



IMPROVING REUSABILITY OF SOFTWARE THROUGH EXTENSIBILITY

This PhD project looks at software extensibility and how it can help make the development and maintenance of software easier, faster and more efficient.

Broadly speaking, extensibility is the capability of software to support the development of new functionalities without changing the way existing ones work. Examples of extensibility in software are web browser plug-ins and smartphone apps.

Software is everywhere these days. Not just in our computers and our phones but in every system we use: cars, banks, hospitals, energy grids, communications, all kinds of businesses... As software continues to become more pervasive, it needs to be maintained and evolved as new features and functionalities are needed. It is too expensive and time-consuming to always build new software from scratch. Extensibility

can help reuse existing software when developing new features and functionalities. This PhD project examines extensibility in various ways, from the perspective of software developers:

- It defines the concept of extensibility as a concept
- It develops techniques for evaluating the extensibility of software source code
- It designs ways to increase the extensibility of existing software
- It applies these principles to the development of a major piece of software: the Overture tool (<http://overturetool.org/>)

Do not underestimate the importance of extensibility to software maintenance. Poor extensibility can lead to new software "features" that are expensive, bug-filled and hard to fix.



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On the other hand, good extensibility can lead to software where new features are produced and maintained more easily. Software users can enjoy these features sooner, for a lower cost and with increased quality.

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