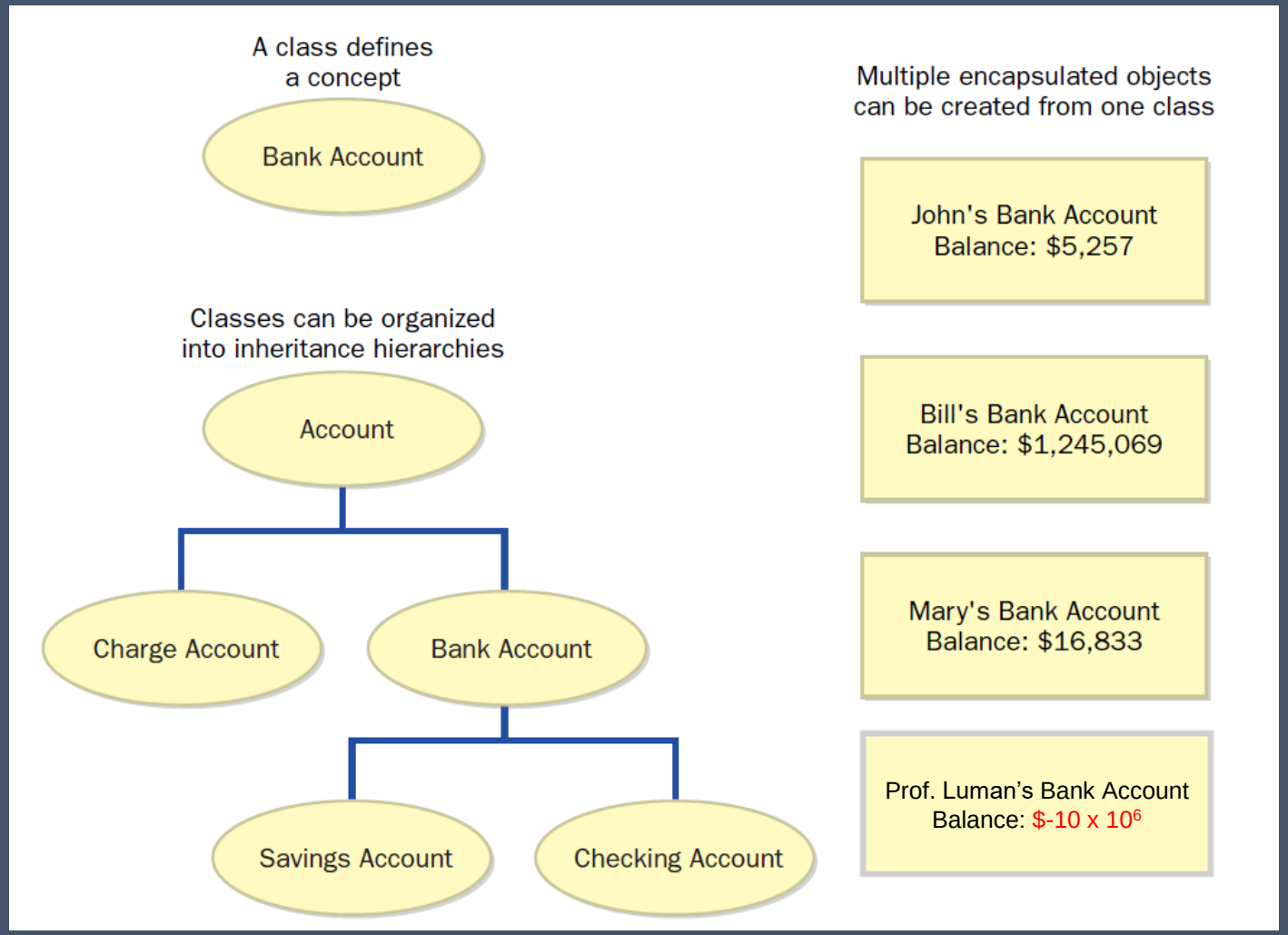
CMPSC 100

Computational Expression

Object Oriented Programming: what?!

- Java is an object-oriented programming (OOP) language.
- We often remark that “everything is an object.” But what do we mean?
- Each Java object (“class”) is made up of “properties,” or “attributes.”
- Each of these model “states” or “behaviors”
- Think of objects, then, as “describing” how something looks, works, behaves, and changes.


