
# COMSATS University Islamabad

ASSIGNMENT # 03

Submitted To:

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Submitted By:

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Registration No:

FA25-BDS-023 & FA25-BDS-039

Program:

BDS-1A

Subject:

AICT

Date:

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# Design the solution of the following problems using the tool "Raptor"

## Question 01:

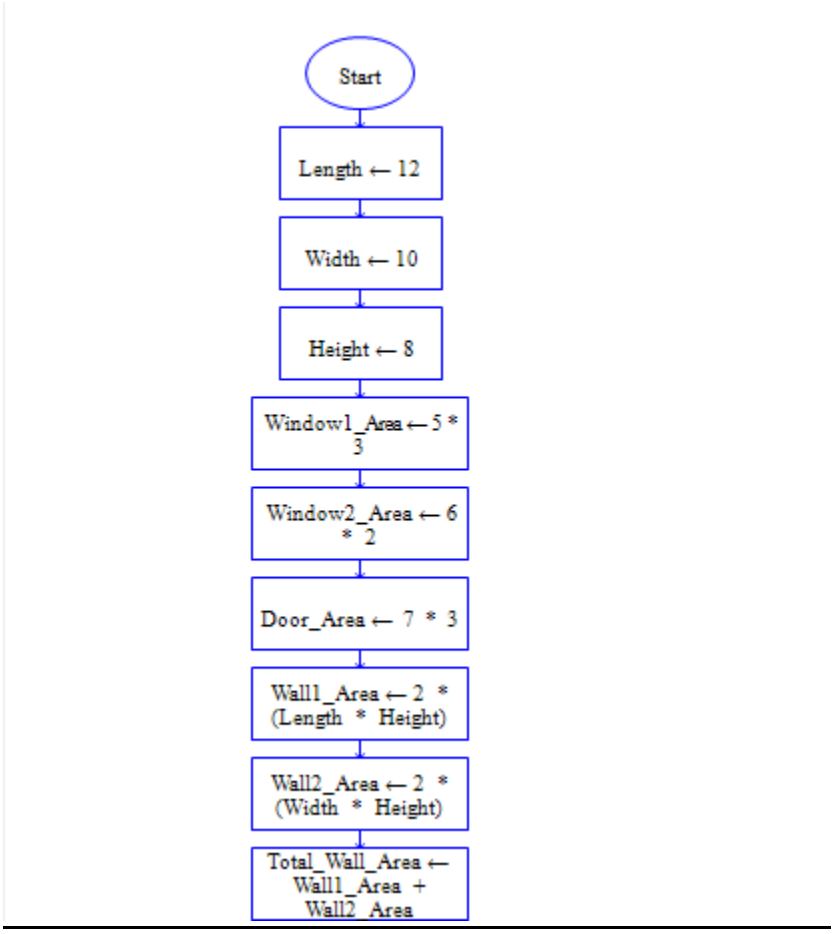
A painter wants to know the amount of paint needed to paint only the walls and the interior side of the door in a room. The chosen paint covers 100 square feet per gallon. There are two windows. Test the problem with the

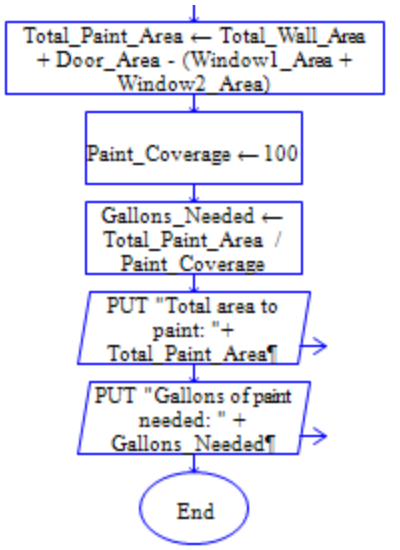
following data:

The room is 12 feet long, 10 feet wide, and 8 feet tall.

The two windows are 5 by 3 feet, and 6 by 2 feet, respectively.

