Hunter: Next-Generation Code Reuse for Java
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Objectives

- Hunter Eclipse Plugin
  - http://fredfeng.github.io/Hunter
  - Hunter is a next generation code reuse tool that finds, adapts and synthesizes common Java programs in a large corpus.
  - Advantages:
    1. Increase productivity: programmers can focus on more creative tasks.
    2. Decrease buggy code: code reuse reduces the likelihood of buggy implementation.
  - Key ideas behind Hunter:
    - Code search
    - Interface alignment
    - Synthesis of wrapper code

Overview

- Query
- Code Search
- Interface Alignment
- Candidate Program
- Run tests
- Program for reuse

Search

Candidates are ranked using the metrics:
- Jaccard similarity coefficient for multiset representation of types
- TF-IDF weighting, edit distance for method signature and comments

Results

Hunter vs. S6 on 40 benchmarks

Hunter vs. Manual on 3 benchmarks

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Example

1. Write the natural language description, desired method signature and test cases

```java
// @Remove duplicates from an array
public int[] removeDuplicates(int[] nums) {
    // code is expected to appear here
}
```

2. Run Hunter as an Eclipse plugin. Search and try out all candidate automatically

```java
public String[] removeDuplicateStrings(String[] strs) { // from org.springframework.util.StringUtils
    // method body
}
```

3. Get all your code ready!

```java
// @Remove duplicates from an array
public int[] removeDuplicates(int[] nums) {
    String[] hunter_var1 = new String[nums.length];
    int hunter_var3 = 0;
    for (int hunter_var2 : nums) {
        hunter_var1[hunter_var3] = String.valueOf(hunter_var2);
        hunter_var3++;
    }
    String[] ret = org.springframework.util.StringUtils.removeDuplicateStrings(hunter_var1);
    int[] hunter_var6 = new int[ret.length];
    int hunter_var5 = 0;
    for (String hunter_var4 : ret) {
        int hunter_var6 = Integer.parseInt(hunter_var4);
        hunter_var5++;
    }
    return hunter_var4;
}
```