

CS 687 Capstone Project Progress Report

Integration of CCI curriculum work and submission to the Curriculum Committee

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Abstract

Manual work increases the time complexity without providing the proper structure so that the data can live in one place and be accessed anytime conveniently. Currently, the university processes new and revised courses manually. A new application, "Curriculum Committee submission Management Tool," will be built inside the PowerApps, where all the stakeholders will enter the data at the frontend web application. Later, it can be retrieved anytime from the data set "CC_Request" at SharePoint. It will also introduce a systematic and more organized way of handling data while maintaining the data integrity at the backend in SharePoint.

Keywords: Curriculum Committee Submission, Integration of CC work, Automation, PowerApps

1. INTRODUCTION

Problem Statement

How to provide a platform where all the New or Revised course data of the CityU CC team can live altogether at one place and can be accessed anytime?

Solution

PowerApps provide developers with quickly built custom business applications by connecting data from on-premises data sources such as SharePoint, SQL servers. It improves productivity and saves tons of time as it allows the users to view the requested data at the frontend instead of viewing redundant and complex data in the data sources.

Building a new module of curriculum committee submission in the PowerApps will allow the

users/faculty members to view, update the data in a more structured way in PowerApps, saving their time and effort. It will enable data accessibility from the backend anytime when required.

Motivation

Britton, Letassy, Medina, & Er (2008) suggested that a new tool, PCMS (Pharmacy Curriculum Management System), was built by the University of Oklahoma college to allow all the faculty and students to review the curriculum data. The system was developed using SQL technology and the web-based relational database management system. It also verified the compliance of the curriculum with expected standards.

The tool got utilized by all the university staff, students including an administrator, to view the curriculum information and perform a few managerial tasks. However, analyzing this

research, it can be concluded that using SQL technology – the system cannot be scaled further, which is a considerable drawback. On the other side, implementing this solution on PowerApps does survive the purpose, and it can be mounted later according to the user requirement. The CCI department of CityU progressively built courses for all university students to help them understand the concepts thoroughly. CCI team certainly feels proud of using the PowerApps, which has made things easier than performing them manually, and also, this keeps everything on track at the backend.

The review committee can directly access the system. They can review all the new courses/revised courses entered by Program directors to start designing from the Instructional designers. The review committee, PDs, IDs – all can access the system, can directly add the course for review, then the review committee can provide their approval or denial with the required updates if any. Thus, it will be a less time-consuming process.

Approach

User Requirement: A new tool, "Curriculum Committee Submission," will be created.

Design: The design phase allows a developer to go over the user requirements and build the logical flowchart of the new process, followed by creating new modules. The below steps lead to the implementation steps to be followed in this project.

- Analysis of the user requirement, the current manual process involved and meeting with the CC team.
- Deciding the necessary data fields and their data types to hold the relevant data.
- Create a new dataset to store the module information at the backend in SharePoint.
- Collect and prepare the input data for the dataset.
- Create the flowchart of the new process.
- Design new forms and implement them to reflect the data at the frontend.
- Data Connectivity between the forms and dataset at SharePoint.

- Perform unit testing on the new forms to verify all the test cases passed.
- Demo of the new tool with the CC team for the signoff and permission to deploy the changes in the live environment.

Implementation: Four new forms will be designed and created to handle the user data in this phase. These will get displayed when the user accesses the system. Accordingly, the coding part will get implemented using the data table, combo boxes, dropdown list used under the new forms. Dataset created at the backend in SharePoint is connected inside PowerApps.

Requestor	Status	Request Type	AcadGroup	CourseManager	CourseName	EffectiveDate	SubmittedDate
Hunar	New	New		Hunar	COM	11/30/2021	11/29/2021
Hunar	New	New	SBM	Brian	BUS	12/3/2021	11/29/2021
Hunar	New	New	STC	Brian	BUS	12/4/2021	11/29/2021
Hunar Nadha	New	New		Payam Saadat	COM	11/30/2021	11/29/2021
Hunar Nadha	New	New		Payam	COM	11/29/2021	11/29/2021
Hunar Nadha	New	New		Payam	MBA	12/24/2021	12/5/2021

Home Page

Program Manager please ensure and answer the following questions for each course submitted.