## Solution:



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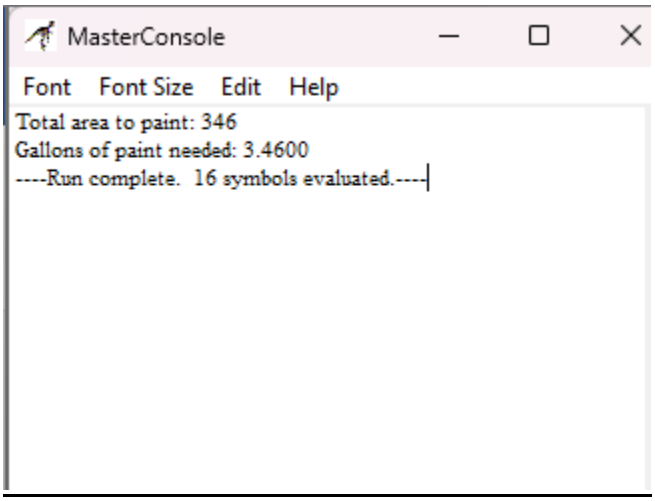
## Output:

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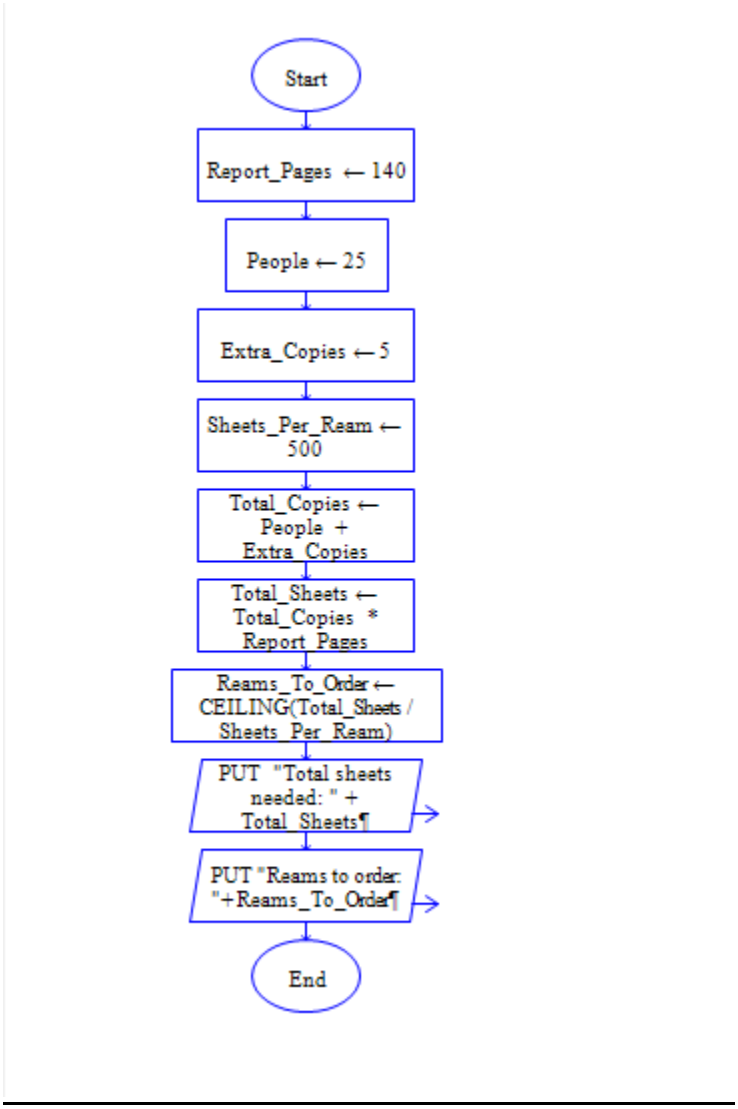
## Question 02:

One of the jobs that Joe Roberts has been given at work is to order special paper for a report for a board meeting. The paper comes in reams of 500 sheets. He always makes five more copies than the number of people that will be there. Joe wants to know how many reams of paper he needs for a meeting. He can order only whole, not partial, reams. Assume the required number of pages will not equal an exact number of reams. Test your solution with the following data:

The report is 140 pages long.

