

7.3 (The **Account** class) Design a class named **Account** that contains:

- A private **int** data field named **id** for the account.
- A private float data field named **balance** for the account.
- A private float data field named **annualInterestRate** that stores the current interest rate.
- A constructor that creates an account with the specified id (default 0), initial balance (default 100), and annual interest rate (default 0).
- The accessor and mutator methods for **id**, **balance**, and **annualInterestRate**.
- A method named **getMonthlyInterestRate()** that returns the monthly interest rate.
- A method named **getMonthlyInterest()** that returns the monthly interest.
- A method named **withdraw** that withdraws a specified amount from the account.
- A method named **deposit** that deposits a specified amount to the account.

Draw the UML diagram for the class, and then implement the class. (Hint: The method **getMonthlyInterest()** is to return the monthly interest amount, not the interest rate. Use this formula to calculate the monthly interest: **balance * monthlyInterestRate**. **monthlyInterestRate** is **annualInterestRate / 12**. Note that **annualInterestRate** is a percent (like 4.5%). You need to divide it by **100**.)

Write a test program that creates an **Account** object with an account id of 1122, a balance of \$20,000, and an annual interest rate of 4.5%. Use the **withdraw** method to withdraw \$2,500, use the **deposit** method to deposit \$3,000, and print the id, balance, monthly interest rate, and monthly interest.

*7.5 (Geometry: *n*-sided regular polygon) An *n*-sided regular polygon's sides all have the same length and all of its angles have the same degree (i.e., the polygon is both equilateral and equiangular). Design a class named **RegularPolygon** that contains:

- A private **int** data field named **n** that defines the number of sides in the polygon.
- A private float data field named **side** that stores the length of the side.
- A private float data field named **x** that defines the x-coordinate of the center of the polygon with default value **0**.

8.4 (*Occurrences of a specified character*) Write a function that finds the number of occurrences of a specified character in a string using the following header:

```
def count(s, ch):
```

The **str** class has the **count** method. Implement your method without using the **count** method. For example, **count("Welcome", 'e')** returns **2**. Write a test program that prompts the user to enter a string followed by a character and displays the number of occurrences of the character in the string.