



## Submission for the 2021 Larry L. Sautter Award

**Title:** UCI's Transcripts Go Digital

### Submitter:

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### Summary:

While COVID presented many challenges in everyone's daily lives, it also presented opportunities for Office of Information Technology to find solutions for those challenges.

**Problem Statement:** The process of providing copies of the transcripts to students was very time and labor intensive.

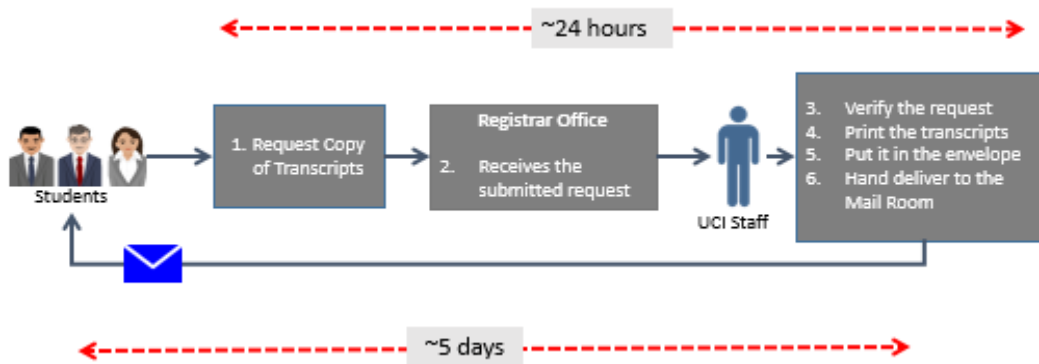


Figure 1: Process prior to deploying digital platform

Students requested transcripts using an on-line form. Registrar office received a set of requests twice a day every day through a scheduled process. Staff verified the request, printed the transcript, and stuffed the envelope. They then hand delivered the envelopes to the mail room, sometimes 100s of them each day, to be sent via postal mail. To make things even more challenging, on the receiving end, many offices and graduate schools were closed, and so the mail was not picked up on a regular basis.

On an average, each request fulfilment was taking up to 24 hours. Once mailed, that paper mail was taking up to 5 days to reach the destination. It was not a good experience for the students!

Sometimes on busy days, UCI receives over thousand transcript requests, resulting in an increased request fulfilment timeframe.

With everyone working remotely, it was difficult to get a copy of their transcript in a timely fashion since many a times staff were not physically present in the office to load the printer, print and mail these transcripts.

**Solution:** The Enterprise Student Management Systems group which is part of the Office of Information technology, implemented and deployed a digital platform for transcripts using a product from Parchment.

Prior to the start of the pandemic, the idea of a digital platform for transcripts was just starting to brew when Assistant Registrar John Lapuz reached out to Parchment for assessment and feasibility.

Once everyone was working from home, the team reprioritized this project. Parchment provides students the ability to request the transcript through their interface. After authentication, Parchment sends the transcripts via email, or a printed copy if requested, to the student's email or desired destination.

The digital platform for the transcript fulfillment project was implemented by reusing the 50+ year old legacy UCI student system. The UCI system was integrated with the vendor's systems and interfaces. This was not a trivial effort as many components of the system required modification and customization based on the UCI business needs. These customizations and modifications were required due to differences between the historical data and the current data structure, and because each school (Law, Medical, and Graduate/Undergraduate) uses different transcript templates.