There will be 25 people at the meeting.

## Solution:

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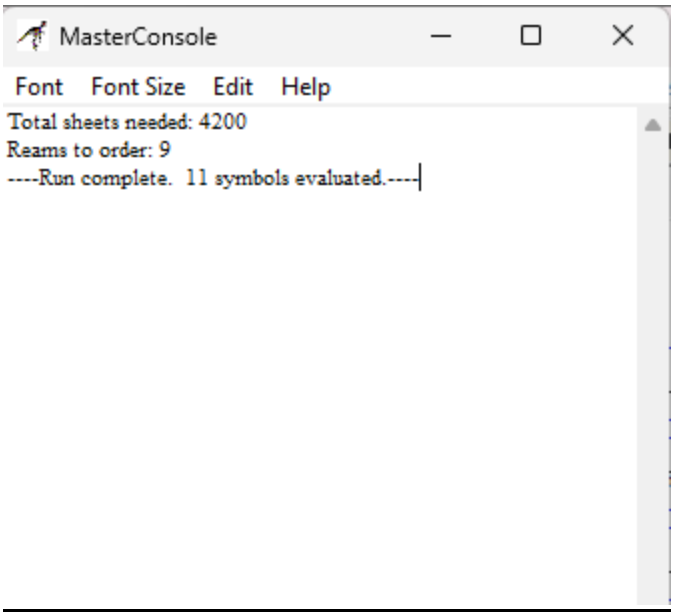
## Output:




## Question 03:

Draw a flowchart to calculate the water bill given the cubic feet of water used for a Water Company, whichcharges the homeowner one of the following:

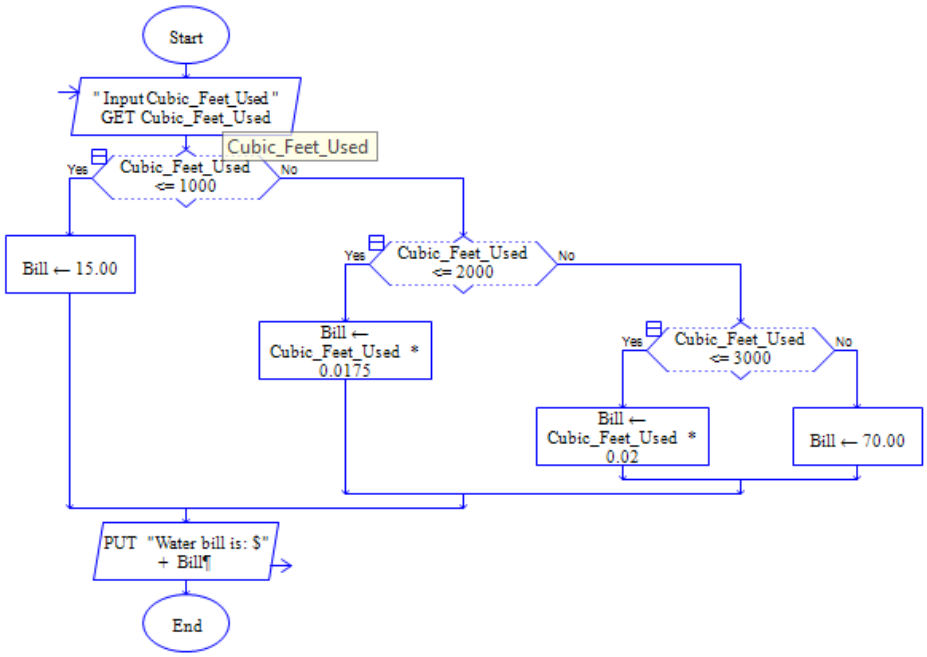
1. A flat rate of $15.00 for usage up to and including 1000 cubic feet.

2. $0.0175 per cubic foot for usage over 1000 cubic feet and up to and including 2000 cubic feet.

