



Enterprise Development

Software Proposal(s) for Distinction (D)

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Intended Grade: HD

Instructions - This document is for students aiming to achieve Distinction (D) or above.

For **D grade**, a student needs to do a software application that can demonstrate their skills in developing enterprise application using **a variety of technologies discussed in this subject**. In judging whether your application will be approved or not, the lecturer will be looking into whether the student can utilize various technologies (e.g. as a guide 70%+ of those discussed in the subject) in the application.

For **HD grade**, a student needs to complete the software for D grade as well as a research report. For detailed requirements of the research report, please see the HD_Proposal_Template document in HD_Task_5.5.

Intended Learning Outcomes (extracted from Unit Outline)

- ILO1. Use a range of APIs and technologies to build enterprise applications and explain why the APIs and technologies were selected to develop the applications
- ILO2. Perform independently research into a range of APIs and technologies so as to select appropriate technologies (with justification) to build enterprise applications; during the research process you should be able to present your findings and reasoning why such decisions are made
- ILO3. Design (with justifications) and describe an enterprise architecture for a software solution to a given business scenario. The justification should ideally include at least the following topics:
 - a. the choice of any APIs and technologies
 - b. the selection of architectural patterns and the use of any best practices
 - c. any security issues and concerns and how to mitigate the potential threats
- ILO4. Develop end-to-end features of enterprise applications to given business scenarios. Ideally, you should demonstrate your understanding of at least the following topics
 - a. The choice of any APIs and technologies
 - b. The selection of architectural patterns and the use of any best practices
 - c. The choice of enterprise technologies to mitigate any potential threat raised by security issues and concerns

SOFTWARE PROPOSAL for D

Software Title: SAllocate+ – A staff scheduling system

Introduction

Staff work load and staff scheduling are essential parts of internal processes in service industry such as Taxi service, Trader service like plumbing, asbestos removal, electrical installations, stocktaking. Ranging from large enterprise to medium and small businesses, well prepared staff management and scheduling process is important to improve services quality & customer satisfaction. The SAllocate+ is a software system that provides a hassle-free and automation process of job staff allocation and staff management. This system is built specifically to support staff allocation on stocktaking service.

Business Scenario

RGIS is large provider of stocktaking service for Australia retailers. They have a large number of employees working as stocktakers and supervisors in all states of Australia. As the number of stocktake jobs are growing rapidly to a point that the existing management system of staff allocation by using phone call, SMS & email starts showing sign of clunky, shorted-sign vision, inefficient, and time consuming. There is a need of an automated system that provides better tool of managing staff allocation to make sure that all stocktake jobs have adequate number of staff with correct skill sets.

This system will be developed in multiple components:

- An administration website to manage staff, and provide a central work space to allocate staff into jobs.
- A mobile app for staff to receive job notifications, set choosing job preferences, and receive job allocation confirmation.

Functionality / Feature that you want to implement

Below is a list of functionalities for the administration website:

- F1. Allow admin to review jobs information, viewing staff profiles.
- F2. Allow admin to send out job notifications for a set of period, normally a weekly job schedule of the upcoming week.
- F3. Allow admin to review the job choice preferences from staff and confirm which staff should be allocated on the jobs.
- F4. Sending out the job schedule confirmation message.

Below is a list of functionalities for the SAllocate+ mobile app:

- F5. Login / logout staff
- F6. Receive job notification alerts and review job detail.
- F7. Set their availability preference if they want to work on a job.
- F8. Receive job schedule confirmation.

Functionality and Technology Matrix

The following table shows the relevant technologies discussed in this subject that could be used to implement the functionalities as suggested in the Functionalities section above.

Functionality	Related Technology discussed in this subject
F1	Using ASP.NET MVC for web layer, Ajax for communication with the server. The database access layer will be done using EntityFramework 6.0. A Business Logic Server will be implemented and expose their logic via WCF (Session Façade) and Web Services (Web Services Façade).
F2	Using a messaging services to send job schedule alerts to multiple staff at once
F3	Using a Business Logic server to process the availability preferences of staff
F4	Using a messaging services to send confirmations to multiple staff at once
F5	Using a security layer to authenticate & authorize staff login information.
F6	Using a messaging services to receive notifications using push or pull technique
F7	This function will be done using the Business Logic Server to handle the availability selection on mobile app. It can use a stateful business object to handle multiple availability selection request of a staff. The communication protocol can be done by using RESTful web services with JSON data format
F8	Using a messaging services to receive notifications using push or pull technique