Has this course gone through the CCI PowerApp request form? Yes

Has an instructional designer worked on this revision? Yes

Has a Master Reading List (Leganto) been created for this course? Yes

Do the criteria in those assignment rubrics match the PDG criteria? Yes

Note: If you answered 'No' to any of the above your syllabi cannot be reviewed by the Curriculum Committee at this time.

Please enter the course/program into the CCI Workflow before resubmitting to the Curriculum Committee while observing the relevant Curriculum Deadlines.

Next GoBack

Figure1: Form1 First page

Request Type: New

* Requestor: Hunar Nadha

AcadGroup: SBM

What changes were finalized when working with CCI according to the RACI chart? (Provide a concise list.)

* Program Manager Name: Payam Saadat

* CourseName: COM

* Course Title: 455

* EffectiveDate: 11/30/2021

Figure2: Submission form

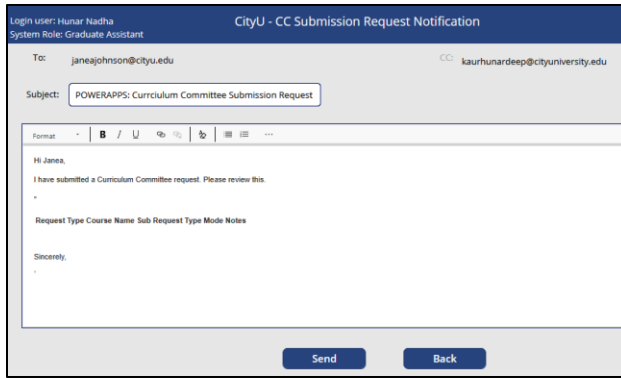


Figure3: Email notification

Coding

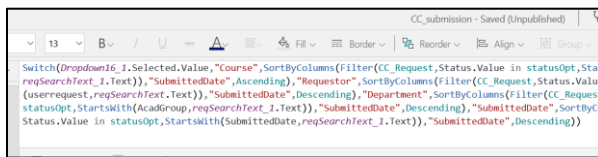


Figure4: Switch code statement

Technologies used under this project are PowerApps and SharePoint.

Value to the Student

I have automated work for the CityU staff earlier also by building and maintaining applications in PowerApps. This project implementation will allow CityU faculty members to access the requested data more efficiently, allowing data integrity and data backups more systematically. Since it requires technical ability to implement the project changes, it can undoubtedly add value to my future job role where I will be handling software engineering work that includes designing the workflow and implementing the coding changes.

Alignment to Program Outcomes

This project involves introducing the new changes to the PowerApps (a tool designed by Microsoft). The design of the frontend page will be done using the PowerApps tools, and the code changes will add to the application's functionality. Backend SharePoint list will be maintained for this application to keep track of all the data.

Conclusion

This project allows the implementation of a new module or tool, "Curriculum Committee Submission," in PowerApps. Its functionality

includes displaying the new and revised course data on the main page. It allows the Program Managers to submit the new request online and automatically sends out the email notification to the Review committee through the system. All the updated data at the backend will be reviewed by the Review committee or CC team whenever required.

2. BACKGROUND

Al Dera (2021) suggested that curriculum mapping is not an easy process to process. Thus, there should be a platform for the university students, staff members, and admin people to access this information. The project implemented the mapping of multiple modules of the curriculum comprehensively. They have built an electronic software that helps identify the gaps between the learning outcomes and assessment to implement this functionality.