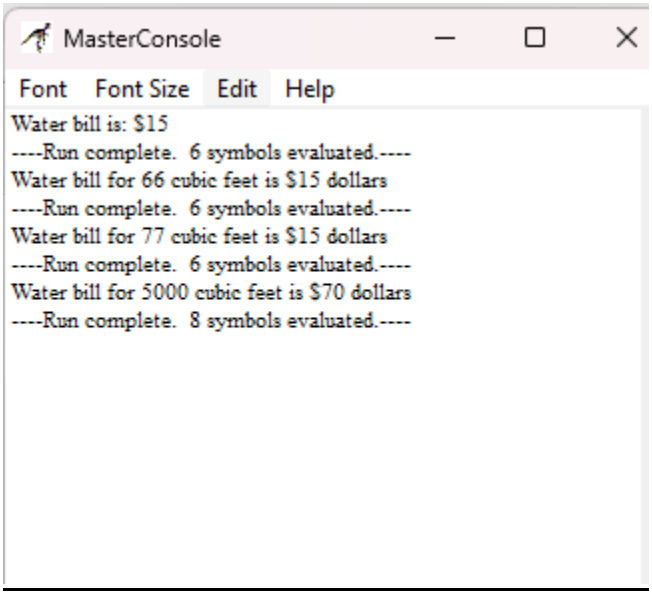
3. $0.02 per cubic foot for usage over 2000 cubic feet and up to and including 3000 cubic feet.

4. A flat rate of $70.00 for usage over 3000 cubic feet.

## Solution:




## Output:




## Question 04:

Test your flowchart with actual data.

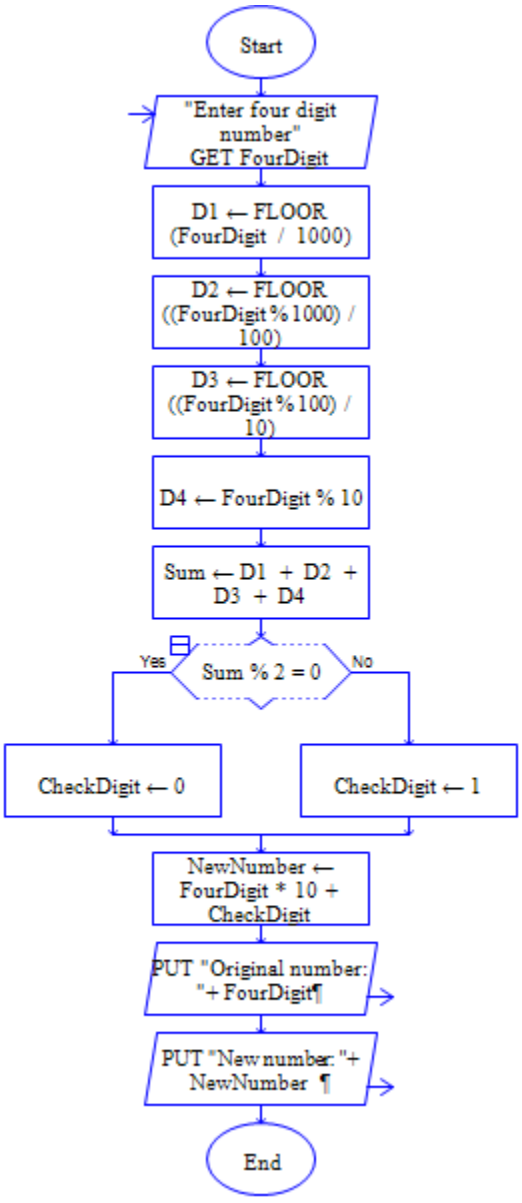
A company that issues check-cashing cards uses an algorithm to create card numbers. The algorithm adds the digits of a four-digit number, and then adds a fifth digit of 0 or 1 to make the sum of the digits even. The last digit in the number is called the check digit. Draw a flowchart to

develop a solution that accepts a four-digit number into one variable, adds the check digit, and prints the original number and the new number. Test your flowchart with the following data:

