INTRODUCTION

Nowadays, certainly every programmer is confronted with NullPointerExceptions in big Java Projects, whether it is for an enterprise or for private purposes. Not to mention even in small Java Projects they are also heavily present.

So what are those NullPointerExceptions? This thesis is going to attach importance to Java that is a concurrent, class-based, object-oriented programming language. We chose Java because NullPointerExceptions are more serious in this language than in others, e.g. Smalltalk. NullPointerException is a RuntimeException. In Java, an object reference can be assigned with a special null value. The exception is thrown when an application attempts to use an object reference that has the null value. (There are multiple ways this exception can be thrown, like: Calling an instance method on the object referred by a null reference; Accessing or modifying an instance field of the object referred by a null reference and so on.) In Java Projects developers always have to deal with a huge amount of references which means avoiding these NullPointerExceptions is as good as impossible.

On regular meetings among programmers they report what they have been doing and what they are planning to do for the next few weeks. But all too often it is stated that they are trying to fix bugs or have spent a lot of time fixing them. If there would be a way to minimize the time fixing exceptions and allow to work more efficiently, projects would progress much faster.

The main goal of the NullSpy application takes a step to that ideal vision. Anytime developers are facing a NullPointerException they don’t have to spent time on debugging finding where and why a reference was set to null. With NullSpy the exact location of the null assignment is shown next to the ordinary stack trace the Java virtual machine produces.

In this thesis it is explained how the goal mentioned above is achieved step by step, by using a class library Javassist (Java Programming Assistant) which allows us to deal with Java bytecode.

RRELATED WORK

This chapter provides a short overview of works/technologies used in this project.

Javassist  
class library

JHotDraw  
Java GUI framework for technical and structured Graphics

JAD  
Java Decompiler