PEMROGRAMAN LANJUT

Code Smells: Change Preventer

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Change Preventer

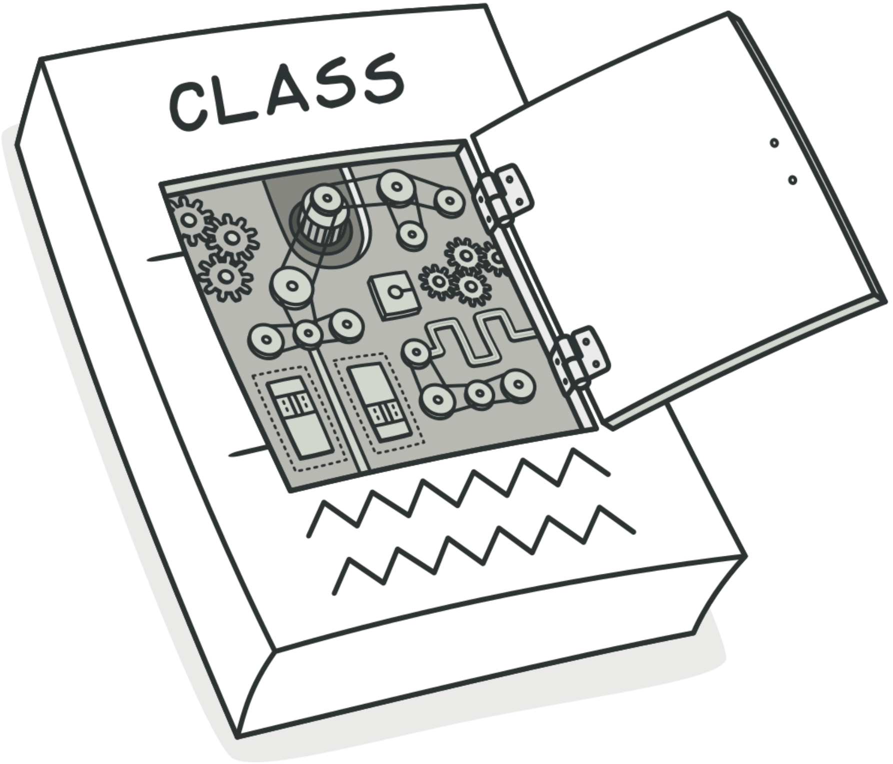
Smells that makes it hard for programmers to make any change in program. If they need to change something in one place in the code, they have to make many changes in other places too