Original number = 4737 New number = 47371

And Original Number= 4631 New Number = 46310

## Solution:

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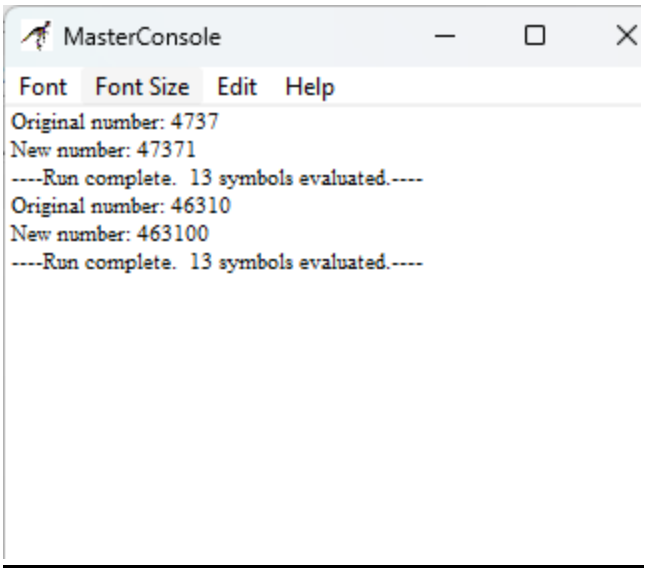
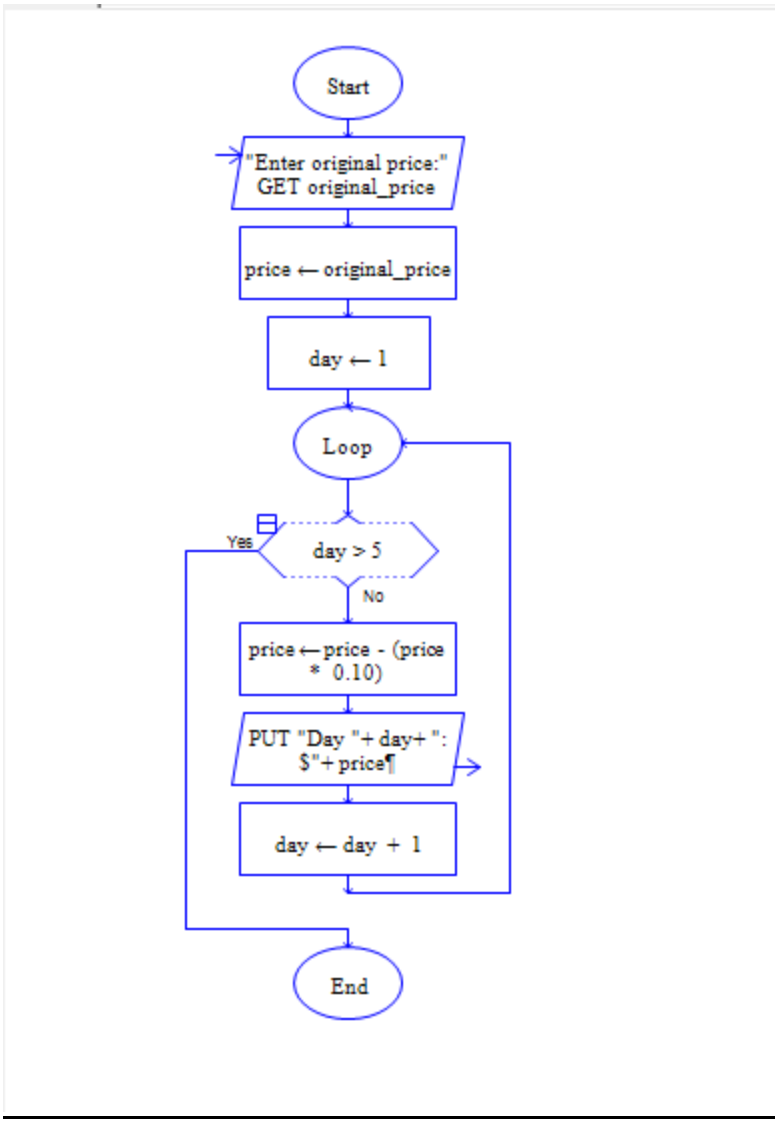
## Output:



