HALFWAY REPORT

OSSIS Workflow Integration Development

BCCE301 COOPERATIVE EDUCATION PROJECT

Prepared by Zilin Li

Contents

Project Details

Project Name: OSSIS Workflow integration development

Enterprise Involved: OSSIS Limited

Enterprise Website: www.ossis.com

Project Background

OSSIS is a medical device company that specializes in designing custom implant devices primarily for custom hip implants. It is NZ owned and has been operating in the industry for 15 years. OSSIS is the only custom implant provider in Australasia. Because the company has grown substantially over the past few years, the current workflow system no longer keeps pace with the increased demand for OSSIS products.

Currently, OSSIS has five separate systems for recording patient data that operate independently and cannot be linked to each other. There are a lot of manual and repetitive inputs in the current workflow. OSSIS wanted to find a way to integrate the current system and reduce the redundancy of multiple entries into various systems.

For this project, OSSIS wanted to find a solution to automatically transfer data from Workflow Max to Monday.com, a program that visualizes work progress.

Project Goal

- Research and develop the feasibility scheme of existing workflow system integration.
- Develop a program that exports essential bits of information from the OSSIS primary customer database (Workflow Max) and automatically imports it into the collaboration workspace (Monday.com).
- Improve work efficiency and reduce manual operation

Expected Outcomes

Industry Outcomes

- Investigate the feasibility of integration between Workflow Max and Monday.com.
- Develop an office application that synchronizes essential information from the Workflow Max to Monday.com (Export Job details based on the Job Number specified by the user and import the data into the Monday.com system).
- Achieve one-key synchronization of working status.

- Testing.

Academic Outcomes

- Project proposal report
- Project timeline
- Risk assessment and management plan
- Quality assurance
- Mid project report
- Burn-down chart
- Weekly status updates
- Methodology essay
- Final project report & poster
- Panel Presentation

Project Hierarchy

Industry Supervisor

Name: Jessica Urquhart
Position Held: Operations Manager
Postal Address: 7/2 Barry Hogan Place, Christchurch 8041
Email: Jessica@ossis.com
Telephone: 22 327 9705

Academic Supervisor

Name: Amit Sarkar
Position Held: Lecturer, Department of Computing
Postal Address: 130 Madras Street, Christchurch 8011
Email: amit.sarkar@ara.ac.nz
Telephone: 03 940 8495

Academic Course Coordinator

Name: Dr David Weir
Position Held: Lecturer, Department of Computing
Postal Address: 130 Madras Street, Christchurch 8011
Email: david.weir@ara.ac.nz

Telephone: 03 940 8324

Student

Name: Zilin Li
Position Held: Student, Department of Computing
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Email: lynnlee829@gmail.com
Telephone: 22 543 3166

Reporting Procedure

Academic Supervisor

- Weekly Meeting in Amit's office at Ara 12 pm on Tuesday.
- Written weekly status reports, these will be emailed on the previous Sunday.
- Email questions or organise a meeting as required.

Industry Supervisor

- Weekly Meeting with industry supervisor in OSSIS office from 9 am-12:30 pm on Friday.
- Email questions or organise a meeting as required.

Project Parameters

Project Plan:

Industry Project Dates

Start Date: Monday 24th of August 2020

Intended End Date: Friday 15th of November 2020

Project Phase:

Phase One: (1 week) - *Project preparation*

- Schedule weekly meetings with IS/AS
- Sign project agreement with IS/AS/CS
- Identify project goal, scope, expected outcomes and project phases
- Research the project feasibility
- Project Proposal

Allocated Hours: 24 hrs.

Actual Hours: 14 hrs.

Phase Two: (3 weeks) - *Researching / Design*

- Research the Workflow Max API
- Test Workflow Max API methods with Postman
- Research the Monday.com API
- Test the Monday.com API methods with GraphQL schema
- Research and evaluate the possibility of connecting and integrating data from the two systems
- Select a topic of methodology essay and do the research of the topic.
- Begin program design

Allocated Hours: 72 hrs.