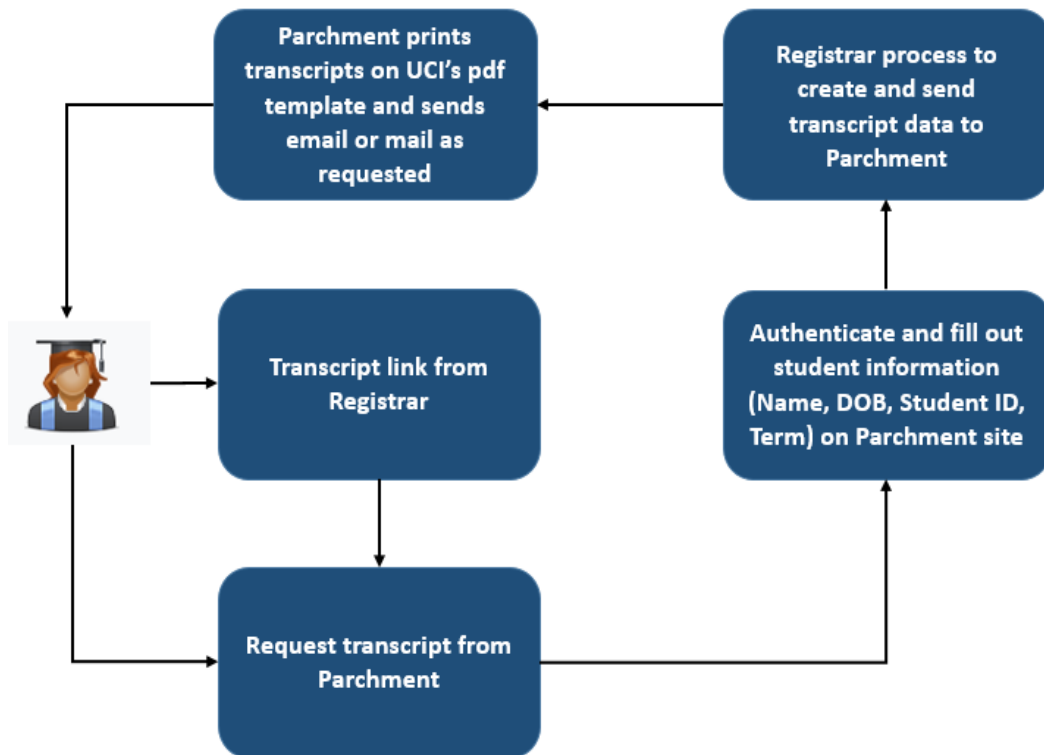


Figure 2: Process flow after deployment of digital Platform

## Project Highlights:

The scheduled process that performs the fulfillment of student's transcript request automatically runs every hour on weekdays between 7:00 am and 3:00 pm PST (except holidays).

**Student requests transcripts:** Students request transcripts on the Parchment Front Stores.

**Parchment notifies UCI:** Parchment then sends XML transcript requests to the store's sftp outbox. These transcript requests are received and saved in the UCI Registrar database. For each request, the Registrar program verifies and sends an XML response back to Parchment.

**UCI generates transcripts:** Once the student's information is validated by the system, the Registrar program generates the transcript in PDF format and sends it back to Parchment.

**Parchment sends the transcripts to the student:** The Parchment program overlays the transcript on the template provided by UCI and sends it in 15 to 30 minutes to the requester.

**Exception handling:** If transcript request is invalid or missing data, these requests are handled manually by Registrar staff. The manual intervention may include Registrar staff reaching out to the student for verification or making corrections on-line on the Parchment interface.

Normally, the overall turnaround time for a transcript request fulfillment is one hour.

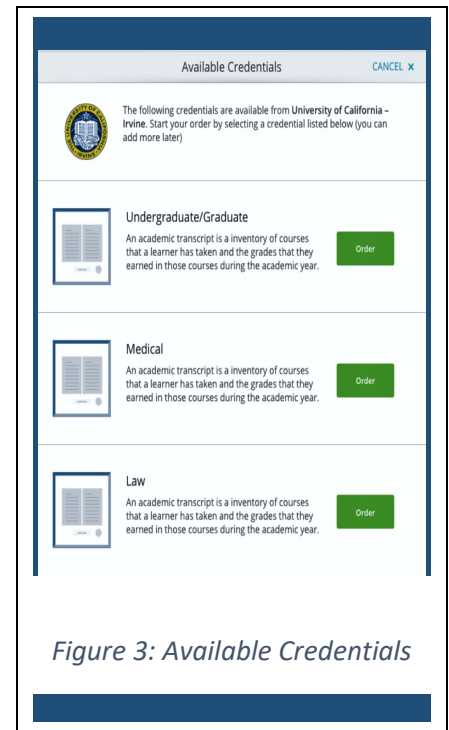


Figure 3: Available Credentials

## Impact:

- Three hundred and seventy thousand students and alumni that make up the UCI community (undergraduate, graduate, medical, law, and summer students) can request a copy of their transcript and have it available within an hour.
- Over one thousand digital and paper transcripts were processed in the first week of the service being available, representing a three-fold increase in transcript requests over the same time during previous year.
- Major reduction in business operations overhead. Though staff still have to be involved to monitor the requests with invalid information, the major manual work of loading the printer paper, printing and mailing transcripts has mostly been eliminated.
- Staff members' presence to the campus is minimized. This project allows staff to safely work at home.
- Transcript orders are processed in a timely manner. Earlier, staff were processing transcript requests each morning. Now the transcript request is fulfilled within an hour.
- Prior to this project, any records that needed manual intervention were sent as an email report to a Registrar distribution list. Now the records that require manual intervention are visible on the web application and can easily be processed by the staff. In addition, if manual intervention is needed, staff receive hourly (between 10:00

am and 3:00 pm) emails listing possible anomalies for each record, making it easier for the staff to make corrections.

