CSCB07 - Software Design

Object Oriented Programming - Design Guidelines

Summer 2021

Methods Common to All Objects

1. Always override **hashCode** when you override **equals**
2. Always override **toString**
3. Consider implementing **Comparable**

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Classes and Interfaces

1. Minimize accessibility
2. Favor composition over inheritance
3. Prefer interfaces to abstract classes
4. Prefer lists to arrays

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Methods

1. Check parameters for validity
2. Return empty arrays or collections, not **null**
3. Document your API properly

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Exceptions

1. Use exceptions only for exceptional conditions
2. Use checked exceptions for recoverable conditions and runtime exceptions for programming errors
3. Do not ignore exceptions

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General Programming

1. Minimize the scope of local variables
2. Prefer for-each loops to traditional loops
3. Refer to objects by their interfaces
4. Adhere to generally accepted naming conventions

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General Programming (Naming Conventions)

- Package names should be hierarchical with the components separated by periods. Components should consist of lowercase alphabetic characters and, rarely, digits. E.g. **javax.swing.plaf.metal**
- Class and interface names should consist of one or more words, with the first letter of each word capitalized
- Method and field names follow the same typographical conventions as class and interface names, except that the first letter of a method or field name should be lowercase, for example, **ensureCapacity**
- The names of constant fields should consist of one or more uppercase words separated by the underscore character, for example, **NEGATIVE_INFINITY**
- Local variable names have similar typographical naming conventions to member names, except that abbreviations are permitted, as are individual characters and short sequences of characters whose meaning depends on the context in which the local variable occurs, for example, **i**, **xref**

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Recommended Reading

- Bloch, Effective Java, Second Edition, © 2008 Sun Microsystems, Inc.