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Course: FINE 3300 (Fall 2025)
Instructor: Faisal Habib
Due Date: October 6, 2025
Github Repository: https://github.com/Jhar100/FINE3300-2025-A1

Mortgage Payment Results:

Inputs:
Enter the mortgage principal amount: 500,000
Enter the quoted interest rate (percent): 5.5
Enter the amortization period (years): 25

Output From Program:
Monthly Payment: $3051.96
Semi-monthly Payment: $1524.25
Bi-weekly Payment: $1406.88
Weekly Payment: $703.07
Rapid Bi-weekly Payment: $1525.98
Rapid Weekly Payment: $762.99

Walkthrough:
This program calculates mortgage payments for six different schedules using the semi-annual compounding convention used in Canadian fixed-rate mortgages.

It works by first converting the quoted interest rate to an effective annual rate (EAR), then determines the periodic rate for each payment frequency.

Each payment is being calculated using the present-value-of-annuity formula, and rapid payments are derived from the monthly value (half for bi-weekly, quarter for weekly).

All results are formatted to two decimal places and rounded to the nearest penny.

Exchange Rate Results:

Inputs:
Enter the amount: 100,000
Enter the currency to convert from: USD or CAD

Output From Program:
$100,000.00 USD = $136,980.00 CAD
$100,000.00 CAD = $73,003.36 USD

Walkthrough:
This program reads the Bank of Canada Exchange Rates CSV file and extracts the latest USD/CAD rate from the last row.

It then prompts the user to enter the amount and the “from” currency, which then automatically determines the target currency between USD and CAD.

All results are formatted to two decimal places and rounded to the nearest penny.

Reflection:

This assignment helped me in understanding how financial calculations can be modeled using object-oriented programming. I also learned how to design classes with the intention of using them for real-world applications, while using formulas to calculate mortgage schedules and apply live exchange rate data from external sources.