

# Mobl: The New Language of the Mobile Web

Zef Hemel

Delft University of Technology, Could 9 IDE Inc.  
z.hemel@tudelft.nl

Eelco Visser

Delft University of Technology  
visser@acm.org

## Abstract

Mobl is a new language designed to declaratively construct mobile web applications. Mobl integrates languages for user interface design, styling, data modeling, querying and application logic into a single, unified language that is flexible, expressive, enables early detection of errors, and has good IDE support.

**Categories and Subject Descriptors** D.2.4 [Software Engineering]: Software/Program Verification; D.2.11 [Software Engineering]: Software Architectures; D.3.3 [Programming Languages]: Language Constructs and Features

**General Terms** Design, Languages, Verification

## 1. Description

With the rapid growth in sales of modern smart phones and tablets, such as iPhone, iPad, Android, WP7 and Black-Berries, the web becomes available on an increasing number of powerful mobile devices equipped with modern web browsers. Recent advances in HTML and CSS enable the creation of web applications that offer a comparable experience to native applications by supporting application and data caching, detection of touch gestures and access to geographical position information (GPS). The portability and deployment advantages of web applications make the use of web technologies for building mobile applications very attractive.

While HTML5 enables the development of mobile applications, development exposes a number of problems, specifically: developers are required to use many loosely coupled languages (including HTML, CSS, Javascript and SQL) with limited tool support and application code is often verbose and imperative.

We will demonstrate *mobl* [1], a new, high-level, declarative language for programming mobile web applications, which addresses these problems. Mobl integrates languages

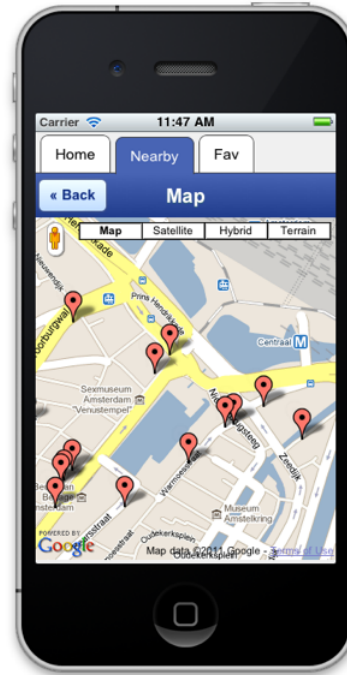


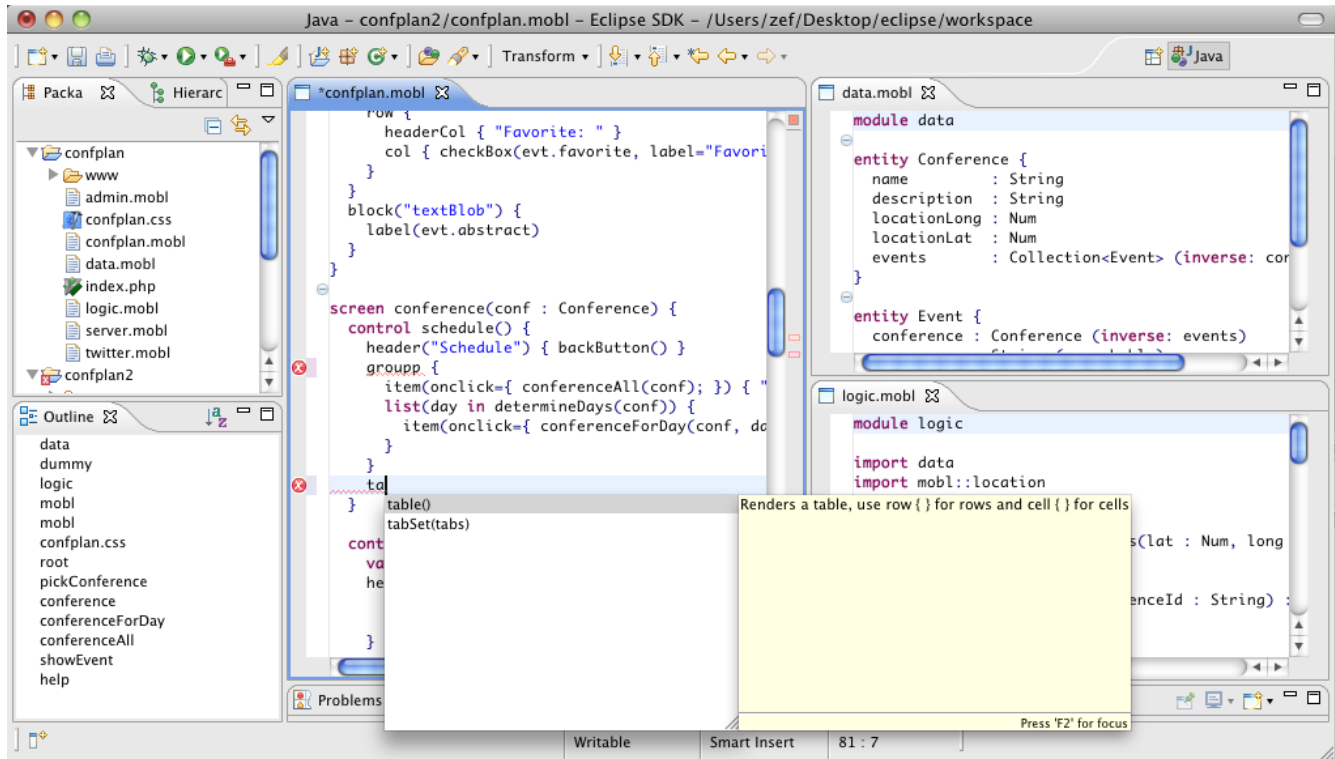
Figure 1. Example application built with mobl

for user interface design, styling, data modeling, query and application logic into a single, unified language. The language is *declarative* since it ensures automatic updates of the user interface through reactive programming and automatic persistence of data in the client-side database.

The mobl compiler compiles mobl code into a pure client-side web application, implemented using a combination of HTML, CSS and JavaScript. The resulting application can be deployed to any web server and is server-technology agnostic. Already, mobl is starting to be used in industry. An enthusiastic community is contributing to the development of mobl at <http://www.mobl-lang.org>.

## 2. About the presenters

Zef is the lead developer of mobl. He will soon finish his PhD in computer science from Delft University of Technology. His area of his research was the design and implementation of domain-specific language design. He currently works



**Figure 2.** The mobl IDE is implemented as an Eclipse-plugin and features syntax highlighting, inline error highlighting, an outline view, reference resolving and code completion.

as senior developer on IDE language support for Cloud 9 IDE, Inc.

Eelco Visser is associate professor at Delft University of Technology, where he conducts research in the areas of language engineering, DSLs and software deployment. He is the project lead of the TraCE, TFA, MoDSE and PDS projects and published over 70 papers in peer-reviewed venues.

### 3. Acknowledgments

This research was supported by NWO/JACQUARD project 638.001.610, *MoDSE: Model-Driven Software Evolution*. We would like to thank Google for providing Android phones for testing and development.

### References

- [1] Z. Hemel and E. Visser. Declaratively programming the mobile web with mobl. In *Proceedings of the 26th Annual ACM SIGPLAN Conference on Object-Oriented Programming, Systems, Languages, and Applications, OOPSLA 2011*, Portland, Oregon, USA, 2011. ACM.