COMP 110-003
Introduction to Programming
Lab 3

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THE UNIVERSITY
of NORTH CAROLINA
at CHAPEL HILL

Photo credit: Sam Kittner '85

Lab 3 and Program 2

- Lab 3 is due Sunday, Feb. 10
  - Read the code template (Smiley.java) carefully

- Program 2 is due Sunday, Feb. 17
  - You have to create all the code by yourself
  - Don't forget the comments
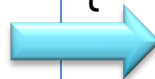 - Most of the skills you need are practiced in Lab 2 and Lab 3

Constant Variables

```java
public static final Type Variable = Constant;
Named in ALL_CAPS

public class NamedConstant
{
    public static final double PI = 3.14159;
    public static void main(String[] args)
    {
......
```

- *final* means the value of PI is not allowed to be changed

- *static* means …… we will introduce this keyword in the future

  - It means the variable belongs to the class instead of objects

Attributes and Methods in a Class

```
public class NamedConstant{
    public int var;         // An attribute of NamedConstant
    public void methodA(){ // A method. It can change var.
    }
    public void methodB(){ // Another method. It can also change var.
    }
}
```

- Attributes saves data for an object
  - Variables in a method are only accessible in this method
  - Variables in a method are not attributes
- Methods changes the attributes
  - Not all classes start at *main()*
  - For class Smiley, it starts with *init()*, and then runs *paint()*

Smiley

- In Lab 3, most of your code will go into *init()* method

- However, you have to change the color of the eyes in *paint()* method
  - The reason is that painting is a continuous procedure, and you have to change the color of the brush in the middle of the procedure
  - For those who feel separate blocks of code ugly, you can declare a *Color* type attribute in the class, and change its value in *init()* method