TÉCNICO LISBOA

Autoboxing in Java

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Introduction

- Since Java 1.5 there exists boxing and unboxing operations. These consist in converting primitive types into their corresponding wrapper(reference) type and the other way around. Although this is done automaticaly it is very costly.

Goals

- Detecting boxing and unboxing operations in Java for all primitive types and their respective reference types.

Solution

Code Instrumentation

- First we added a TreeMap to count the number of boxing/unboxing operations done ordered by the following keys:

Method Name->Type->Action->Count

Action={Boxing,Unboxing}

Code Instrumentation

- Then we injected a function(*insertData*), to increment the count in the TreeMap;

- Also we injected another function(*printData*) to print the results.

Algorithm used

1. Search for where boxing and unboxing operations where done in the code;
2. Added a call after the operation to function insertData;
3. Added a call after the main method to the function printData.

Dificulties

- Parametrization(Javassist);
- Stack overflow;