

CS 10 Python Programming
Homework 5
OOP – Classes

Write a program to calculate and display the loan for buying a car.

1. Create a class call Loan.
Data fields in the Loan class include:
 1. Annual Interest Rate (Float)
 2. Number of years of loan (Float)
 3. Loan Amount (Float)
 4. Borrower's Name (string)
2. Create the initializer or constructor for the class with the above data fields. Make the data fields private.
3. Create accessors (getter) for all the data fields.
4. Create mutators (setters) for all the data fields.
5. Create a class method - `getMonthlyPayment` where
$$\text{monthlyPayment} = \text{loanAmount} * \text{monthlyInterestRate} / (1 - (1 / (1 + \text{monthlyInterestRate}))^{(\text{numberOfYears} * 12)})$$

note: that the monthly interest rate = $\text{annualinterest} / 1200$
6. Create a class method - `getTotalPayment` where
$$\text{totalPayment} = \text{getMonthlyPayment}() * \text{numberOfYears} * 12$$
7. Write a test program (main function) to allow the user to enter the following:
 1. Annual Interest Rate
 2. Number of Years of Loan
 3. Loan Amount
 4. Borrower's Name

Allow the user to change the loan amount and reprint the new loan information.

The output should look like this:

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Enter yearly interest rate, for example, 7.25: 2.5

Enter number of years as an integer: 5

Enter loan amount, for example, 120000.95: 1000.00

Enter a borrower's name: John Jones

The loan is for John Jones

The monthly payment is 17.75

The total payment is 1064.84

Do you want to change the loan amount? Y for yes or enter to quit y

Enter new loan amount 5000

The loan is for John Jones

The monthly payment is 88.74

The total payment is 5324.21

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