Change Preventer

- Divergent Change
- Shotgun Surgery
- Parallel Inheritance Hierarchies

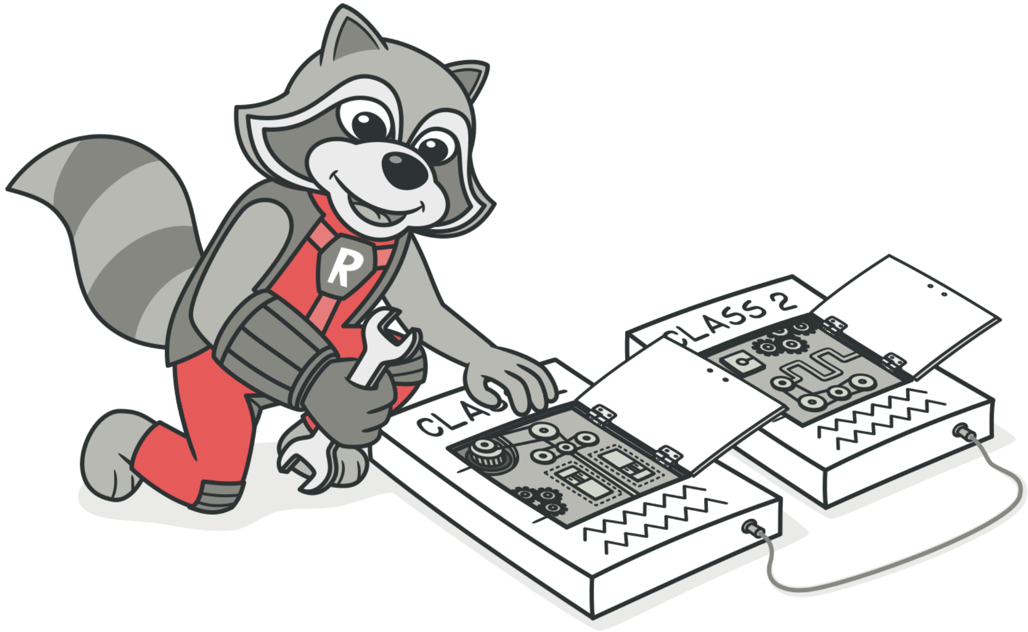
Divergent Change

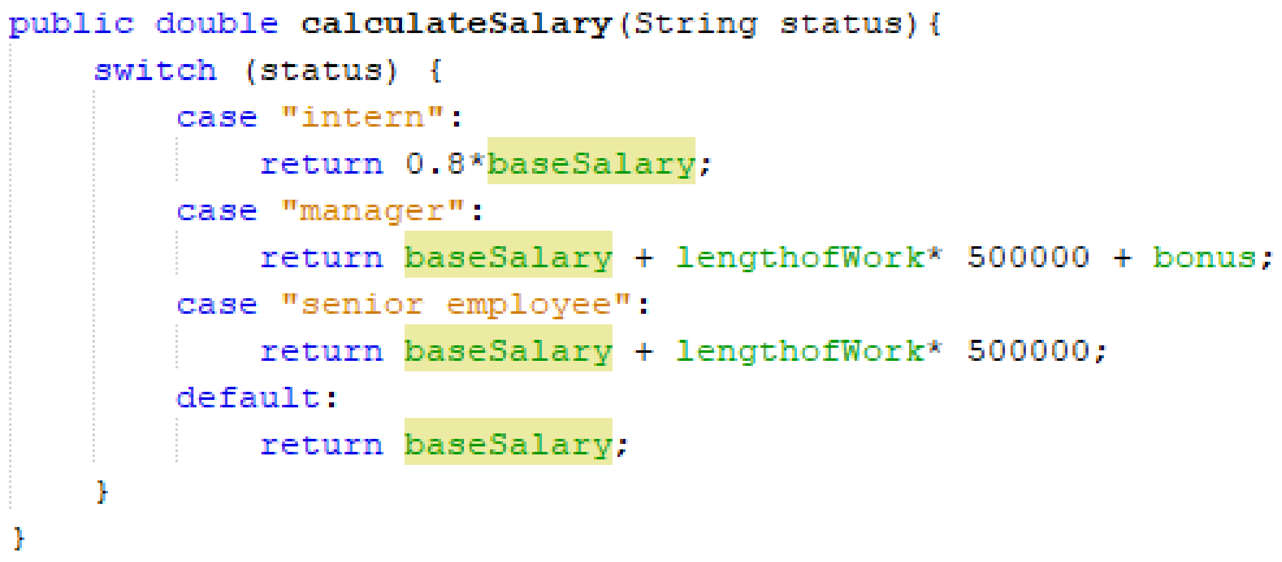
- You find yourself having to change many unrelated methods when you make changes to a class.
- Many changes are made to a single class.