Al-Eyd, Achike, & Agarwal (2018) suggested that since each curriculum needs a review and evaluation, they implemented a new tool, Curriculum Mapping, where they built the searchable database to develop, review and improve an integrated curriculum. Further, Figure4 illustrates the flow chart of the mapping process covering the following four categories:

- a) "Learning Expectations."
- b) "Learning Event Information."
- c) "Pedagogy"
- d) "Assessment"

It can be derived from the study that the tools built using SQL and searchable database are non-convenient for the users to utilize it properly. Therefore, implementation of new tool using PowerApps technology allow users to directly enter information at front end and meanwhile all the data will be collected at the backend SharePoint.

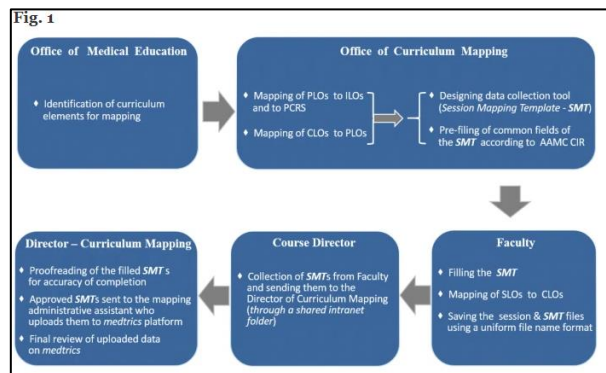


Figure5: The mapping process

3. LITERATURE REVIEW

(Reddy, 2020) suggested that PowerApps easily allow less code with automated testing, thus leading the businesses in cost-saving. Understanding how PowerApps works to create the new application, create data connectivity at the SharePoint, and define the data types to store the relevant information can be fully achieved through the provided resources under the annotated bibliography.

Related work: Syllabi and rubric work is handled unsystematically and managed in the excel sheets and university portal. Implementation of these processes in the PowerApps has automated the system (Lindhorst, 2021).

The citations finalized in this paper will surely add value to the project. A few of the comparisons and strengths are discussed below.

1. Creating the dataset list from scratch (Neumann, 2020). It will contain the new course syllabi details. The primary key is the Course Name, followed by all the relevant fields such as Program Director Name (who will submit the request), the request type (to keep the status track), Completed date (closed status of the request), Approval field, etc.
2. Understanding and deciding the data types of the new fields using (SharePoint, 2020) and (Lindhorst, 2021). Additionally, the data integrity of the data fields holds critical information (Hecke, 2021).
3. Creating the new form in PowerApps will lead to the new process of Curriculum committee submission to the users. They will enter the required data and will submit the request.
4. Email notification (automated request) will be sent to the review committee for further processing on the form.
5. Designing the new form using (Dorrani, 2021) and understanding how each field will display the data as requested.
6. Creating the connectivity between the backend list and front-end PowerApps (Microsoft, 2021).
7. Unit testing the application after implementing the final changes and verifying the desired results in PowerApps.

4. DATA COLLECTION

Data will be collected from the front-end application, Curriculum Committee Submission Management System. When the user or Program Manager enters new course data, it will get saved at the backend (SharePoint) list "CC_Request." The review committee can later use the data collected to perform further analysis for the submitted courses. It will ensure data integrity, data privacy, and efficient accessibility, thus removing the manual workload of maintaining data.

Entered course syllabi data will get displayed on the below page. They will enter new data and also can update an existing record on the screen. All this will get saved at the backend in the dataset "CC_Request." (Figure7).

