**Student enrollment trends at Academy of Art University**

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**Abstract**

This paper analyzes how student enrollment performed in the past 5 years from 2014 to 2018 in school of graphic and design at Academy of Art University. To answer this question, we pulled data from Salesforce and Peoplesoft, programed SQL and did data visualization by using Tableau and Microsoft excel to get insights. Our results showed that the number of student enrollment decreased in the last 5 years and tend to decrease in the near future. In addition, the number of onsite and online students have been converged with each other. It means that the number of onsite students decreased while the number of online students increased. From this perspective, we built 3 dashboards in order to see the overview of student call center performance, inquiry and application, and student body flow and then find out the roots of the causes that led to lower the enrollments. As a result, we can make a right decision to improve enrollments such as implementing marketing strategies, improving our student call center and making more in-depth report on student body flow.

**Problem Statement**

We want the number of student enrollment go up because it is one of the metrics that AAU uses to earn revenue and make profit. The number of student enrollment in colleges in the United states has been declining. As a result, it is hurting many universities and the economy. Academy of Art university is one of the universities that has been affected. If we ignore this issue, it could be closed down in the future. We would transform data to insights by making graphs to see trends and dashboards to see what we should improve to increase the number of student enrollment.

**Background**

Academy of Art University (AAU) was founded in San Francisco, California in 1929. It has been the largest private art and design college in the United States. It was the first professional school that helps you improve in art and design skills and then become a good artist or designer after you graduate. All programs at AAU are taught by creative and innovative professors who will help you develop and acquire skills that industries desire.

**Scope of the project**

In this paper, we are focusing on undergraduate student enrollment in the school of graphic design rather than total students' enrollment at AAU due to the fact that our management team would like to see insights in every college in details in and then pass on to the head of each college. As a result, they are able to use insights to improve education and professor quality, assignments or projects and etc. That lead to increase the number of enrollments in the future. AAU has 22 colleges in total so it would be hard for them to understand what specific problems that are going on with each college right now if we make the report for overall student enrollment at AAU according to the AAU management team.

**The Objectives of the project**

- To see new and total student enrollment trends in the past 5 years in the school of graphic design by breaking down into student years (freshman, sophomore, junior and senior), and onsite and online

- To identify student call center performance to see the type and amount of calls that our representatives are receiving

- To pinpoint number of inquiry and application to see the performance of each of our marketing channel
- To see students' body count in year 2018

**Methodology**

Our team started using Salesforce and Peoplesoft software where other teams put student data on. Then, we used Visual Studio to combine data from two sources in one database and then cleaned data by programing SQL on SQL server Management Studio and lastly we transformed the data into insights by doing data visualization through Tableau and Microsoft Excel to make our top management to see trends and understand our analysis.
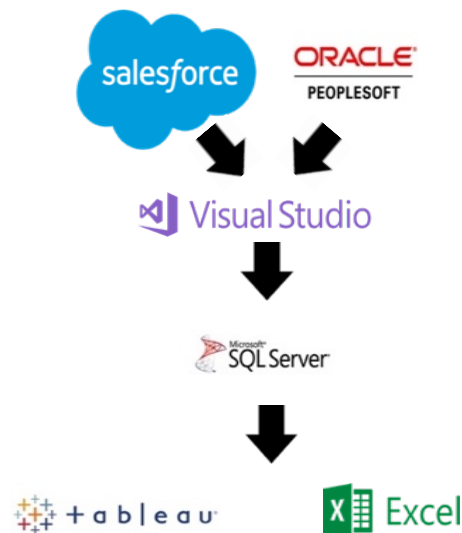
Figure 1: data pipeline structure

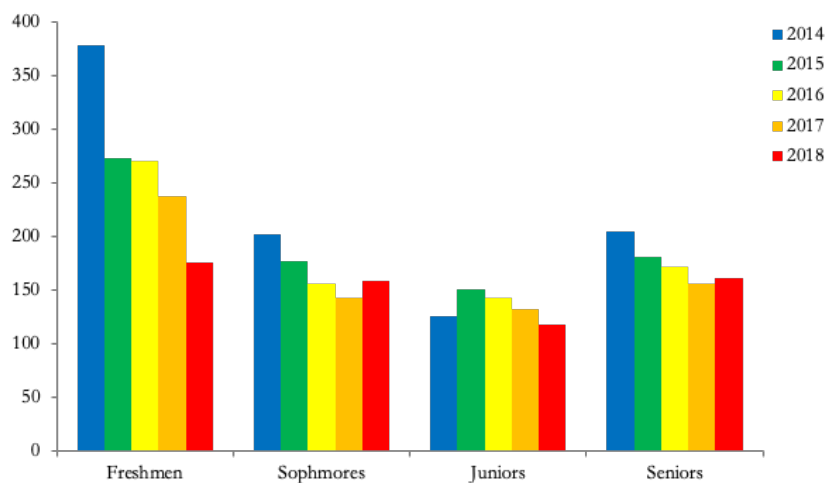**Findings/results**



Figure 2: New enrollments breakdown by years in 2014 - 2018 (Fall data only)