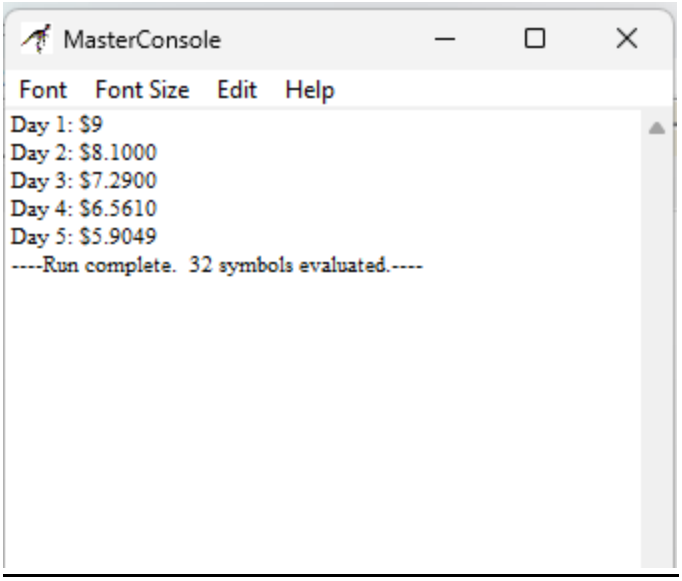

## Question 05:

A Boutique is having a five-day sale. Each day, starting on Monday, the price will drop 10% of the previous day's price. For example, if the original price of a product is $20.00, the sale price on Monday would be $18.00 (10% less than the original price). On Tuesday the sale price would be $16.20 (10% less than Monday). On Wednesday the sale price would be $14.58; on Thursday the sale price would be $13.12; and on Friday the sale price would be $11.81. Develop a solution that will calculate the price of an item for each of the five days, given the original price. Test the solution for an item costing $10.00.

## Solution:


Start
"Enter original price:"
GET original_price
price ← original_price
day ← 1
Loop
Yes
day > 5
No
price ← price - (price
* 0.10)
PUT "Day "+ day+ ":
$"+ price¶
day ← day + 1
End

**Output:**




## Question 06:

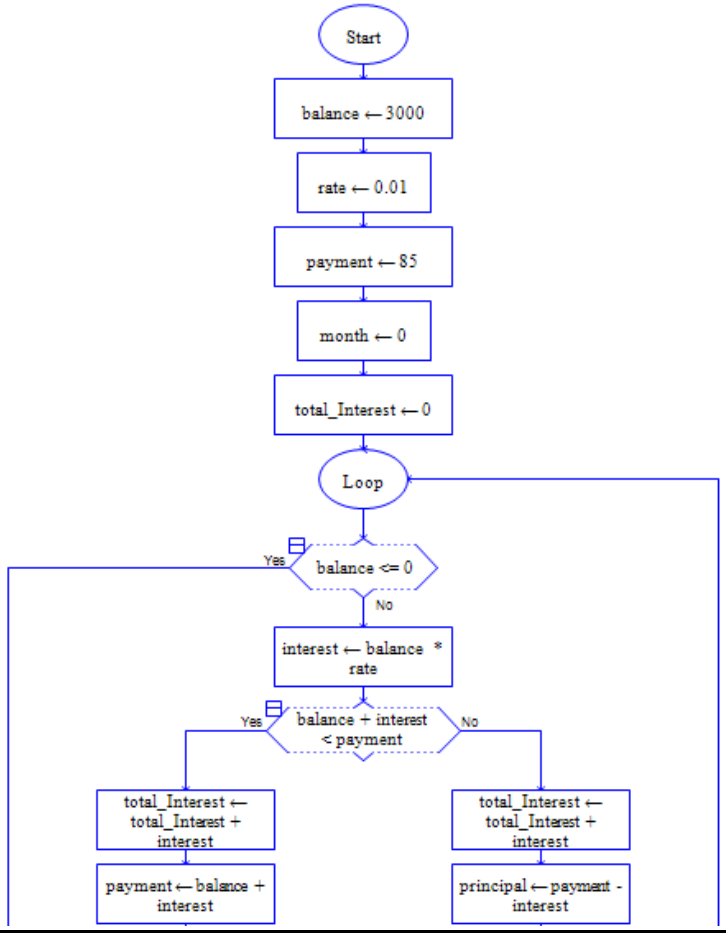
Mary Smith, a student, has borrowed $3,000 to help pay her college expenses. After setting up a budget, $85 was the maximum monthly payment she could afford to make on the loan. Develop a solution to calculate and print the interest, the principal, and the balance on the loan per month. Other information she would like to know is the number of years and months it will take to pay the loan back and the total interest she will pay during that period. The interest rate is 1% per month on the unpaid balance. Keep in mind these formulas:

