> <div>Compute Payment</div> <div>More Info</div>	

ROI Calcul...	
Amount Invested	1000
ROI	16.15
Number of Years	4.63
Total Returns	2000.041
Investment Gain	1000.041
<div>Compute Payment</div>	
Amount Invested	1000
Total Returns	2000
Number of Years	4.63
ROI	100.000
Annualised Returns	16.149
<div>Exit</div> <div>Compute Payment</div> <div>More Info</div>	


 Amortizati... — ☐ ×

Loan Amount	10012
Annual Interest Rate	12.1
Number of Years	3.4
Monthly Payment	300.539
Total Interest	2249.991
Total Payment	12261.991

Exit

Compute Payment

More Info

 Future Valu... — ☐ ×

Present Value	5645
Annual Interest Rate	12
Number of Years	3.8
Future Value	8683.452
Increase in Value	3038.452

Exit

Compute Payment

More Info

Present Valu...	
Future Value Amount	1000000
Annual Interest Rate	15
Number of Years	4.3
Present Value	548276.064
Decrease in Value	451723.936
Exit	Compute Payment
More Info	

Salary Calcul...	
Basic Salary	100000
House Rent Allowance	5000
Transport Allowance	3000
FBP Allowance	2000
Statutory Bonus	8000
Income Tax	15000
Provident Fund	6000
Gross Salary	118000.000
Net Salary	97000.000
Exit	Compute Payment
More Info	

Inflation Calculator	
Present Value	10000
Inflation Rate	6.63
Number of Years	5
Forward Flat Rate Inflation Value	13784.691
Backward Flat Rate Inflation Value	7254.424
Exit	Compute Payment
More Info	

Sales ...	
Original Price	10000
Sales Tax	18
VAT	4
After Tax Price	12200.000
Exit	Compute Payment
More Info	

Discount ...	
Original Price	60000
Discount	10
Price after Discount	54000.000
You Saved	6000.000
<div>Exit</div> <div>Compute Payment</div> <div>More Info</div>	

Prof...	
Cost	50000
Sale Revenue	100000
Gross Margin	50.000
Gross Profit	50000.000
<div>Exit</div> <div>Compute Payment</div> <div>More Info</div>	

CONCLUSION:

Thus, we conclude that the Financial Calculator is working successfully and it is performing all the calculations perfectly.