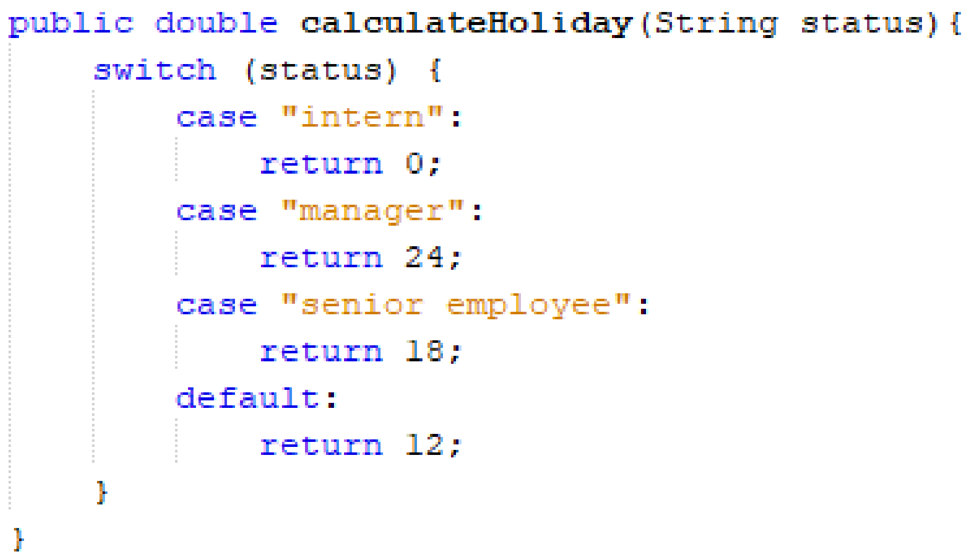
Divergent Change: Refactoring

- **Extract Class:** To split up the behavior of the class.
- **Extract Superclass** and **Extract Subclass:** If different classes have the same behavior, you may want to combine the classes through inheritance.





```
public double calculateSalary(String status){
    switch (status) {
        case "intern":
            return 0.8*baseSalary;
        case "manager":
            return baseSalary + lengthofWork* 500000 + bonus;
        case "senior employee":
            return baseSalary + lengthofWork* 500000;
        default:
            return baseSalary;
    }
}
```

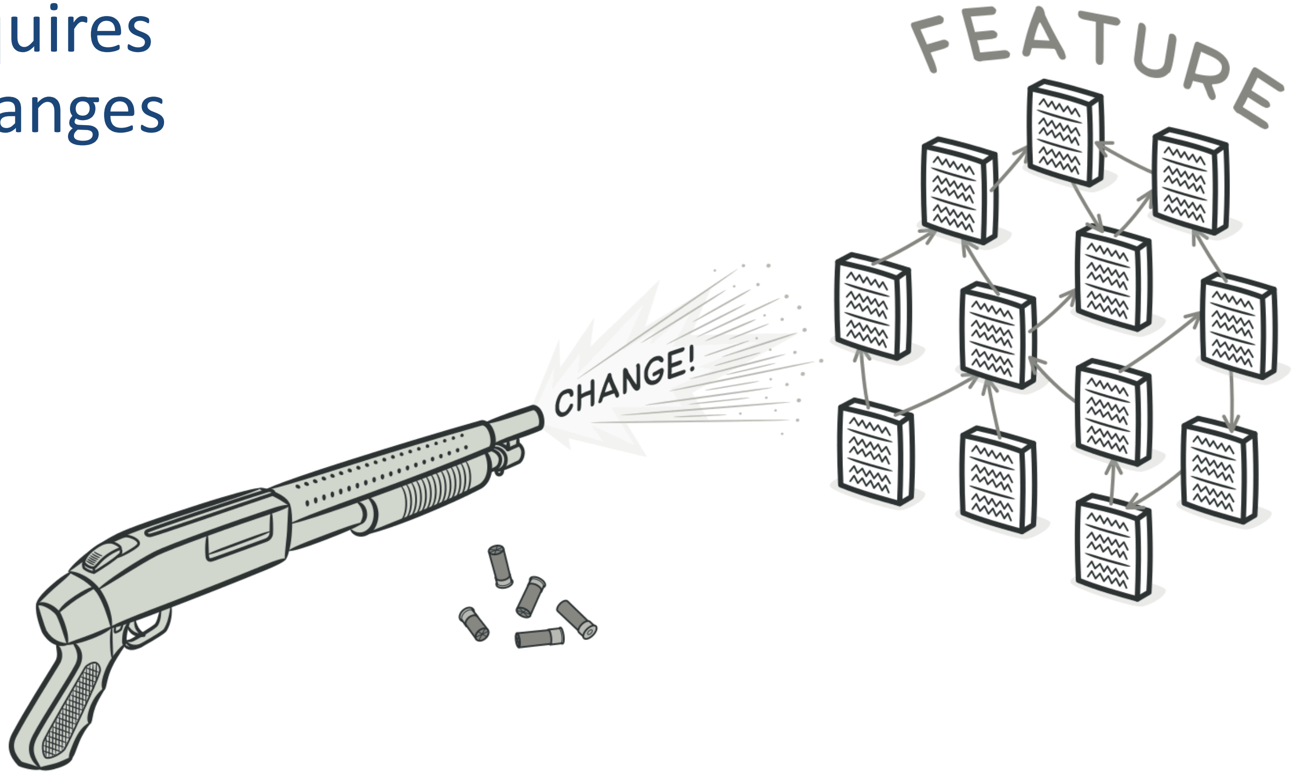


```
public double calculateHoliday(String status){
    switch (status) {
        case "intern":
            return 0;
        case "manager":
            return 24;
        case "senior employee":
            return 18;
        default:
            return 12;
    }
}
```

If there is new employee type, we need to change both calculateSalary() and calculateHoliday()