Actual Hours: 69 hrs.

Phase Three: (6 weeks) - *Application development* (Currently in this phase)

- Program front-end development
- Program backend development
- Halfway Report

Allocated Hours: 144 hrs.

Actual Hours: 55 hrs. to date. (*Will increase)*

Phase Four: (3 weeks) – *Testing /Project summary*

- Program Testing
- Project Review
- Project Final Report
- Poster
- Panel presentation

Allocated Hours: 72 hrs.

Actual Hours: TBC

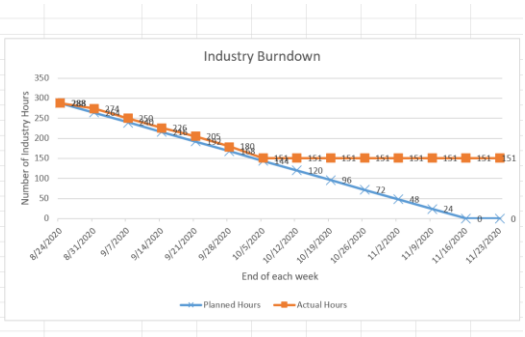
Total Hours to meet:	288
Total Hours to Date:	138 (Will increase as project progresses)

Burn Down Chart

Burndown Chart

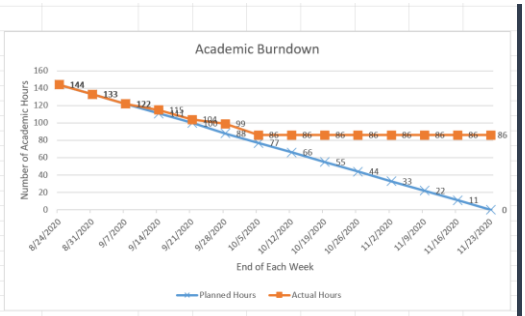
Industry Burndown

Week	Hours per week Planned	Actual	Remaining hours Planned Hours	Actual Hours
8/24/2020	0	0	288	288
8/31/2020	24	14	264	274
9/7/2020	24	24	240	250
9/14/2020	24	24	216	226
9/21/2020	24	21	192	205
9/28/2020	24	25	168	180
10/5/2020	24	29	144	151
10/12/2020	24	0	120	151
10/19/2020	24	0	96	151
10/26/2020	24	0	72	151
11/2/2020	24	0	48	151
11/9/2020	24	0	24	151
11/16/2020	24	0	0	151
11/23/2020	0	0	0	151
	Total Industry Hours:	137		



Academic Burndown

Week	Hours per week Planned	Actual	Remaining Hours Planned Hours	Actual Hours
8/24/2020			144	144
8/31/2020	11	11	133	133
9/7/2020	11	11	122	122
9/14/2020	11	7	111	115
9/21/2020	11	11	100	104
9/28/2020	12	5	88	99
10/5/2020	11	13	77	86
10/12/2020	11	0	66	86
10/19/2020	11	0	55	86
10/26/2020	11	0	44	86
11/2/2020	11	0	33	86
11/9/2020	11	0	22	86
11/16/2020	11	0	11	86
11/23/2020	11	0	0	86
	Total Academic Hours:	58		
	Total Hours:	195		



Progress Made

At this point, the project has finished researching phrase, design phrase and part of developing phrase. Through confirmation with IS, the functional design and user interface design of the program were completed, and the program has completed the front-end development of the web page and realized the data transmission between it and Monday.com. The next focus areas of this project are sending requests to the Workflow Max API on the server-side and getting the user data to the web page in preparation for data synchronization.

Considering that this project is part of the integrated development of OSSIS workflow, this project separated the front and back ends of the program during the design process to prepare for future development work.

