# MCI project First Milestone Report

Team number: 7
Project Title: System to Synchronize External Schedules with Shift Management Platform

| Milestone 1 | Activities | Planned Outputs | Achieved Outputs |
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| Restate the milestone from your Draft plan . | Restate the key activities from your draft plan. | Restate the planned outputs from your draft work plan. | Outline the actual outputs compared to what was projected (or type “same as planned”) |
| In milestone 1, we plan to build a user interface that could display the Microsoft Teams Shifts data, and the user interface could detect any changes from the Microsoft Teams Shifts. | Design and implement a user-friendly user interface using Python | - Show corresponding date of the Shifts<br>- Search button for user<br>- Return searching result<br>- Display Microsoft Teams Shifts data | Same as planned |
| | Follow the tutorial to practice using Microsoft Graph API | Following Microsoft tutorial, displaying calendar data on a web application | Same as planned |
| | Get authentication tokens from Microsoft Teams | Generate the tokens that can be used to call Microsoft Graph | Generated the tokens that include access to Microsoft Teams Shifts API |
| | Build a timetable to display the Microsoft Teams Shifts data | - Users should be able to see Microsoft Teams Shifts data on our web<br>- Any modifications on Microsoft Teams Shifts should reflect on our web | Built a timetable on our web page to display data. Changes can be displayed on the table when the user refreshes the page |
| | Register our application with the Microsoft identity platform - Microsoft Azure | Not mentioned in the draft plan | Registered our application on Azure and successfully got the application (client) ID and client secret. To do these, we created Microsoft developer accounts. |
| | Not mentioned in the draft plan | Not mentioned in the draft plan | Move from desk app to the web-based platform. We built a website for our system, including sign-in, authentication, Shifts display, calendar display, and new event functions. |

| Team reflection on progress | Provide some comments below regarding the completion of this milestone specifically around:<br>1. How is the project progressing?<br>2. Are there any differences between projected and actual outputs/outcomes? |
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1. How is the project progressing?

Overall, this milestone was progressing in line with our plans. We learned the knowledge of Django and Microsoft graph API in the first four weeks. From the fifth week, we started to code and encountered a lot of problems. Fortunately, we solved most of the issues by assigned tasks to each team member and set a deadline. All the members have finished their tasks or solved problems on time. Because of this, the project progressed smoothly, and we successfully built our web to display the data from Microsoft Teams Shift before milestone 1.

- We had weekly meetings with our supervisor and team 8. We asked for suggestions for the problems we encountered, which solved lots of problems we encountered in development.
- We encountered a lot of difficulties in implementing the function of getting user's shifts, including reading JSON. It took us longer to finish this than we expected and delayed our progress, but we got it done before milestone 1.
- We built a web page as our interface. Reworking the Interface slightly delayed our progress, but we successfully finished it before milestone 1.
- We also had informal group meetings twice a week to help us keep track of our project progress.

We need to improve:

- Our development speed is a bit slow, and we need to increase the efficiency of development.
- Knowledge of Django and JSON. Lack of such knowledge has slowed our progress.

2. Are there any differences between projected and actual outputs/outcomes?

- Regarding the UI, we originally intended to write a user interface using Python's built-in methods for our client to search and get the data from the Microsoft Teams. However, during development, we found that users still needed to launch a browser to log in to their Microsoft account and grant permissions, which means that they should start a browser anyway. Besides, we found that the web interface was much better than the Python interface in terms of quality, user experience, and development efficiency. Therefore, we changed to use web pages as the interface rather than Python built-in UI.

| Team reflection on managing problems | Have you encountered any problems to date?<br>If so, how have you managed them? |
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In the first develop iteration, we had encountered several problems as below:

- Problem: Not familiar with API functions, JSON, and Django. As we have no experience in using API, we are hardly going to start our first step to construct our system.
- Solution: Spend more time reading MS Graph API documents and learn JSON and Django on W3school. We also completed an official tutorial on MS Graph.

- Problem: Microsoft Graph's authentication failed because we do not have access to Microsoft Graph and Microsoft Team using student or personal account
- Solution: create a Microsoft developer account.

- Problem: Failed to read needed data fields (e.g., shift name, date, and group) from JSON received from Microsoft.
- Solution: use Python built-in method to read the content of JSON

- Problem: The modified student account does not work as expected. Based on the user requirements, we are supposed to use our student account to sign in to the MS Teams, and the target data is stored on it. But we can not get access to register our app on Azure, and we also can not get resources in our uni.
- Solution: We created temporary developer accounts for each team member, and created our MS Team, so that we could continue to develop our API.

| Supervisor assessment | Please, rate your team (1) effort, (2) project progress and (3) their self-reflection for milestone 1<br>Rating scale 1-10 as per standard marking scheme, ie 5 is a Pass and 7 is a credit.<br>Add some comments to explain your rating |
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| Effort:<br><br>Progress:<br><br>Reflection: | |