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\* Represents a basic savings account, demonstrating AP CSA Unit 1 concepts.

\* Topics: Variables (1.2), Object Creation (1.13), Methods (1.9, 1.14),

\* Math Class (1.11), String Manipulation (1.15), Comments (1.8).

\*/

public class SavingsAccount {

// 1.2 Variables and Data Types

private double balance;

private final double annualRate; // Use final since rate is fixed

/\*\*

\* 1.13 Constructor: Initializes a new SavingsAccount.

\* @param startBalance The initial deposit amount.

\* @param rate The annual interest rate (e.g., 0.05).

\*/

public SavingsAccount(double startBalance, double rate) {

this.balance = startBalance;

this.annualRate = rate;

}

/\*\*

\* 1.14 Calling Instance Methods: Adds funds to the balance.

\* @param amount The amount to deposit.

\*/

public void deposit(double amount) {

balance = balance + amount;

// 1.11 Math Class & 1.5 Casting (Implicit/Explicit): Rounding to two decimal places

// The rounding logic keeps the balance clean for currency display.

balance = (double) Math.round(balance \* 100) / 100;

// 1.15 String Manipulation (Concatenation) & 1.3 Output

System.out.println("✅ DEPOSIT: $" + amount + " added. New balance is $" + balance);

}

/\*\*

\* 1.14 Calling Instance Methods: Subtracts funds from the balance.

\* NOTE: Validation is handled by the AccountManager (Unit 2 Selection).

\* @param amount The amount to withdraw.

\*/

public void withdraw(double amount) {

balance = balance - amount;

balance = (double) Math.round(balance \* 100) / 100;

System.out.println("⬇️ WITHDRAW: $" + amount + " subtracted. New balance is $" + balance);

}

/\*\*

\* Calculates the interest earned for one month.

\* @return The calculated monthly interest.

\*/

public double calculateMonthlyInterest() {

// Simple division for monthly rate

return (annualRate / 12) \* balance;

}

/\*\*

\* 1.14 Accessor Method: Returns the current account balance.

\* @return The current balance.

\*/

public double getBalance() {

return balance;

}

}