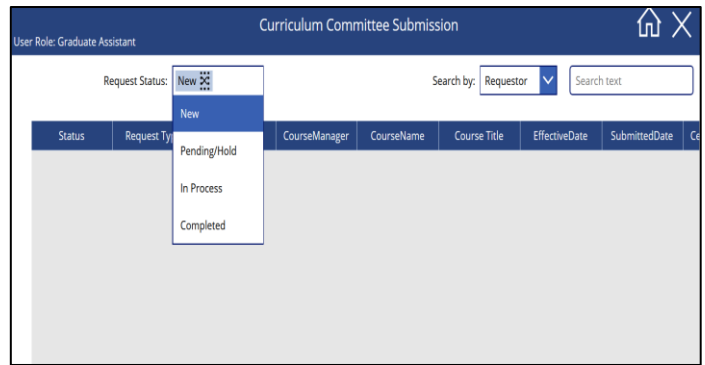


Figure6: User data

Course Title	Request Type	CourseName	EffectiveDate	CourseManager	AcadGroup
456	New	CDM	11/30/2021	Hunar	
999	New	BUS	12/03/2021	Brian	SBM
100	New	BUS	12/04/2021	Brian	STC
455	New	CDM	11/30/2021	Payam Saadat	
123	New	CDM	11/29/2021	Payam	

Figure7: Data saved at backend

5. DATA ANALYSIS

For the Curriculum committee submission, I will be using both quantitative and qualitative methods to collect the data. A quantitative approach will be applied to the number of courses that will get entered into this system. It will keep track of the total count of new courses designed. This information will get stored in the new dataset list in SharePoint. The SharePoint limit is that it should be able to collect up to 5000 data records, which can later be exceeded to store 30 million records. The data format of the CC_Request list is defined and shown in figure8.

Course Title	Single line of text
Request Type	Choice
CourseName	Single line of text
EffectiveDate	Date and Time
CourseManager	Single line of text
AcadGroup	Single line of text
SubmittedDate	Date and Time
Status	Choice
Central Purpose	Single line of text
SpecificComments	Single line of text
MeetingNotes	Single line of text
CoursePermission	Choice
ReviewedByID	Choice

Figure8: CC_Request data format

To implement the qualitative approach, I had a meeting with the involved stakeholders to understand the importance of a few fields such as Course Name, Course Title, Acad group will contain the critical information to be entered in the system.

Observation method is applied to analyze all the data fields introduced to the new dataset to store the information. The existing submission form is also used to analyze the data.

Costs Analysis – While comparing the PowerApps pricing with the SQL costs, we see a considerable difference where PowerApps is a cost-effective tool. Therefore, this project will build a new tool on this platform, thus saving costs.

Subscription plans		Pay-as-you-go plan
Best for businesses that want predictable user-based licensing – with the flexibility to license users to run one app at a time or run unlimited apps.		Best for businesses that want the ag when a user runs an app during a
Per app plan	Per user plan	Per app plan
\$5	\$20	\$10
per user/app/month	per user/month	per active user/app/month ¹
Run one app or portal per user, stacking licenses for access to each additional as their needs change.	Run unlimited apps and portals per user for one flat monthly rate.	Use an Azure subscription to pay pe the number of unique apps or porta each month.

Figure9: (Microsoft,2020) PowerApps Pricing

Editions	Open no level price (US\$)	Licensing model	Channel availability
Enterprise	\$13,748 ^[1]	2 core pack	Volume licensing, hosting
Standard - per core	\$3,586 ^[1]	2 core pack	Volume licensing, hosting
Standard - server	\$299 ^[1]	Server ^[2]	Volume licensing, hosting
Standard - CAL	\$209	CAL	Volume licensing, hosting
Developer	Free	Per user	Free download
Web	See your hosting partner for pricing	Not applicable	Hosting only
Express	Free	Not applicable	Free download

Figure10: (Microsoft, 2019) SQL Pricing

6. FINDING

Structured and organized way of storing data

This system allows storing data more securely on the platform SharePoint. It will allow exporting the data from the saved information in the dataset to collect new course data.

Automated Process

The process will allow users to enter the required data at the front end directly. The user will create a new course record and send an email notification for the new request to the review committee.

Data Backup and storage

A large amount of data will automatically get saved at the backend in SharePoint, allowing the data information to be backed up properly in the created dataset List.

7. FUTURE WORK

The application can be improved further to add the new data fields in the frontend, few modules (forms) to the existing system. New data fields can also get introduced to the dataset "CC_Request". Due to time limitation, View information web page is not working as expectedly that can be later worked on.

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