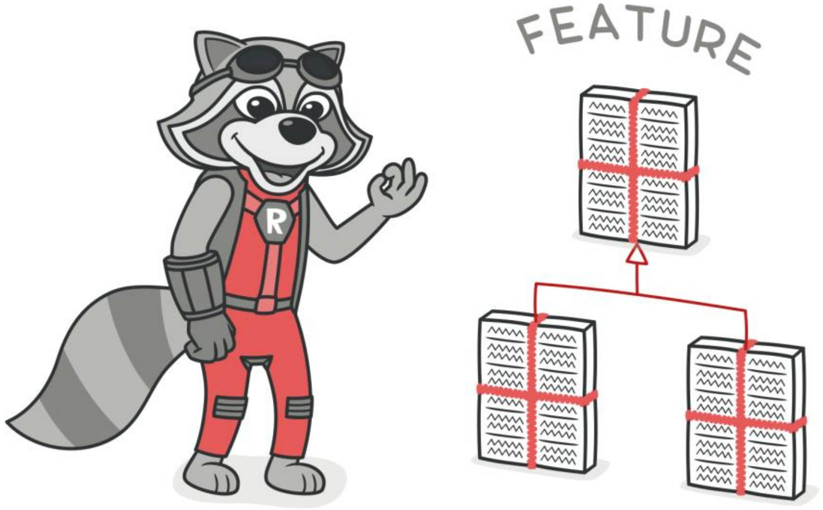
Shotgun Surgery

- Making any modifications requires that you make many small changes to many different classes.



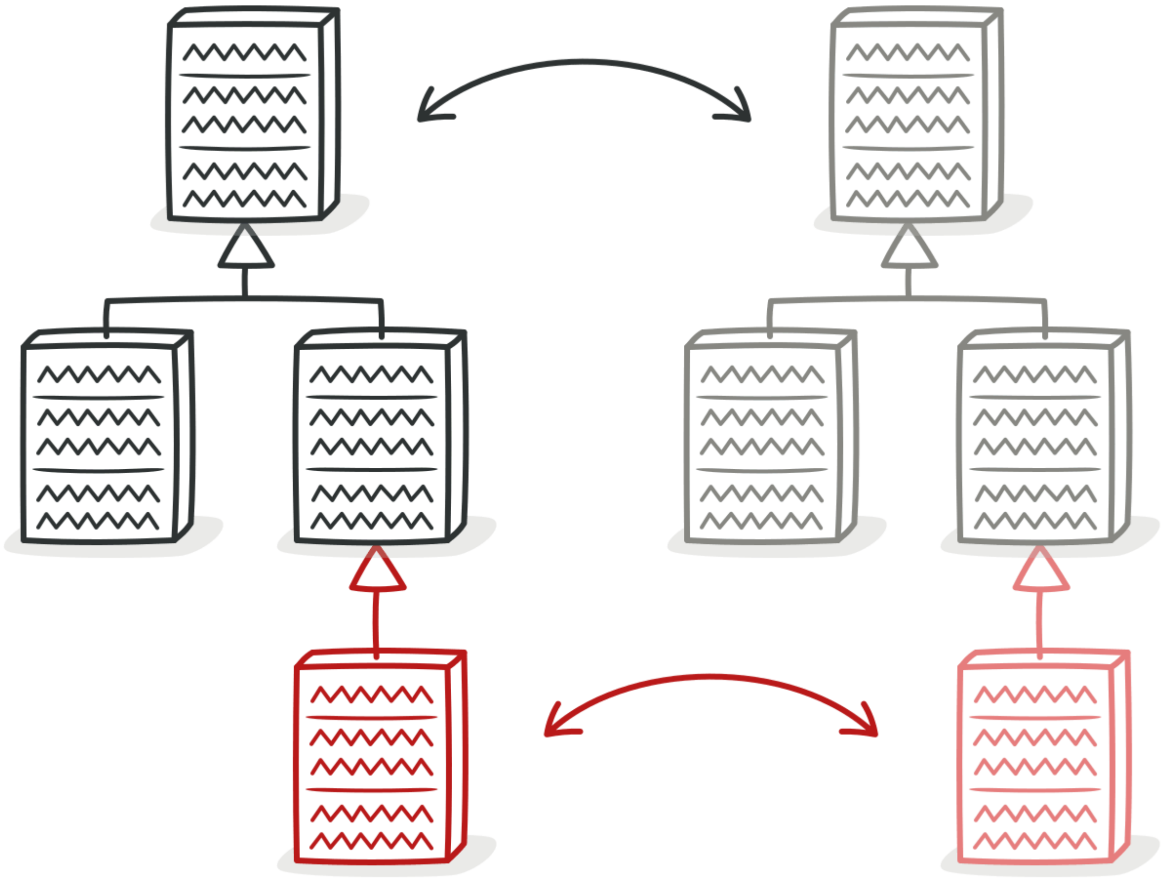
Shotgun Surgery: Refactoring

- **Move Method** and **Move Field:** To move existing class behaviors into a single class. If there’s no class appropriate for this, create a new one
- **Inline Class:** To get rid of class If moving code to other class leaves the original classes almost empty.



