

Using iPad for Teaching: Pre-Tutorial Exercise



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Exercise

Consider a Java example in the next 3 slides:

Q1. *How would you teach this example?*

Hint. Will you restrict your delivery to slideshow only?

Say after you teach this example, some poor students ask:

- **Student Q1:** After Alan gained weight, why was Alan's BMI *decreased*? Didn't Alan *gain* weight?
- **Student Q2:** After Alan gained weight, why was *Tom's* BMI increased? Wasn't it *Alan* gaining weight?

Q2. *How would you answer above student questions?*

Hint. Just ask students to verify the result in Eclipse?
Just tell students it's very basic OO?

Example Lecture: Class Model

Consider the following **model** of a person:

```
public class Person {  
    /* Attributes */  
    double weight; /* kilograms */  
    double height; /* meters */  
    /* Constructor */  
    Person (double weight, double height) {  
        this.weight = weight;  
        this.height = height;  
    }  
    /* Accessor/Getter: Body Mass Index */  
    double getBMI() {  
        double bmi = this.weight / (this.height * this.height);  
        return bmi;  
    }  
    /* Mutator/Setter: Change of Weight */  
    void gainWeight(double amount) {  
        this.weight = this.weight + amount;  
    }  
}
```

Example Lecture: Console Tester

What are the *console outputs* produced by the following test?

```
1 public class PersonTester {
2     public static void main(String[] args) {
3         Person alan = new Person(72, 1.72);
4         Person tom = new Person(65, 1.81);
5         System.out.print("Alan's BMI: ");
6         System.out.printf("%.2f\n", alan.getBMI());
7         System.out.print("Tom's BMI: ");
8         System.out.printf("%.2f\n", tom.getBMI());
9         alan = tom;
10        alan.gainWeight(3);
11        System.out.println("==== After Alan gained 3 kgs =====");
12        System.out.print("Alan's BMI: ");
13        System.out.printf("%.2f\n", alan.getBMI());
14        System.out.print("Tom's BMI: ");
15        System.out.printf("%.2f\n", tom.getBMI());
16    }
17 }
```

Example Lecture: Background

- FYI:

$$\text{BMI (Body Mass Index)} = \frac{\text{weight}(kg)}{\text{height}(meter)^2}$$

- Running `PersonTester`, here's the console output:

```
Alan's BMI: 24.34
Tom's BMI: 19.84
===== After Alan gained 3 kgs =====
Alan's BMI: 20.76
Tom's BMI: 20.76
```

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