

## **Python Lab Experiment – I**

### **Problem Statement: Education Loan Calculator**

#### **Description:**

You are tasked with creating a Python program that calculates the monthly payment for an education loan based on the principal amount, annual interest rate, and the loan term (in years) provided by the user.

The formula to calculate the monthly payment for a loan is given by:

$$M = \frac{P \cdot r \cdot (1 + r)^n}{(1 + r)^n - 1}$$

where:

- $M$  is the monthly payment
- $P$  is the principal loan amount
- $r$  is the monthly interest rate (annual interest rate divided by 12 and then divided by 100)
- $n$  is the total number of payments (loan term in years multiplied by 12)

#### **Input:**

- Principal loan amount (P) in dollars.
- Annual interest rate (r) in percentage.
- Loan term in years (n).

#### **Output:**

- Monthly payment (M) in dollars.

#### **Sample Input:**

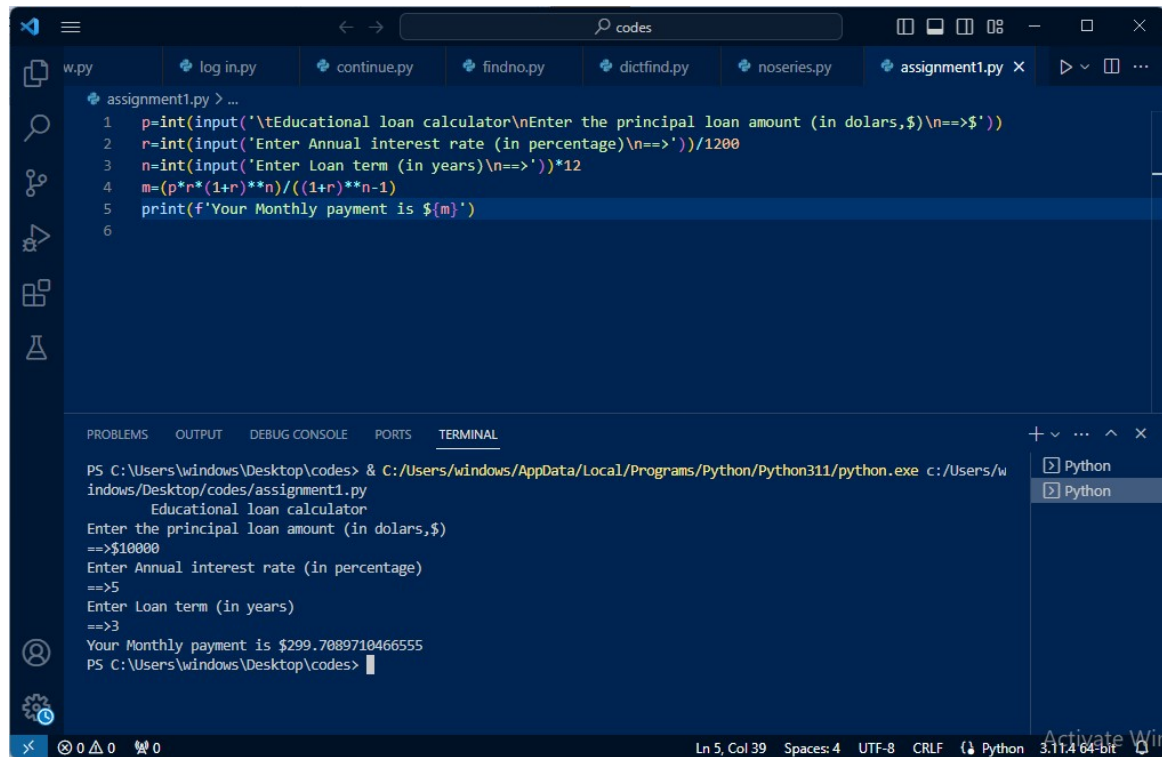
Enter the principal loan amount (in dollars): 10000

Enter the annual interest rate (in percentage): 5

Enter the loan term (in years): 3

## Sample Output:

Monthly payment: 299.71 dollars



The image shows a Visual Studio Code editor window with a Python file named `assignment1.py` open. The code is a loan calculator that takes three inputs: principal loan amount, annual interest rate, and loan term, and calculates the monthly payment. The terminal at the bottom shows the script being executed with inputs of \$10000, 5%, and 3 years, resulting in a monthly payment of \$299.71.

```
1 p=int(input('\tEducational loan calculator\nEnter the principal loan amount (in dollars,$)\n==>$'))
2 r=int(input('Enter Annual interest rate (in percentage)\n==>'))/1200
3 n=int(input('Enter Loan term (in years)\n==>'))*12
4 m=(p*r*(1+r)**n)/((1+r)**n-1)
5 print(f'Your Monthly payment is ${m}')
6
```

Terminal Output:

```
PS C:\Users\windows\Desktop\codes> & C:/Users/windows/AppData/Local/Programs/Python/Python311/python.exe c:/Users/w
indows/Desktop/codes/assignment1.py
Educational loan calculator
Enter the principal loan amount (in dollars,$)
==>$10000
Enter Annual interest rate (in percentage)
==>5
Enter Loan term (in years)
==>3
Your Monthly payment is $299.7089710466555
PS C:\Users\windows\Desktop\codes>
```