Overview of objectives

Name	Status	Comment
Project Proposal	Completed	Accepted by IS, AS and client
Project Plan	Completed	Will be in final report
Time management	Weekly revising	Will be in final report
Risk management	Review at each phase	Final week will be finished. Document will then be complete and revised weeks will be added to appendices.
Quality Assurance	Review at each phase	Final week will be finished. Document will then be complete and revised weeks will be added to appendices.
Weekly status updates	Completed every week	Send to IS/AS every week.
Methodology Essay	To be completed	Completed topic selection Will be in final report
Mid Project Report – project progress	Completed	Will be in final report
Research on Workflow Max API and Monday.com API	Completed – explained	Process documentation will be in final report
Testing of Workflow Max API and Monday.com API	Completed – explained	Process documentation will be in final report
Web application design	Completed – explained	Will be in final report
Web front-end development	Completed – explained	Will be in final report
Web backend development	In progress	Will be in final report
Final Project Report	To be completed	Will be in final report
Poster	To be completed	Will be in final report
Panel Presentation	To be completed	Will be in final report

Milestones achieved

Research on the Workflow Max API and the Monday.com API

- Ensure the project is feasible
- Understand the functionality required by the program
- Get the usage of the API required for software functionality
- Understand all common problems and solutions

Risk Management Plan

- Conduct weekly risk identification and management. Triggers, mitigation, and contingency plans are all documented.
- Create a detailed mitigation plan for the highest level of risk that occurs during project development
- Create documentation of ongoing risks and their management plans

Quality Assurance Plan

- Create a weekly task schedule list to ensure that the project maintains a consistent quality output.
- Metrics defined for determining the success of the final product.

Website Design

- Use Design methods such as Wireframe, Flowchart, Sequence Diagrams etc. To show the program design content to users
- The user interface is designed to meet customer needs
- Web function design meets customer needs

Web development

- Gain experience in web development
- Learn about third-party API related technologies
- Gain practical experience with Vue framework and Laravel framework

Problems encountered

The third-party API documentation is not sound

The highest level of risk in this project is the availability of third-party APIs. While researching the Workflow Max API, it was found:

- The official documentation is not clear.
  For example, the official documentation says that Workflow Max USES the same authorization as Xero, but there are many differences between the Workflow Max authorization configuration and Xero.
- The official documentation has technical errors. For example, API request address error.
- Official technical support response slow. I tried contacting technical support from Workflow Max and the response time was 2-3 days. Usually, by the time tech support gets back to me, I have done it myself.

It is difficult to find relevant solutions or practical cases, even on the Internet when encountering the above problems in a project.

Lack of project management experience

- Unfamiliarity with project risk management and quality assurance requires considerable time to study and understand.
- Unable to accurately locate the scope and objectives of the project, resulting in many times of communication in the early stage.