A class defines
a concept
Bank Account
Multiple encapsulated objects
can be created from one class
John's Bank Account
Balance: $5,257
Classes can be organized
into inheritance hierarchies
Account
Bill's Bank Account
Balance: $1,245,069
Charge Account
Bank Account
Mary's Bank Account
Balance: $16,833
Savings Account
Checking Account
Prof. Luman's Bank Account
Balance: $-10 x 10^6

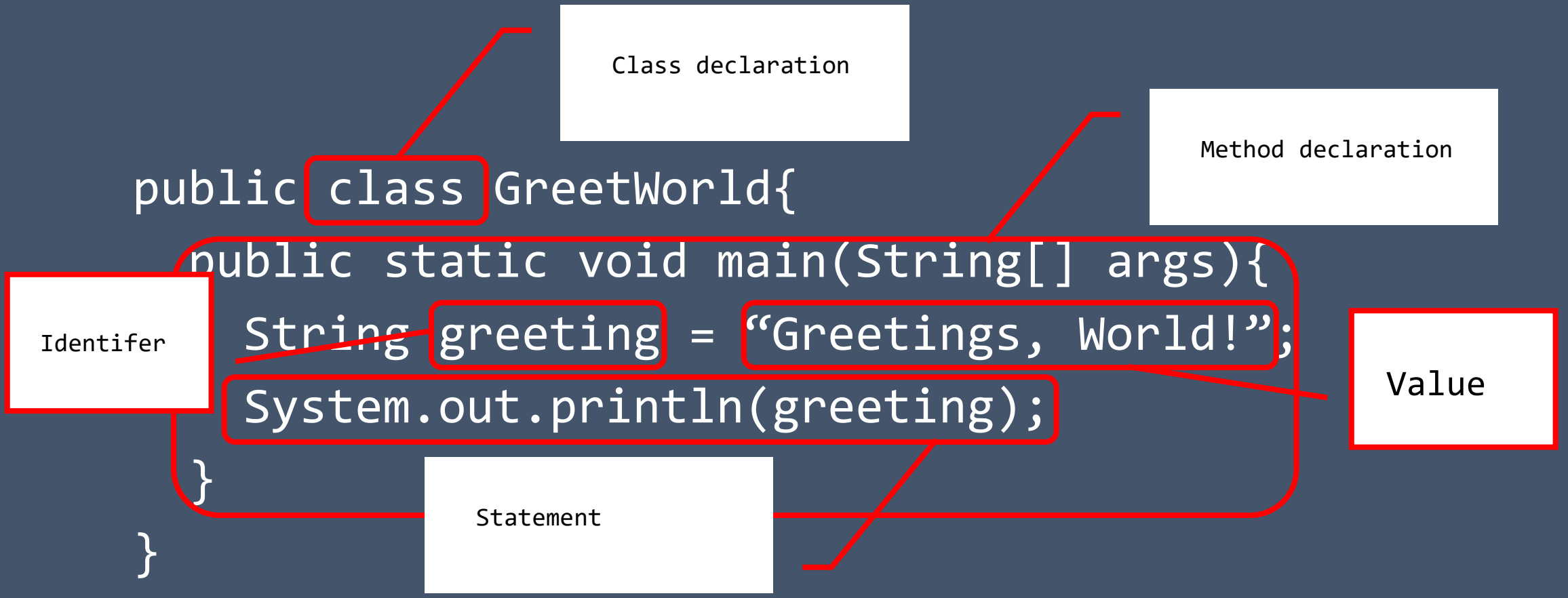
So what have we learned?

- Object-oriented programming means:
  - Creating software which models real or imaginary concepts which have:
    - States
    - Behaviors
    - Attributes
  - Making these objects as “common” as possible: that is, “abstracting” what a “bank account” is so that
  - Objects can be reused and combined in ways to create other objects which model other concepts

So, let's try it out!

- Each group should have:
  - 1 suit of playing cards from a deck of cards
- Your groups' job is to create the definition of a "playing card"
- Our class' goal is to combine these various "card" objects into a "deck"

Objects in Java



```
public                  class                                   HelloWorld

                                        {

  public                static          void    main    (String[]       args)                   {

        String  greeting

                                =

                                                        "Greetings, World!";


                                        System.out.println(

                                                        greeting

                                        );

                }

                                }
```

Conventions

- Like language, there exist certain agreements to enhance legibility and understanding.
- Take, for example, the following sentence:

Colorless green ideas sleep furiously.

- Code also has conventions, such as:
  - Spacing
  - Use of white space
  - Names for identifiers

Conventions

A test of identifers:

RESULT
result
12345
x12345y
black&yellow
answer_7