Methods in Java

Methods that Return Values

What is a Method?

A method is a collection of commands (in Java, or any other language) that does something useful, or helps solve some problem.

As our programs become more complicated, the collection of commands gets larger and more involved.

Sometimes, our programs seem to be performing several distinct tasks. It may be possible for some or all of these tasks to be put into a method.

Why Use a Method?

1. Organization: Methods allow you to group commands into a task with a meaningful name that summarizes its purpose.

2. Efficiency: Some tasks are repeated many times within a single program. By using a method, these tasks can often be performed with a single line, which calls the method.

3. Maintenance: It is easier to change a single method than change code in multiple locations throughout your program.

Method Return Values

We have learned about many data types, such as integers (int), characters (char), boolean, decimals (float, double), and strings (String).

Similarly, a method can be declared as any of these types. Doing so means that the method will return data of the specified type.

A method that does not return any data is given the special data type, called void.

Java Structure with Methods
the keyword: void

```
public static void doSomething()
{
   // useful instructions here!
   System.out.println("I am useful!");
}
```

The keyword "void" has a specific meaning for methods in Java. It means they don't return any kind of value. The simply perform a task, and then they are complete.

Return Values with Methods
(returning a constant value)

```
class ReturnDemo
{
  public static int daysInWeek()
  {
    return 7;  // send value back to main
  }

  public static void main(String[] args)
  {
    int days;
    days = daysInWeek(); // call method
    System.out.println(days + "days");
  }
}
```

Return Values with Methods
(returning a variable)

```
class ReturnDemo
{
  public static int daysInWeek()
  {
    int x = 7;
    return x;  // send value back to main
  }

  public static void main(String[] args)
  {
    int days;
    days = daysInWeek(); // call method
    System.out.println(days + "days");
  }
}
```

Return Values with Methods
(using method as a value directly)

```
class ReturnDemo
{
  public static int daysInWeek()
  {
    int x = 7;
    return x;  // send value back to main
  }

  public static void main(String[] args)
  {
    // call method from within println()
    System.out.println(daysInWeek() + "days");
  }
}
```