CMSC 131
Object-Oriented Programming I

Classes Introduction III

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This material is based on material provided by Ben Bederson, Bonnie Dorr, Fawzi Emad, David Mount, Jan Plane
Overview

- Class declaration
- Method declaration
- Passing values to methods
Classes in Java

- Class declarations have the following form in Java:

  ```java
  public class Student {
  
  class body: instance variables, methods
  
  }
  ```
Anatomy of a Method Declaration for ...

```java
public static int process(int dataIn) {
    body
}
```
Values can be passed to methods through a parameter list
Actual values provided is the argument list
Process that takes place when a method (no matter what type) is called:
  ◦ Arguments are used to initialize the parameters (matching is one to one)
  ◦ After the values has been assigned we transfer control to the first statement in the method
  ◦ After the method is done we return to the point after the method call
The process to pass values is called pass-by-value
  ◦ The parameter is a “photocopy” of the argument
We pass copies to the parameter list
Notice that parameters are like local variables
  ◦ Created when method is called
  ◦ Destroyed when method is over
Notice that local variables cannot be seen from other methods
Example: PassingParameters.java
Methods that return values must specify the type of the value to be returned

The bodies of these methods use `return` to indicate when a value is to be returned

The value being returned must have the same type as the return type

Notice that return can be used anywhere in the method

Return always ends a method returning to the call point

You can have multiple return statements in a method

For a method with no return type “return;” will end the method

**Example:** ReturningValues.java