## Technology Utilized:

- Application is web based and transcript requests are received and sent using XML.
- PL/SQL is used to parse the XML.
- The transcript requests are stored in the Oracle database.
- Existing UCI developed COBOL programs were enhanced to process the new request
- New BASH Shell Script developed by UCI converts the transcripts into PDF format.

## Timeline:

Since the staff that handled the transcript fulfilment started to work remotely due to the COVID situation, a solution to process the transcripts electronically was needed as quickly as possible.

The project was expedited and all the preliminary contract work such as the Statement of Work (SOW), took place between April 2020 and July 2020.

Making enhancements to the existing programs, integrating with Parchment, learning, and using PL/SQL to process the data, converting transcript to PDF in existing font and format, was all accomplished within 3 months (August 2020 through October 2020).

Jennifer Prescott from functional team tested the interface between October and Mid-November.

The project went live on November 17<sup>th</sup>, 2020.

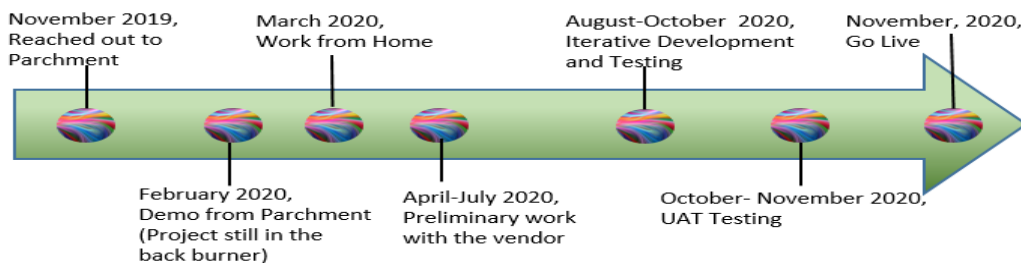


Figure 4: Timeline for development and deployment of transcript fulfilment digital platform

By bringing this project live in November, the staff avoided the work spike that they usually face during Winter Recess.

## Collaboration:

The tight collaboration between the functional Registrar team and the Registrar IT team was the primary driver for the successful result in such a short time. The following shows highlights.

- Development team met every day to discuss daily progress and issues.
- Project team worked closely with OIT/functional team partners once a week and as needed, resulting in successful outcome in a short time.
- Resources were limited due to multiple COVID related initiatives, but the team pulled through to meet the goal.
- From the development team: Derek Shirk worked on converting plain transcripts to PDF with matching fonts. Lilan Tran worked on new ways to handle and parse XML using PL/SQL. Scott Cosel modified and utilized the existing transcript programs to meet the challenging changes required for this service.

- Student Information System Liaison Jennifer Prescott managed the testing as a student user and as an administrator.
- From functional team, Paul Lampano provided leadership throughout the project from the functional side.
- Joshua Jackson as a manager and Anjana Iyer as a lead provided the leadership and coordinated all the requirements, development, end to end integration testing and User Acceptance testing (UAT) efforts.
- There were challenges re-using some of the 50+ year old modules (e.g., some of the historical data was different than the current student data, Students having same name and date of birth) and integrating with Parchment.

The new service being put in production as of November 2020 is a testament of expertise and collaboration demonstrated by everyone.

### **Beyond Digital Transcripts:**

1. To date, over 20,000 plus transcript requests have been fulfilled. 87% of these total requests are electronic requests. The other 13% are directly delivered by UCI due to the requesting institution's requirements.
2. The experience thus far with receiving electronic transcripts has been positive. Assistant Registrar John Lapuz mentioned that it reduced one FTE overhead by 75%. Staff have some relief on the mundane task of printing and mailing and can now focus on other important tasks such as advising the students.
3. The team can leverage the PL/SQL knowledge and use it for the electronic letters verification project. Letters can be past, current, or future enrollment verification, or degree verification. Currently, staff have to manually send these letters out to the requester, which could take days. UCI is one of the early adopters for electronic letter verifications.
4. Because of technical learnings from this project, the OIT (Office of Information Technology) team is able to pivot and address another pain area. OIT team is in the process of introducing new reporting, replacing an old COBOL program for reporting. This report goes to National Student Loan Data System (NSLDS). It is expected to reduce the technical overhead of maintaining the old COBOL program.
5. Post deployment, the team conducted a lessons learned session. Finalizing and documenting formal requirements was considered as an area for improvement.

### **Teams:**

<b>Project Team:</b>			
<b>#</b>	<b>Name</b>	<b>Role</b>	<b>Email Address</b>
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5	Lilan Tran	Programmer Analyst	Retired
<b>Project Partners:</b>			
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