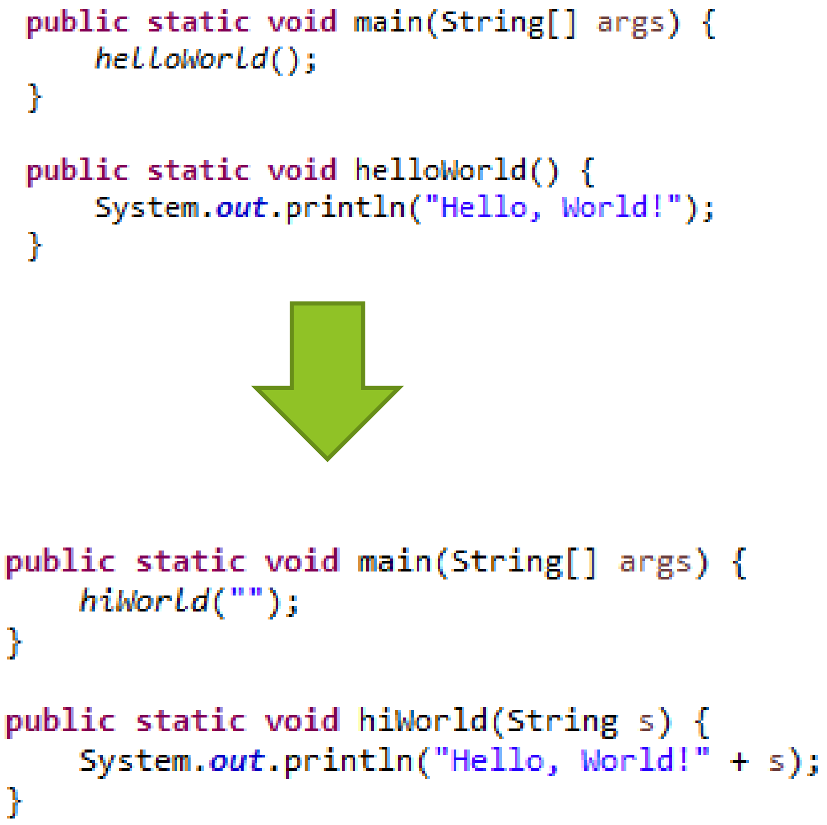
MR TOOL

Easy method repairing tool



```
public static void main(String[] args) {
    helloWorld();
}

public static void helloWorld() {
    System.out.println("Hello, World!");
}
```

```
public static void main(String[] args) {
    hiWorld("");
}

public static void hiWorld(String s) {
    System.out.println("Hello, World!" + s);
}
```

4 Tasks:

Easy Reparametrization

Method Locator

Object Casting

Constructor auto-generator

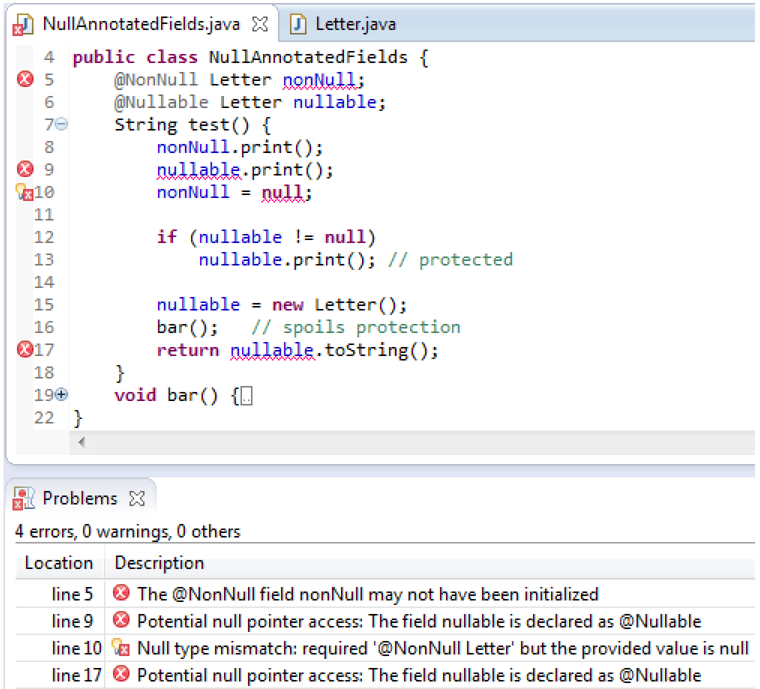
Isaac Ahn

Potential

- Scripting language
- Searching algorithms
- String equality checks

Challenges and Risks

- Avoid new errors
  - Both compiler and runtime
- “Undo” functionality?



```
 4 public class NullAnnotatedFields {
 5     @NonNull Letter nonNull;
 6     @Nullable Letter nullable;
 7     String test() {
 8         nonNull.print();
 9         nullable.print();
10         nonNull = null;
11
12         if (nullable != null)
13             nullable.print(); // protected
14
15         nullable = new Letter();
16         bar();   // spoils protection
17         return nullable.toString();
18     }
19     void bar() {□
22 }
```

4 errors, 0 warnings, 0 others

Location	Description
line 5	The @NonNull field nonNull may not have been initialized
line 9	Potential null pointer access: The field nullable is declared as @Nullable
line 10	Null type mismatch: required '@NonNull Letter' but the provided value is null
line 17	Potential null pointer access: The field nullable is declared as @Nullable