

1. Create an Account class with the following attributes and methods

Account
-id: String -balance: double -annualInterestRate: double
+Account() +Account(id: String, balance: double, annualInterestRate: double) +getId(): String +getBalance(): double +getAnnualInterestRate(): double +setId(id: String): void +setBalance(balance: double): void +setAnnualInterestRate(annualInterestRate: double): void +getMonthlyInterestRate(): double +getMonthlyInterest(): double +withdraw(amount: double): void +deposit(amount: double): void +toString():String

Please create **Main.java** to test the Account class. In the **main()** method, create an Account object named **myAcct** 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 account information and the monthly interest as the following:

Original information about myAcct:

ID: 1122
Balance: \$20,000.00
Annual Interest Rate: 4.5%
#####

Information about myAcct after the withdraw and deposit:

ID: 1122
Balance: \$20,500.00
Annual Interest Rate: 4.5%
#####

The monthly interest of myAcct: \$76.88

2. Create a **Date.java** class with the following attributes and methods

Date
-month: int -day: int -year: int
+Date() +Date(month: int, day: int, year: int) +getMonth(): int +getDay(): int +getYear(): int +setMonth(month: int): void +setDay(day: int): void +setYear(year: int): void +toString(): String [in the format of mm/dd/yyyy] +equals(anotherDate: Date): boolean

Please write a **Main.java** program. In the main() method, create two Date objects named: date1 and date2. Make date1 to be 10/31/2003, and date2 to be 12/25/2003. Compare date1 with date2 by calling equals() method and print out “date1 and date2 are the same” if they are equal, otherwise, print out “date1 and date2 are not the same.” instead. The output should be the following:

date1: 10/31/2003
date2: 12/25/2003
date1 and date2 are not the same.

3. Create a Rectangle class to represent rectangles. The UML diagram for the class is the following: Suppose that all the rectangles are the same color. Use a static variable for color.

Rectangle
-width: double -height: double -color: String
+Rectangle() +Rectangle(width: double, height: double, color: String) +getWidth(): double +getHeight(): double +getColor(): String +setWidth (width: double): void +setHeight (height: double): void +setColor (color: String): void +findArea(): double +findPerimeter(): double +toString():String

Please create **Main.java** to test the Rectangle class. In the **main()** method, create the first Rectangle object named **myRect**. Assign width 4, height 40 and color blue to **myRect**. Print out the information about myRect. Create the second Rectangle object named **yourRect**. Assign width 20, height 5 and color red to **yourRect**. Print out the information of both myRect and yourRect. The output should looks like the following:

information about myRect before creating yourRect:

```
#####  
# Width: 4.0  
# Height: 40.0  
# Color: Blue  
# Area: 160.0  
# Perimeter: 88.0  
#####
```

information about myRect after creating yourRect:

```
#####  
# Width: 4.0  
# Height: 40.0  
# Color: Red  
# Area: 160.0  
# Perimeter: 88.0  
#####
```

information about yourRect:

```
#####  
# Width: 20.0  
# Height: 5.0  
# Color: Red  
# Area: 100.0  
# Perimeter: 50.0  
#####
```

4. Create a Slogan class to represent slogans. The UML diagram for the class is the following:
Use a static variable count to count the objects created from this class.

Slogan
-phrase: String -count: <u>int</u>
+Slogan() +Slogan(phrase: String) +getPhrase(): String +<u>getCount(): int</u> +setPhrase (phrase: String): void +toString():String

Please create **SloganTest.java** to test the Slogan class. In the **main()** method, create 5 Slogan objects: slogan01, slogan02...slogan05. The phrase of slogan01 is "Remember the Alamo"; "The phrase of slogan02 is "Don't Worry. Be Happy"; The phrase of slogan03 is "Live Free or Die"; The phrase of slogan04 is "Talk is Cheap"; The phrase of slogan05 is "Write Once, Run Anywhere". Print out the information of all slogan objects and the count information of Slogan class. The output should looks like the following:

Slogan: Remember the Alamo.

Slogan: Don't Worry. Be Happy.

Slogan: Live Free or Die.

Slogan: Talk is Cheap.

Slogan: Write Once, Run Anywhere.

5. Slogans Created: 5