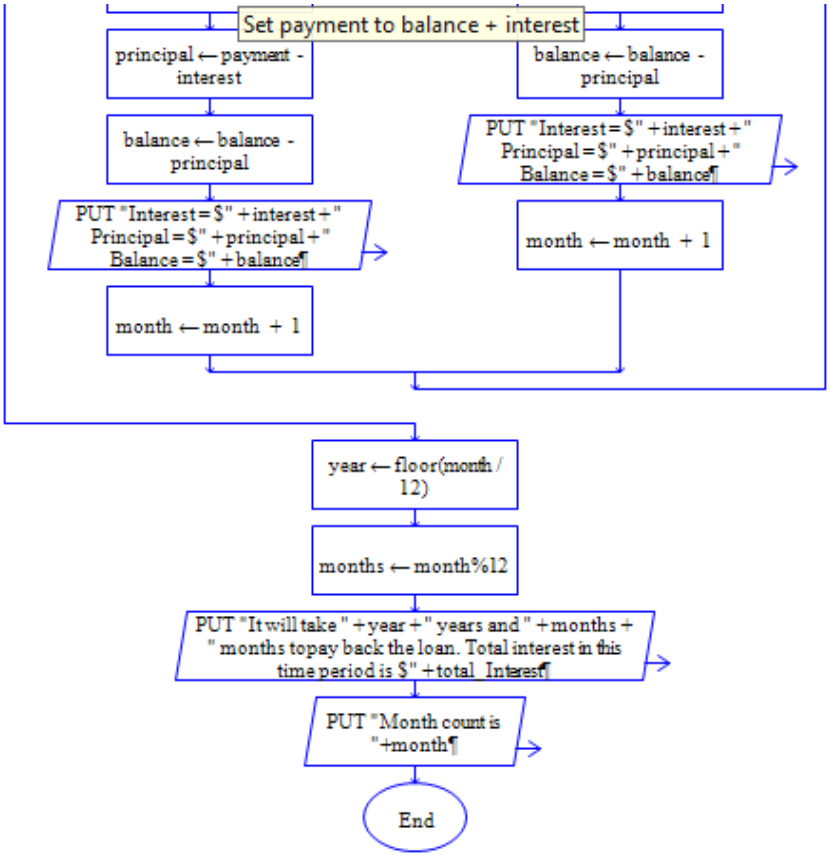
interest_normal = balance*interest_rate

payment = balance – interest

new_balance = balance - payment

## Solution:


Start
balance ← 3000
rate ← 0.01
payment ← 85
month ← 0
total_Interest ← 0
Loop
Yes
balance <= 0
No
interest ← balance * rate
Yes
balance + interest < payment
No
total_Interest ← total_Interest + interest
payment ← balance + interest
total_Interest ← total_Interest + interest
principal ← payment - interest

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## Output:

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It will take 3 years and 8 months topay back the loan. Total
interest in this time period is $718.7534
Month count is 44
----Run complete.  410 symbols evaluated.----
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