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Creating Offline Web Applications
Using HTML5

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A thesis presented in partial fulfillment of the requirements for the degree of

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in
Computer Science

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Abstract

With the proliferation in the use of mobile devices, browser based applications are becoming the ideal information system for both individuals and organization. Web applications are platform independent and easy to deploy so can be accessed from any device that has a browser. A large number of businesses are now offering cloud services to deliver their software, which are on-demand and pay-as-you-go solutions. The increase in this trend is adding a huge economic and bandwidth challenge to both the network provider and consumer.

While traditional web applications work when they are online, it is however essential for these applications to be available both online and offline modes. With this explosion in the use of mobile devices, the ability of these applications to work offline is especially important in situations where there is intermittent or no network availability.

In this thesis we discuss ways of developing offline web applications. We also propose a method of implementing a wrapper that simplifies the currently proposed W3C’s HTML5 client-side database API, IndexedDB, by providing a fluent interface with a Language Integrated Query (LINQ) feel. In cases where synchronization of the client-side data with the server database is a requirement, conflict resolution becomes a bit challenging. We discuss techniques for synchronizing the data that is stored at the client during offline mode with the server database.

Keywords: Web applications, HTML5, Client side storage, Browser databases, IndexedDB, Database replication/synchronization
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