

Google Apps for Work Calendar Integration

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Abstract

Youmanage is a Stirling based company offering a human resources management web application of the same name. One part of the application is an Exchange calendar service allowing its users to receive appointment calendar notifications. Such service inserts relevant system appointments into user calendars based on their company email address.

However, not all of Youmanage clients use Microsoft Exchange server to administer their emails and therefore clients showed a great demand for a service which would support other email providers than Exchange in the same way. In addition as calendar service provides only a basic functionality of inserting calendar events, Youmanage wanted to explore the possibility of extending its current ability.

Further communication with clients revealed that Google Apps for Work calendar service support would create additional business value and served as the main objective of this project. Youmanage application already included a design part for extending the calendar service and therefore new service had to fit within such restrictions. As a secondary objective, Youmanage wanted to explore the possibility of implementing a two way communication between their application and Google calendar resource servers. Furthermore an extension of the new calendar service functionality in a form of new methods responding to the change of system appointments represented another interest of Youmanage.

At first an in-depth analysis of the Exchange calendar service functionality was conducted and an appropriate software development approach was adopted. As the analysis realised unfeasibility of the additional objectives, adopted development approach was flexible enough to accommodate another set of requirements requested by Youmanage throughout the development process. A large part of the design period was dedicated to a research regarding Google API and web-application interactions and can serve as a universal guide for interested readers. In addition a possibility of publishing a Google Marketplace application to ease service configuration was explored.

The output of this project is a new calendar service implemented within the restrictions of Youmanage application offering the same functionality as Exchange calendar service. Moreover configuration of such service can be performed either manually or automatically using a published Marketplace application. In addition a synchronization tool for clients not using a calendar service at the moment was implemented allowing them to insert previous appointments into relevant user calendars. Finally, Youmanage devoted their time testing all implemented features to their satisfaction and have intentions releasing them to its clients.

Attestation

I understand the nature of plagiarism, and I am aware of the University's policy on this.

I certify that this dissertation reports original work by me during my University project except for the following:

- Figure 1 and 2 in *Chapter 2* are screenshots of the Youmanage application test instance prior to the development process.
- Figure 4 in *Chapter 2* was generated using Visual Studio IDE and reflects a state of the calendar service prior to its development.
- Figures 5, 7, 8 in *Chapter 2* and Figure 15 in Section 5.5 were generated using Microsoft SQL Management Studio and reflect the state of the data layer.
- Figure 9 in *Chapter 3* was taken from [3].
- Code described in Section 6.3.3.4 was largely taken from [12].

In addition, as classes `GoogleServiceProvider` and `GoogleAppointment` implement same interfaces as their Exchange counterparts, they were largely inspired by them.

Signature

Date