CS 152
Computer Programming
Fundamentals
Methods

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Methods

- Instructions chunked together and given a name.
- Also may be referred to as subroutine, procedure, function
- A subroutine inside a class is a *method*
- In Java, all subroutines must be inside a class, so they are all methods.

Method Definition

```
modifiers return-type methodName( paramList ) {
    statements for method body
}
```

```
public static void printNum(int n) {
    System.out.println(n);
}

public static int addNums(int n, int m) {
    return n+m;
}
```

Method modifiers

- Access modifiers (public, private)
- Static or not (At this point, we are only using `static` methods)

Parameters

- Allows information to be passed into a method.
- Each parameter has a name and a type.
- May have empty parameter list.
- When calling a method, the values passed as *arguments* are assigned to the parameters.

Return type

- A method may return a value (or not)
- May only return value of the specified *return type*
- Method that does not return a value has return type `void`
- Use a return statement to return a value

```
return value;
```

Methods can call other methods

```
public static void main(String[] args) {

  prettyPrintNum(42);

  int foo = 37;
  prettyPrintNum(foo);

  prettyPrintNum(3 + foo);

  int result = addAndPrint(5,4);
  System.out.println("the result was " + result);

  System.out.println("the next result was " + addAndPrint(2,3));
}

public static int addAndPrint(int a, int b) {
  int sum = a + b;
  prettyPrintNum(sum);
  return sum;
}

public static void prettyPrintNum(int num) {
  System.out.println("My number is " + num);
}
```