Chapter 8
Code Ownership

8.1 INTRODUCTION

In many AMs, such as XP, the source code does not belong to the developer that wrote it. The common practice is that all the code belongs to the whole team; therefore every member can modify it. Collective Code Ownership encourages everyone to contribute new ideas to all parts of the project. Any developer can change any line of code to add functionality, fix bugs, or refactor. No one person becomes a bottleneck for changes. This could seem hard to understand at first. It is almost inconceivable that an entire team can be responsible for the architecture of the system (Beck, 1999; Feller & Fitzgerald, 2001).

In many traditional development methods, it is not possible to implement this approach, since a developer knows the details of a very limited part of the product. Usually, just the code he has written. On the contrary, in XP for instance, all the developers have a deep knowledge of the entire code base, since they have to participate in the development of all the code, not just a limited portion (Scotto et al., 2007).

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8.2 PARETO ANALYSIS

Pareto analysis is a statistical technique in decision making that is used for selection of a limited number of tasks that produce significant overall effect. It uses the Pareto principle, the name derives from the Italian economist Vilfredo Pareto, who observed that 80% of income in Italy went to 20% of the population. Pareto later carried out surveys on a number of other countries and found to his surprise that a similar distribution applied.

Pareto analysis is a formal technique useful where many possible courses of action are competing for your attention. In essence, the problem-solver estimates the benefit delivered by each action, then selects a number of the most effective actions that deliver a total benefit reasonably close to the maximal possible one.

8.2.1 Example

Step 1: Frequency Analysis

The first step of the Pareto analysis is to gather data on the frequency of causes (Table 1).

Step 2. Ranking Causes

To identify the most important causes, we rank the causes based on the frequencies they found in their survey (Table 2).

Step 3: Pareto Graph

We draw a horizontal axis (x) that represents the different causes, ordered from the most to least frequent. Next, we draw a vertical axis (y) with cumulative percentages from 0 to 100% (Figure 1).

Now it is easy to see that approximately 7 factors are responsible for 80% of problem. The other 13 factors are responsible for only 20%.

8.3 ADOPTION OF CODE OWNERSHIP IN OPEN SOURCE DEVELOPMENT

To evaluate the adoption of Collective Code Ownership we performed a Pareto analysis on the source code repositories of some OS projects. The sample includes 53 products: 12 written in C/C++, 39 in Java, and 2 in C/C++ and Java, with a number
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Rajibul Islam, Hafizah Farhah Saipan Saipol, Siti Qatrunada Muhd Palil, Asnida Che
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