

# List of Refactorings

Fall 2021 – CPSC 501

Martin Fowler's textbook describes 72 refactorings in detail. Here is a selection of 20 that you will need to know for this course. They are listed in roughly the order they will be covered in during class and tutorial.

- Rename Method/Field
- Extract Method
- Substitute Algorithm
- Introduce Explaining Variable
- Replace Temp with Query
- Replace Magic Number with Symbolic Constant
- Add/Remove Parameter
- Introduce Parameter Object
- Encapsulate Field
- Extract Class
- Extract Interface
- Move Method/Field
- Pull Up Method/Field
- Push Down Method/Field
- Replace Constructor with Factory Method
- Form Template Method
- Collapse Hierarchy
- Remove Middle Man
- Hide Delegate
- Replace Conditional with Polymorphism

Here are the terms Fowler uses for “bad code smells”, which you will be asked to identify on the assignment and midterm (I’ve removed three or four smells that we won’t need for this course). Make sure you understand what each of these terms means, and which refactorings you should consider applying when you detect each smell.

- Duplicated Code
- Long Method
- Large Class
- Long Parameter List
- Divergent Change
- Shotgun Surgery
- Feature Envy
- Data Clumps
- Primitive Obsession
- Switch Statements
- Lazy Class
- Speculative Generality
- Temporary Field
- Message Chains
- Middle Man
- Inappropriate Intimacy
- Data Class
- Refused Bequest
- Comments