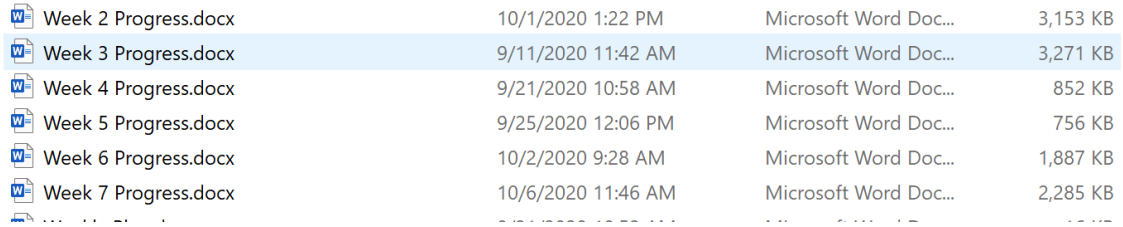
Lack of API development experience

- Amount of research required while developing

Course Management

Academic

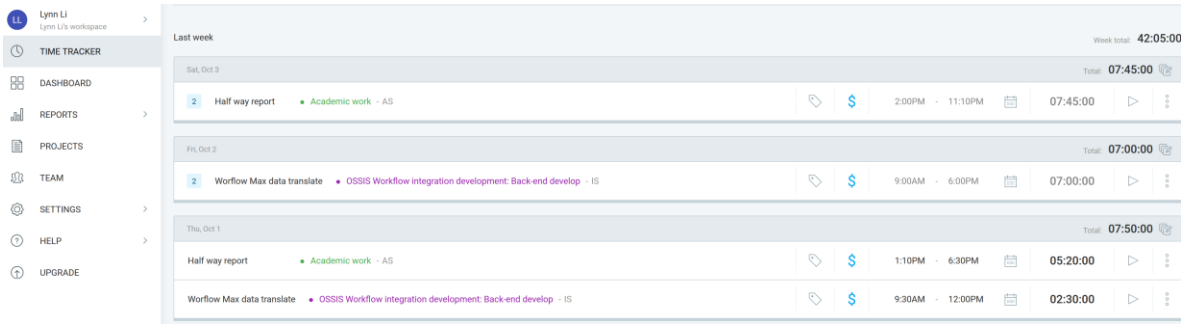
I manage my projects through the project management templates provided in the course. In addition to reporting my progress to my academic supervisor weekly, I also kept detailed records of my work content and process every week. These records will help me to fully present the progress of the entire project in the final report.

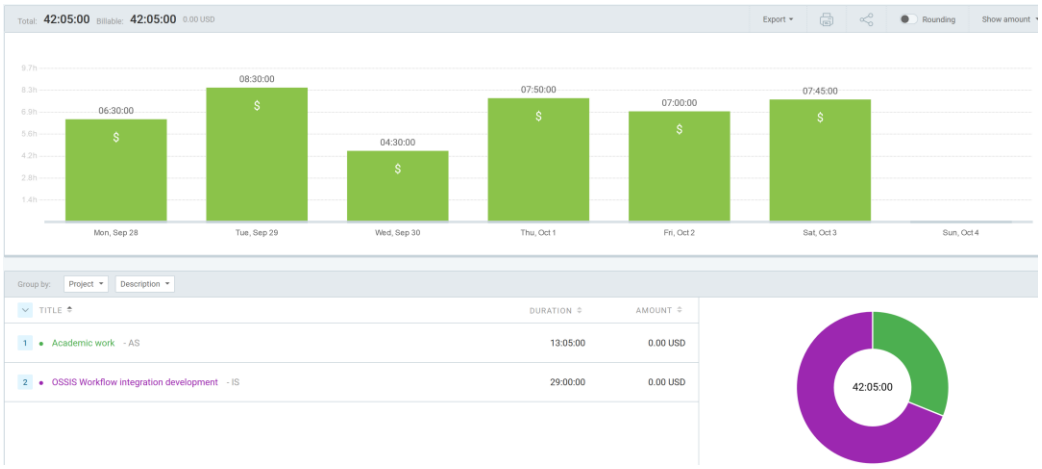


Industry

I ensure the quality of the project output by establishing a weekly task plan. The risk management template helps me to conduct a regular risk assessment and risk planning. Hourly Burn Down Chart helped me understand the overall schedule of the project. Additionally, keeping in touch with IS weekly, reporting work progress and listening to IS suggestions are also essential steps to ensure the success of the project.

Both academic and industry work was managed using Clockify.com, which is a free online software tool that visually displays the project process and generates reports.





Personal Management

I had to take care of both my family and my children during the project. So, I set fixed schedules for myself. I usually work on projects from 9.30 am to 2 pm, while after 7 pm and on weekends I focus on academic areas. Although sometimes there will be a sudden lead to work time failed to achieve expected, but my project schedule is not affected.

Weekly Reflection, weekly reports, and progress meetings

- Summarizes daily trials, tribulations, and emotions
- Summarizes weekly objectives and progress
- Talk about where I am at. Significant issues and successes.

Review of previous courses

Below is a summary of what I learnt during the completion of these classes.

BCIS301V2 - Management of Information and Communication Technologies

In this course, we learned how to strategically deploy and execute ICT projects as project managers. In the course, we developed an ICT risk management assessment tool based on a strategic analysis of the major factors that influence the success or failure of ICT projects. Also, we have studied a variety of project management frameworks. What I learned in this course was very helpful. When I was working on a project that I was developing on my own. Because I must focus on application development and the project management, risk control and quality assurance at the same time to ensure that the project is always in the right direction.

