

Advanced Software Development – Group Report

Software and Methodology Decisions

Software Development Methodology

Agile development methodologies lend themselves well to short development time frames, small teams and flexibility. Due to the size of our team and the given development deadline, regular meetings combined with quick changes in direction and frequent progress evaluations were crucial to delivering cohesive teamwork and a satisfactory end product. For this reason, we opted for the SCRUM methodology and elected Amro Hassan Mahmoud as our Scrum Master. Jira was used as a collaboration and organisational tool for our sprints which we kept deliberately short in order to break the project down into easier chunks for rapid redistribution of larger tasks between team members in the event that changes in direction proved favourable.

Database

We decided to follow a non-relational database management system approach for this project. Had we chosen to use a relational database, MySQL would have been an adequate alternative. Other RDBMS options such as SQLite and PostgreSQL, whilst popular, restrict functionality and growth and are ill fitted to the proposal. SQLite cannot accommodate a client-server and is incompatible with the necessity for multiple user types to have varying levels of access to the system. PostgreSQL hinders development speed by simply being more extensive capability-wise and therefore, is marginally more challenging to learn than MySQL. It also has significant drawbacks regarding its memory performance in relation to how many client connections are required of it. With these considerations in mind, MySQL finds a comparative middle ground.

However, given the specified time frame and particular project requirements we determined that a document-oriented database management system would be most suitable. With extensive resources and a wide user base, MongoDB provided a manageable learning curve whilst ultimately enabling quicker utilisation. Furthermore, the versatility of both vertical and horizontal scaling allows the technology (and clientele) room for rapid future growth. Congruous with the concurrent read/write operations staff will be performing when using the technology and capable of establishing consistency of data via concurrency control measures, MongoDB provides a strong case for being an appropriate software solution for the specified project parameters as well as for immediate and potential ongoing client objectives.

Reflections on the Process

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