PROJECT REPORT

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Introduction

The Ordinary Annuity Calculator project is designed to compute the future value and present value of an ordinary annuity based on user-provided inputs such as payment amount, interest rate, and number of periods. This project simplifies financial calculations often used in loan, savings, and investment scenarios.

Objectives

- To automate the calculation of the future value of an ordinary annuity.
- To provide a user-friendly interface for financial computations.
- To implement fundamental financial formulas using Python.

Features of the Project

- Computes future value of an ordinary annuity.
- Accepts user inputs through a command-line interface.
- Displays clear and accurate results.
- Handles zero-interest scenarios gracefully.

Tools and Technology

- **Programming Language:** Python
- **IDE/Editor:** Any text editor or IDE like Py Charm, Visual Studio Code.
- **Platform:** Cross-platform (Windows, mac OS, Linux).

Code Explanation

The project is structured using a class Ordinary Annuity with the following components:

- **Initialization:** Initializes the interest rate and number of periods.
- **Present Value Calculation:** Computes the present value using the formula: where P is the payment amount, r is the interest rate, and n is the number of periods
- **Future Value Calculation:** Computes the future value using the formula: where P is the payment amount, r is the interest rate, and n is the number of periods.

- **Main Execution:** The program prompts the user for inputs and displays the calculated future value.

Input Validation

- Ensures valid numeric inputs for payment, interest rate, and periods.
- Handles zero-interest cases by returning the product of payment and periods.

User Interface

- The project uses a command-line interface (CLI) that prompts the user to enter required data and displays the results clearly.

Advantages

- Automates complex financial calculations.
- Reduces manual computation errors.
- Provides accurate results instantly.
- Works across different platforms.

Limitations

- No graphical user interface (GUI).
- Limited to ordinary annuity calculations.
- Assumes consistent periodic payments.

Sample Output

Console Application Menu

==========

1.Say Hello

2.Present Value of ordinary annuity

3.Present Value of ordinary annuity

4.Exit

==========

select an option: 1

Hello welcome to the console application

This is a simple message

==========

Console Application Menu

==========

1.Say Hello

2.Present Value of ordinary annuity

3.Present Value of ordinary annuity

4.Exit

==========

select an option: 2

Simple Calculation

Enter the annuity payment amount: 1000

Enter the interest rate (as a decimal, e.g., 0.05 for 5%): 0.05

Enter the number of periods: 3

The present value of the ordinary annuity is: 2723.25

==========

Console Application Menu

==========

1.Say Hello

2.Present Value of ordinary annuity

3.Present Value of ordinary annuity

4.Exit

==========

select an option: 3

Simple Calculation

Enter the annuity payment amount: 1000

Enter the interest rate (as a decimal, e.g., 0.05 for 5%): 0.05

Enter the number of periods: 3

The future value of the ordinary annuity is: 3152.5

==========

Console Application Menu

==========

1.Say Hello

2.Present Value of ordinary annuity

3.Present Value of ordinary annuity

4.Exit

==========

select an option: 4

exiting application....

Goodbye!

Conclusion

The Ordinary Annuity Calculator project successfully automates financial calculations, providing accurate and quick results. It demonstrates the application of Python in finance and can be extended further by adding more features like present value calculations, graphical representation, and a GUI-based interface.