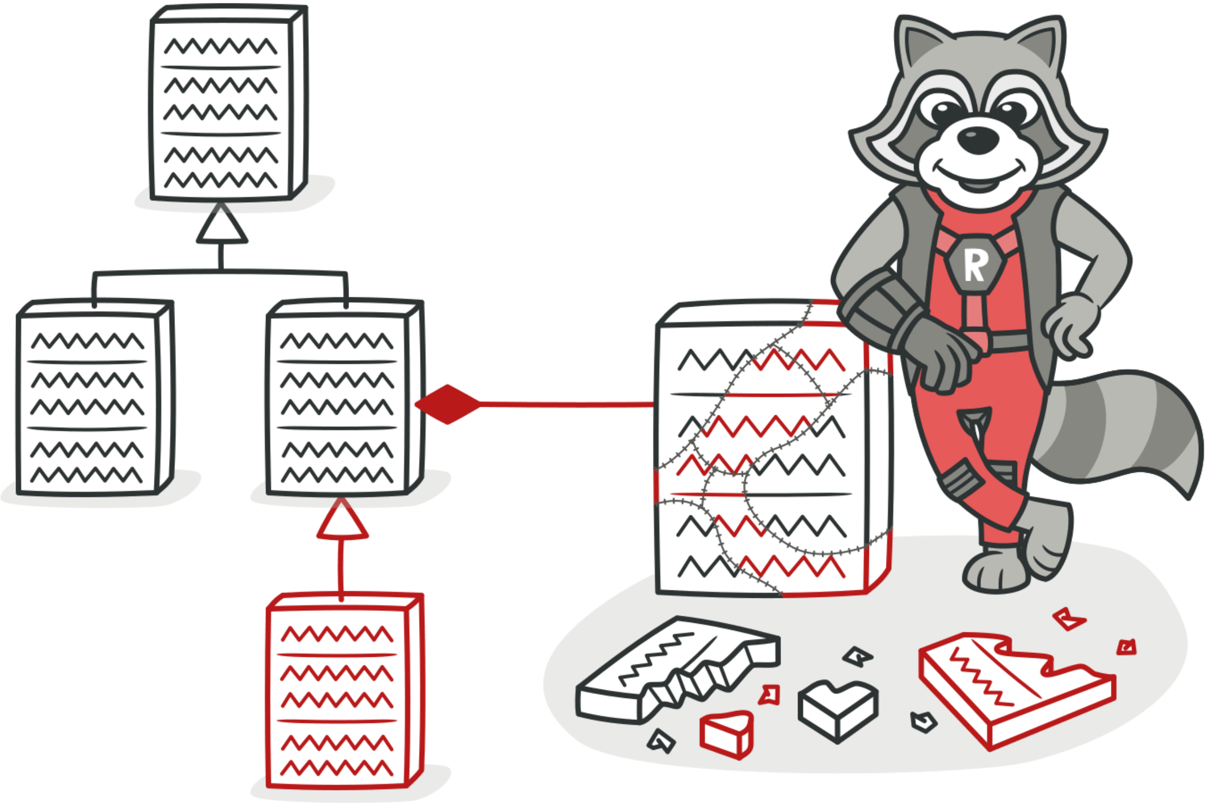
Parallel Inheritance Hierarchies

- Whenever you create a subclass for a class, you find yourself needing to create a subclass for another class.



Parallel Inheritance Hierarchies: Refactoring

- Make instances of one hierarchy refer to instances of another hierarchy. Then, remove the hierarchy in the referred class, by using **Move Method** and **Move Field**.



References

- Fowler, Martin. Refactoring: Improving the Design of Existing Code. Addison-Wesley Professional, 1999.
- https://refactoring.guru/
- https://akmalrusli363.github.io/smell/Fowler/Change-Preventers

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