Chapter 3

Literature & Technology Survey

1. Introduction

Throughout this chapter, we explore existing technologies, reviewing what areas of the problem they solve and which requirements they are lacking. We also seek to confirm the need for such a technology to fully solve the issues we’ve identified.

1. Overview

One of the expected outcomes of this dissertation is an online, collaborative platform to facilitate cross and multi project code reuse, effective code searching, and code sharing and peer review.

To begin, we must identify key points surrounding the current state of cross project code reuse:

* Has code reuse evolved over time?
* What tools are there currently that attempt to partially or completely fulfil the goal of cross project, multi user code reuse?
* How have these tools evolved, and what were their original intentions?
* What usability features do these tools implement and utilise?
* Is there literature to support the idea that code reuse remains sub-optimal?
* Is there ongoing research in to new methods of code reuse or code sharing, specifically cross project?
* How do current developers feel about their existing environment in relation to code reuse, and what do they feel works well or poorly?

The majority of this chapter will explore each of these points in detail, with a focus on small scale code reuse, which will be what is primarily referred to by the term ‘code reuse’.

1. Has code reuse evolved over time?

* *Find papers that discuss early code reuse, and relate to papers over time that discuss code reuse further on*

1. What tools are there currently that attempt to partially or completely fulfil the goal of cross project, multi user code reuse?

* *Research existing tools that have some form of storage, reuse or share*
  + *Codebase*
  + *git/GitHub*
  + *GitHub’s Gists*
  + *SVG*
  + *Google Docs*
  + *IDE Plugins (e.g. Yasnippet, Resharper)*
  + *Pastebin/Codepad*
  + *Snipplr*
  + *Subversion*

1. How have these tools evolved, and what were their original intentions?

* *Find git repos or other version controls for the above projects. Perhaps they were documented through development, or have blog posts relating to why and how they went about creating them. Possibly an about section on their website.*

1. What usability features do these tools implement and utilise?

* *Identified the following, talk about each briefly:*
  + *IDE Intergration via API*
  + *WYSIWYG Editor*
  + *Syntax Highlighting; Line Numbering (Possibly GeSHi?)*
  + *Rate, Pin/Favourite, Comment, Share*
  + *Searching/Sorting, Tagging, Indexing*
  + *Public/Private snippets/groups*
  + *User groups/companies/institutions*
  + *Forks/Change Requests/Branches*
  + *Quick code dump sharing (like pastebin)*
  + *Cloud storage/online editing (like google docs)*
  + *Related code*
  + *Collecting multiple snippets together*
  + *Facebookt Login for easy account creation/future login*
  + *Profile – information about the user, their submitted code etc*
  + *Achievements (First submission, Top Rated, etc)*
  + *Social Media integration for sharing code*
  + *Wordpress Plugin*

1. Is there literature to support the idea that code reuse remains sub-optimal?

* *Research and review existing literature with key terms ‘code reuse’ amongst others, to identify content for this section*

1. Is there ongoing research in to new methods of code reuse or code sharing, specifically cross project?

* *Potential recent literature can cover this section. Maybe online research that has yet to be properly published can be found.*

1. How do current developers feel about their existing environment in relation to code reuse, and what do they feel works well or poorly?

* *Developing survey to send to a number of companies and contacts that have agreed to be surveyed (Hex Digital, PayPal, Students of University of Bath, Freelancers).*
* *Survey development has started*

1. Conclusions

* *Here we will summarise what we’ve learnt from the above headings and apply it to the initial problem to decide how to continue. The idea is that this section proves the need for the deliverable.*