BCIT141V1 – Website Development

What I learned in this course:

- Html 5, CSS, JavaScript basic
- User demand analysis
- Web design (page layout, font, formatting, navigation, etc.)
- Static and dynamic web page production

From this course, I learned the basic knowledge of web front-end development and accumulated valuable experience in web page development. We had a precious opportunity to communicate with a real customer, understand her needs, and develop a static bookstore page for her.

BCDE103V1 - Database Design

Through this course, I learned the skills of writing, testing, correcting, and documenting moderately complex databases and SQL scripts. What I find great about this course is that it provides students with a virtual reality development environment and user needs, and guides and encourages students to try out the complete database design process and build process.

BCIT388V1 - Mobile Technology

In this course, I have learned a lot of advanced scientific and technological concepts and knowledge. In homework 1, I made a smart campus mobile phone program through XX software. The whole project from user demand analysis, user interface design, program function design to function implementation, a complete reflection of the entire process of mobile phone application development. I learned a lot from this process.

BCRP280V1 - Software Engineering 2

JavaScript is one of the most widely used languages in the browser and integrates HTML/CSS well. In this course, we mainly learned Vue. js and React. js two mainstream JavaScript frameworks. And how to use Node.js to build a server to receive requests and responses to the web front end. I really like the Vue framework. In my graduation project, I chose to use this framework to develop the web front end. And I chose "Best Practices for Vue" as my methodology essay topic.

The design of this course is very interesting. After we understand the requirements of web development, we need to design and develop a web application by ourselves. We were required to use at least five design techniques, draw class diagrams, record development errors, and develop test plans. In this process, I learned a lot of advanced programming concepts and gained valuable development experience.

BCPR283V1 - Best Programming Practices in .NET

In this course, I studied the C# programming language and the.net framework. This is one of my favorite courses. The design concept of this course is very advanced. The project of the course requires students to use the MVC architecture pattern to develop and develop according to the software interface and functional requirements provided by the students. All of this has been associated with the real work environment. To finish this project, I spent a lot of time and finally got a good result.

BCCE301V2 - Co-Operative Education Project

Project Plan

More will be added to this section.

Time Management Plan

More will be added to this section.

Risk Management

Importance of Risk Management

Introduction mentioning why risk management is important, specifically to my circumstances.

- One-person project
- High dependence on third-party software

More will be added to this section.

Risk Management Plan

The risk management plan is updated and reviewed before each project phase begins. Here are some examples:

Risk Assessment Template

#	Risk Statement Condition	Consequence	Probability (Percentage)	Impact (1-10)	Exposure (P*I)	Mitigation	Contingency	Triggers
1	Web design does not meet user needs	Users are not satisfied with the interface design or functional design, so we need to spend a plant of time to communicate with users	40%	5	2	Communicate with users before starting the design, and make design charts so that users can understand the design scheme more intuitively.	Communicate timely, update timely, and confirm with the user again.	As I am not a native English speaker, I may misunderstand the customer's requirements
2	Unable to develop web page according to design content	The user interface cannot be completed according to the design drawing. The program function in the design cannot be realized.	40%	6	2.4	Before the design, the feasibility analysis is carried out for the user interface and web page functions. For the page function, determine the basic function of the page first, then determine other auxiliary functions. For the user interface, make a detailed flow chart to analyze the workflow of the web page to avoid duplication and redundant button design.	Timely communicate with customers and confirm the modification plan. In case of technical problems, consult professionals to help solve them.	Lack of experience in web design and web development and underestimate of possible problems.
4	Project timeout	Project execution time far exceeds the 288 hours required for the course, resulting in a significant impact on course scores.	50%	2	1	Monitor and re-evaluate milestones weekly	Focus on milestones that can be completed in time and stop before your score drops.	The project lacks technical support and spends too much time on research and study.
5	Lockdown because of COVID-19	Lost in face-to-face communication and academic supervisor and industry supervisor increased the difficulty of communication.	80%	2	1.6	Pay close attention to the epidemic information at any time and prepare for the lockdown in advance.	Developed using my own computer equipment, I can work from home during the lockdown. Communicate by video conferencing (ZOOM), email, etc.	The situation of COVID-19 is getting worse.
6	New code is faulty or missing and needs to be restored to the previous version	All and part of the code needs to be redone	80%	2	1.6	Maintain good code version management and upload the code to the version management software timely.	Restore the last version of the software	New code is faulty, a file is corrupted, or the computer is lost.
7	Sickness	The time I cannot spend working on the project increases the chance of running out of time	5%	4	0.2	Set aside extra time in your schedule	In case of serious illness, obtain a medical certificate and contact AS&IS promptly.	Not feeling well enough to be able to do more work on the project.

