Lab Assignment #2

Q1. Write a program that computes simple interest. Prompt for the principal amount, the rate as a percentage, and the time, and display the amount accrued (principal + interest). The formula for simple interest is A = P(1 + rt), where P is the principal amount, r is the annual rate of interest, t is the number of years the amount is invested, and A is the amount at the end of the investment.

Example Output:
Enter the principal: 1500
Enter the rate of interest: 4.3
Enter the number of years: 4

"After 4 years at 4.3%, the investment will be worth $1758."

Q2. Write a program to compute the tax on an order amount. The program should prompt for the order amount and the state. If the state is "WI," then the order must be charged 5.5% tax. The program should display the subtotal, tax, and total for Wisconsin residents but display just the total for non-residents.

Example Output
What is the order amount? 10
What is the state? WI
The subtotal is $10.00.
The tax is $0.55.
The total is $10.55.

Or

What is the order amount? 10
What is the state? MN
The total is $10.00

Q3. Write a program that validates userlogin credentials. The program must prompt the user for a username and password. The program should compare the password given by the user to a known password. If the password matches, the program should display "Welcome!" If it doesn't match, the program should display "I don't know you."

Example Output
What is the password? 12345
I don't know you.

Or

What is the password? abc$123
Welcome!

Q4. Write a program that asks the user for their age and compare it to the legal driving age of sixteen. If the user is sixteen or older, then the program should display "You are old enough to legally drive." If the user is under sixteen, the program should display "You are not old enough to legally drive."

Example Output

```
What is your age? 15
You are not old enough to legally drive.
```

Or

```
What is your age? 35
You are old enough to legally drive.
```

Q5. Create a program that converts temperatures from Fahrenheit to Celsius or from Celsius to Fahrenheit. Prompt for the starting temperature. The program should prompt for the type of conversion and then perform the conversion.

The formulas are

$$C = (F - 32) \times 5/9$$

and

$$F = (C \times 9/5) + 32$$

Example Output

```
Press C to convert from Fahrenheit to Celsius.
Press F to convert from Celsius to Fahrenheit.
Your choice: C

Please enter the temperature in Fahrenheit: 32
The temperature in Celsius is 0.
```