Refactoring via Program Slicing and Sliding

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Refactoring enables iterative and incremental software development
The gap:
Refactoring tools are important but weak
Example: Fowler’s video-store

Rental record for Bilbo Baggins

- The Godfather  5.0
- Amelie From Montmartre  2.0
- La Vita è Bella   5.0
- Lord of the Rings  1.0
- The Ring         6.0

Amount owed is 19.0
You earned 6 frequent renter points
public String statement() {
    double totalAmount = 0;
    int frequentRenterPoints = 0;
    Iterator rentals = _rentals.iterator();
    String result = " Rental record for " +
        getName() + "\n";
    while (rentals.hasNext()) {
        Rental each = (Rental) rentals.next();
        // show figures for this rental
        result += "\t" + each.getMovie().getTitle();
        result += "\t" + each.getCharge() + "\n";
        frequentRenterPoints += each.getFRP();
        totalAmount += each.getCharge();
    }
    // add footer lines
    result += " Amount owed is " +
        totalAmount + "\n";
    result += " You earned " +
        frequentRenterPoints +
        " frequent renter points";
    return result;
}
public String statement() {

    Iterator rentals = _rentals.iterator();
    String result = "Rental record for " +
        getName() + "\n";
    while (rentals.hasNext()) {
        Rental each = (Rental) rentals.next();
        // show figures for this rental
        result += "\t" + each.getMovie().getTitle();
        result += "\t" + each.getCharge() + "\n";
    }

    // add footer lines
    result += "Amount owed is " +
        getTotalCharge() + "\n";
    result += "You earned " +
        getTotalFRP() +
        " frequent renter points";
    return result;
}
private double getTotalCharge() {
    double result = 0;
    Iterator rentals = _rentals.iterator();
    while (rentals.hasNext()) {
        Rental each = (Rental) rentals.next();
        result += each.getCharge();
    }
    return result;
}
```java
public int getTotalFRP() {
    int result = 0;
    Iterator rentals = _rentals.iterator();
    while (rentals.hasNext()) {
        Rental each = (Rental) rentals.next();
        result += each.getFRP();
    }
    return result;
}
```
Programmers use slices when refactoring
Challenge:
Automatic slice-extraction

Approach:
Program Sliding
Live sliding examples…
Potential implications of slides and sliding:

Refactoring and beyond
Thanks!