More will be added to this section

Outcomes of Risk Management

- Examples of a mitigation plan in action

More will be added to this section

Quality Assurance

Importance of Quality Assurance

Introduction regarding the importance of quality assurance, related to aspects of my project.

More will be added to this section

Quality Assurance Plan

Send weekly report to IS and AS to report weekly progress. Here are some examples:

Weekly Plan.docx	9/21/2020 10:52 AM	Microsoft Word Doc...	16 KB
weeklyReport(Zilin Li - Week 0).doc	8/23/2020 10:39 PM	Microsoft Word 97 - ...	42 KB
weeklyReport(Zilin Li - Week 1).doc	9/1/2020 10:21 AM	Microsoft Word 97 - ...	41 KB
weeklyReport(Zilin Li - Week 2).doc	9/7/2020 10:21 AM	Microsoft Word 97 - ...	45 KB
weeklyReport(Zilin Li - Week 3).doc	9/14/2020 12:47 PM	Microsoft Word 97 - ...	42 KB
weeklyReport(Zilin Li - Week 4).doc	9/21/2020 10:49 AM	Microsoft Word 97 - ...	43 KB
weeklyReport(Zilin Li - Week 5).doc	9/28/2020 10:40 AM	Microsoft Word 97 - ...	43 KB
weeklyReport(Zilin Li - Week 6).doc	10/5/2020 5:33 PM	Microsoft Word 97 - ...	43 KB

OSSIS Workflow integration development

Student's Name: Zilin Li

Weekly Progress Report for week starting August 24th

Total Hours spent on the project **this week**:	25 Hours
Total Hours spent on the CE301 this week:	5 Hours
Total Hours spent on the project to date:	108 Hours
Total Hours spent on the project and CE301 to date:	45 Hours
Total Hours spent on the course:	153 Hours

Supervisor: David Weir
Prepared for meeting with Academic Supervisor on: 9/29/2020 12pm

Progress/achievements since last meeting	1. Use HTML 5, CSS, VUE develop user interface. ---done 2. Program Function: Use Vue send request to Monday.com ---done Check whether job exist in Monday.com ---done Update status in Monday.com --- done Add new job with detail to Monday.com ---done 3. Selected Methodology essay topic and get approval from Mike.
Tasks not completed as planned	
Barriers to progress	
Possible solutions to barriers	
Areas of concern for student	Functional development.
Status	1. not started **2. on track and continuing as planned** 3. behind schedule but achievable 4. behind schedule, unlikely to be completed as planned 5. not achievable by deadline 6. abandoned 7. completed
Supervisor's comments on progress	
Actions for next meeting: Student	Begin methodology essay(A) Try to finish the basically function of the program.
Actions for next meeting: Supervisor	

Signature of student:_____Date: 9/28/2020

Signature of supervisor _____ Date

Test Plan
More will be added to this section.

Summary of Metrics
More will be added to this section.

Major Outcomes of the QA Plan
More will be added to this section.

Methodology Essay
More will be added to this section.

Reflection
More will be added to this section.

Appendices
More will be added to this section.

References