

Key Points

To this point, we have learned how to write reasonably large Java programs by defining and using custom methods. Here are some key points we have learned:

- Defining custom methods allows us to (i) cope with complexity, (ii) hide low-level details, and (iii) reuse portions of code.
- A "public" method is accessible anywhere the class in which it is defined is accessible.
- There are three type of methods: constructors, class methods, and instance methods.
- A "class" method is also called a "static" method.
- A class method is not called through an instance variable.
- An example of a class method is the `sqrt()` method in the `Math` class.
- An "instance" method is called through an instance of a class — an object variable.
- An example of an instance method is the `substring()` method of the `String` class.
- Custom-defined methods can be used to improve the formatting of output data.
- Recursion is a technique whereby a method calls itself.
- Program traces are an effective debugging tool.
- When a primitive data type variable is passed to a method, it is *passed by value*.
- When an object is passed to a method, it is *passed by reference*.
- A method that receives a primitive data type variable as an argument *cannot* change the value of the original variable.
- A method that receives an object variable as an argument *can* change the content of the original object.