CSE 1322L - Lab 1

Introduction

In this lab, you will be porting code from Python to Java.

"Porting" is the act of writing code which works in one system to work on another system. As such, this lab will provide code for you in Python, and you will have to write equivalent code in Java. The code you have to port can be found on the last page.

Requirements

The features described below must be in your program:

- Your program must have the following variables: name, salary, yearly_salary, loan_principal, loan_interest, new_principal, age, eligible_for_relief, loan_paid_off
  - The variables above must be in appropriate data types when ported to Java
- All print statements in the original code must be in the Java port
- All input statements in the original code must be in the Java port
- All calculations must be correct regardless of user input
- You don't need to worry about the user entering invalid information (e.g.: entering their name when prompted for a number)

Deliverables

- Lab1.java (driver)

Considerations

- The best way to do this lab is to try to match each Python line of code with a single Java line of code
  - In cases where this is not possible (e.g.: reading user input), simply try your best. As long as your output matches the output of the code given the provided input, your solution will be accepted.
- There is no need to submit the original code in a Python (.py) file. Simply submit the answer in the Java (.java) file
- You will **not** lose points due to rounding errors. If the sample output below says "1.00001" and yours says "1.00002", you will still get full credit **as long as your formulas are correct.** Similarly, you do **not** need to round off your numbers to a specific number of decimal places. If the sample output says "2.75" and yours says "2.747155482733", you will still get full credit **as long as your formulas are correct.**
- For this lab, and going forward, unless specifically stated otherwise, you should use "int" for storing whole numbers and "double" for storing decimal numbers.

Sample Output (user input in red)

```
[Budgeting System]
Enter your name: Alice
Hello Alice. Please enter your monthly salary: 4000

What is the total amount of your loan? 20000
What is the interest rate of your loan? 8

Your yearly salary is $48000.00
In 12 months, your loan's principal will be $21659.99

At the end of the year, you will have paid off your debt: true
At the end of the year, your will still have some debt left: false
At the end of the year, you will have $26340.01 of your salary left

The government is offering loan relief for persons 25 and under, and for those 65 and
over.
What is your age? 40
The relief is $10000. You are eligible for the relief: false
With or without relief, you will be able to pay your loan in full: true
```

Sample Output (user input in red)

```
[Budgeting System]
Enter your name: Bob
Hello Bob. Please enter your monthly salary: 2000

What is the total amount of your loan? 30000
What is the interest rate of your loan? 7.2

Your yearly salary is $24000.00
In 12 months, your loan's principal will be $32232.73

At the end of the year, you will have paid off your debt: false
At the end of the year, your will still have some debt left: true
At the end of the year, you will have $-8232.73 of your salary left

The government is offering loan relief for persons 25 and under, and for those 65 and
over.
What is your age? 70
The relief is $10000. You are eligible for the relief: true
With or without relief, you will be able to pay your loan in full: true
```

Sample Output (user input in red)

```
[Budgeting System]
Enter your name: Charlie
Hello Charlie. Please enter your monthly salary: 6000

What is the total amount of your loan? 85000
What is the interest rate of your loan? 9.1

Your yearly salary is $72000.00
In 12 months, your loan's principal will be $93065.91

At the end of the year, you will have paid off your debt: false
At the end of the year, your will still have some debt left: true
At the end of the year, you will have $-21065.91 of your salary left

The government is offering loan relief for persons 25 and under, and for those 65 and
over.
What is your age? 40
The relief is $10000. You are eligible for the relief: false
With or without relief, you will be able to pay your loan in full: false
```

```python
if __name__ == "__main__":
    print("[Budgeting System]")
    name = input("Enter your name: ")
    print("Hello", name, end=". ")
    salary = float(input("Please enter your monthly salary: "))
    yearly_salary = salary * 12
    print()

    loan_principal = float(input("What is the total amount of your loan? "))
    loan_interest = float(input("What is interest rate of your loan? "))
    loan_interest = loan_interest / 100
    new_principal = loan_principal * (1 + (loan_interest / 12)) ** 12
    print()

    print("Your yearly salary is $", yearly_salary)
    print("In 12 months, your loan's principal will be $", new_principal)
    print()

    print("At the end of the year, you will have paid off your debt: ", end="")
    print(yearly_salary >= new_principal)
    print("At the end of the year, your will still have some debt left: ", end="")
    print(yearly_salary < new_principal)
    print("At the end of the year, you will have $" + str(yearly_salary - new_principal) + " of your salary left")
    print()

    print("The government is offering loan relief for persons 25 and under, and for those 65 and over.")
    age = int(input("What is your age? "))
    eligible_for_relief = (age <= 25) or (age >= 65)
    print("The relief is $10000. You are eligible for the relief:", eligible_for_relief)
    loan_paid_off = (yearly_salary >= new_principal) or (eligible_for_relief and ((yearly_salary + 10000) >= new_principal))
    print("With or without relief, you will be able to pay your loan in full:", loan_paid_off)
```