Goals & Objectives

The goal of this program is to accept inputs from a user for an investment amount, annual interest rate, and the length of the investment period, and correctly calculate an expected return at the end of the term.

Functional Requirements

1. Prompt user input for the initial investment amount.
2. Prompt user input for the annual interest rate.
3. Convert annual to monthly interest rate.
4. Prompt user input for the investment period (in years).
5. Calculate future investment value with formula futureInvestmentValue = investmentAmount \* (1 + monthlyInterestRate)^(numberOfYears \* 12)
6. Output the future investment value in an easy-to-read monetary value.

Pseudocode

Import Scanner Utility

Function Main

Declare Scanner input

Output “Enter investment amount: “

Input double investmentAmount

Output “Enter annual interest rate (in percentage): “

Input double interestRate

Calculate double monthlyInterestRate as interestRate / 1200

Output “investment period (in years): “

Input int investmentTerm

Calculate double futureInvestmentValue as investmentAmount \* (1 + monthlyInterestRate) ^

(investmentTerm \* 12)

Output “Future Investment value: $” + futureInvestmentValue

End

Flowchart

A screenshot of a diagram

Description automatically generated

Test Plan

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Test Case** | **Input/Output** | **Expected Result** | **Actual Result** | **Outcome (Pass/Fail)** |
| 1a | User prompted for investment amount | A message prompting the user for the investment amount to calculate from. | “Enter investment amount: “ | Pass |
| 2a | User prompted for the annual interest rate as a percentage | A message prompting the user for the annual interest rate as a percentage | “Enter annual interest rate (in percentage): “ | Pass |
| 3a | Annual Interest Rate converted | Convert Annual Interest Rate to Monthly Interest Rate | Annual Interest Rate / 1200 | Pass |
| 4a | User prompted for the investment term (in years) | A message prompting the user for the investment period (in years) | “Enter investment period (in years): “ | Pass |
| 5a | Calculate future investment value | Using previous inputs, a correctly calculated future investment value | investmentAmount \* (1 + monthlyInterestRate)^(investmentTerm \* 12) | Pass |
| 6a | Output future investment value | A message that shows the user the future investment value with the provided inputs | “Future investment value: $” + futureInvestmentValue | Pass |

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| --- | --- | --- | --- | --- |
| **Test Case** | **Input/Output** | **Expected Result** | **Actual Result** | **Outcome (Pass/Fail)** |
| 1 | (1a) 1000.56  (2a) 4.25  (4a) 1 | 1043.92 | 1043.92 | Pass |
| 2 | (1a) 2000  (2a) 19.25  (4a) 1 | 2420.85 | 2420.85 | Pass |
| 3 | (1a) 500  (2a) 8.75  (4a) 2 | 595.24 | 595.24 | Pass |
| 4 | (1a) 125  (2a) 54.31  (4a) 1 | 212.61 | 212.61 | Pass |

A computer screen shot of a program

Description automatically generated