Component Based Software Reuse in Mobile Application Development

PROJECT PROPOSAL FOR ECE 750-T11

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Abstract
Component Based Software Engineering (CBSE) principles are widely used in design and deployment of applications for desktop operating systems. The usage of CBSE principles for development and deployment of applications for mobile operating systems is still in its infancy. With the segment of the smartphone and tablet computers industry growing exponentially, the mobile operating systems would rival their desktop counter parts in terms of usage in the near future.

We plan to develop an Event Manager application on the Android platform and port it to the Blackberry platform using CBSE principles of code reuse. The application will present a GUI that will be shared by all the users. This GUI will have the details of upcoming events and the user can subscribe to any event of interest. The product also allows users to post or upload events on the GUI and send invitations to his/her friends. Once a user has subscribed to an event he/she will receive reminders for that particular event. Components of the code will be reused and the application will be deployed on a Blackberry OS.

Problem Description
There are few challenges that come along with developing applications for mobile OS. The resources available for application development on mobile OS and desktop OS varies. The devices using mobile OS (smartphones and tablets) have limited hardware and processing capabilities compared to desktop systems. The developers also need to port their applications to various operating systems without having to develop all the components of their applications each time they release it for a different OS. We are planning to employ CBSE principles of code reuse, interfaces, component integration to port our Android application to the Blackberry OS.

Approach
We propose to demonstrate the usage of CBSE principles by developing our mobile application (Event Manager) on the Android framework and porting it to the Blackberry platform. The application will provide services like creating an event and sending invitations to selected people. Events created will be stored on a database and the users (clients) subscribed to that event will get reminders on their devices. Any user can create a group and invite other users to join the group. Each group will have a unique key which will be used to join the group. Any user of the group can create an event which will be shared in the group.
High Level Architecture

We propose to employ a Blackboard architectural style for our application. The Database will store all the identifier keys, group data and the events. The Event Manager component is the blackboard and holds the current state of all events and publishes information to the users subscribed to it.

Results Expected

A working Android application with all proposed functionalities and deployment of the application on the Blackberry OS using the CBSE principle of code reuse.

Resources Needed

- JDK 6.0
- Eclipse Galileo, Eclipse Helios
- MySQL database
- Android SDK v8.0 or higher.
- BlackBerry Java SDK v6.0

Schedule

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References