

## Stat 36-650 Code Design Checklist

The checklists below are intended to give you some guidance in designing effective, maintainable, and reusable software. Review these items throughout your development process.

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☒ My code is DRY (Don't Repeat Yourself) - each piece of embodied in the code has one unambiguous and authoritative representation.

☐ I have attempted to approximate Orthogonality by minimizing coupling between different components of my system.

☒ My classes and functions encapsulate the knowledge they need - and only the knowledge they need - to fulfill their purpose.

☒ I have been as explicit as possible about the contract that my functions and classes satisfy.

☒ I have avoided hidden side effects in my functions.

☒ My functions and classes are each designed to serve one purpose well.

☒ My code appropriately handles errors and other exceptional circumstances.

☒ My system's interface presents a clean and consistent abstraction to the outside world.

☒ I have sought to maintain generalizability and reuse.

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☒ Conditionals, loops, and other changes in the flow of control are made as clear and salient as possible.

☒ I have returned early from a function when it is clearer.

☒ Variables are defined as closely as possible to where they are used.

☒ Variables are made visible for as few lines of code as possible.

☒ I have minimized nesting level of complex constructs.

☒ I have broken down complex expressions and statements into more digestible pieces.

☐ I have preferred immutable objects.

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- ☒ Each of my classes has a central purpose and is well named to describe that purpose.
  - ☒ The interface of each class presents a consistent abstraction.
  - ☐ My classes hide their implementation details as much as possible.
  - ☒ I have avoided exposing classes' member data.
  - ☒ My classes avoid making assumptions about its users, including its derived classes.
  - ☒ I use inheritance to capture "is a" relationships and containment to capture "has a" relationships.