- 1,348 new undergraduate students have enrolled in the School of Graphic Design from spring 2014 to Fall 2018. (figure 1)

- New student enrollment decreased dramatically between 2014-15, 2015-16 and 2016-2017. (figure 1)
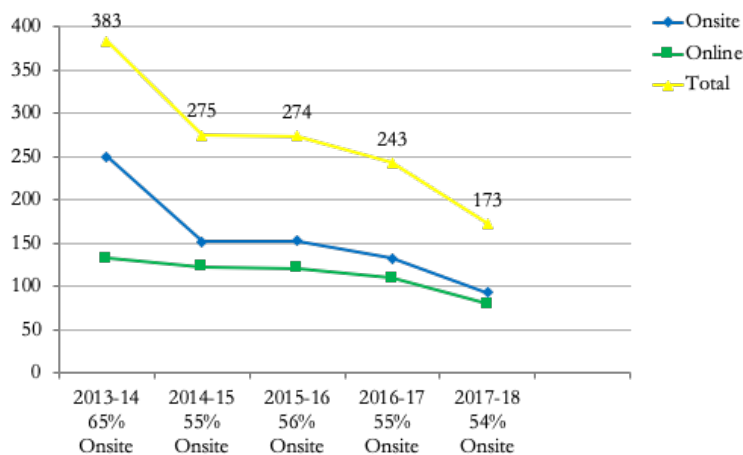


Figure 2: New enrollments breakdown by onsite - online in 2014 - 2018

- Overall new undergraduate enrollment decreased from 2014 to 2018. The percent of online students has decreased slightly, while the percent of onsite students has declined largely. This trend creates additional challenges in terms of persistence.
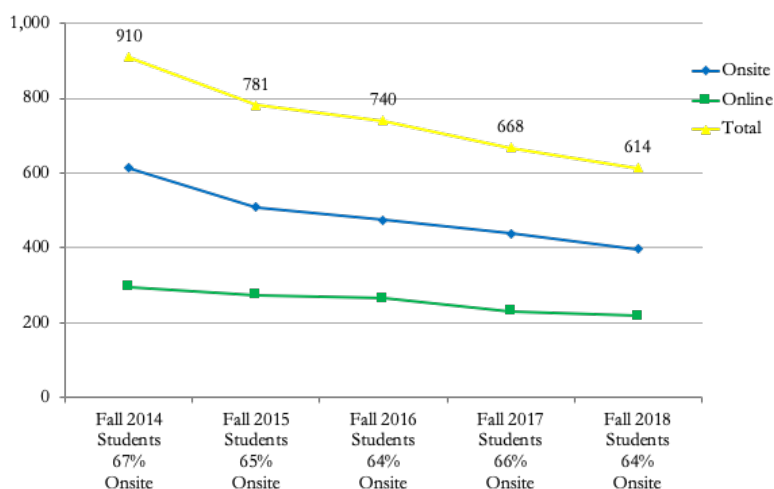


Figure 3: Total enrollment breakdown by onsite – online and full-time – part-time

- Total enrollment has decreased by 33% (296 students) between fall 2014 and fall 2018.
- Comparing fall 2018 enrollment with fall 2014 the population has shifted in the following ways: online enrollment decreased by 26% (296 to 218 students) and onsite enrollment decreased by 36% (614 to 396 students)

| Agent | | %Total | Converison |
|---|---|---|---|
| Ann Gaffney | 4,278 | 5.30% | 0.00% |
| Ashley Fowler | 3,720 | 4.08% | 3.70% |
| Christopher Gueva.. | 3,225 | 5.25% | 3.57% |
| Danica Ballinger | 4,743 | 5.01% | 0.00% |
| Elizabeth Char | 4,514 | 4.53% | 2.86% |
| Emily Hutter | 1,560 | 5.92% | 0.00% |
| Eric Tigri | 4,053 | 5.48% | 3.57% |
| Hamnah Khalid | 4,954 | 4.26% | 0.00% |
| Jacqueline Ho | 4,006 | 4.39% | 0.00% |
| Jade Takimoto | 3,183 | 5.81% | 0.00% |
| JJ Rogalski | 6,878 | 4.38% | 1.85% |
| Maarten van der P.. | 1,317 | 6.51% | 12.50% |
| Maya Espinoza | 6,312 | 4.53% | 4.08% |
| Melody Pinkard | 8,401 | 3.90% | 1.92% |
| Noah Kavic | 4,646 | 4.97% | 2.50% |
| Samantha Deconin.. | 3,086 | 4.99% | 0.00% |
| Steven Spencer | 3,167 | 4.93% | 0.00% |
| Susan Friedman | 6,712 | 4.16% | 0.00% |
| Susan Sultan | 7,851 | 3.70% | 0.00% |
| Toni Woodward | 9,884 | 3.83% | 0.00% |
| William Carduner | 4,522 | 4.38% | 0.00% |

# INCOMING AND OUTGOING CALLS / TIME OF DAY

ABANDON RATE **7.2%**   TOTAL CALLS TODAY **752**   CALLS PER MIN **0.52**
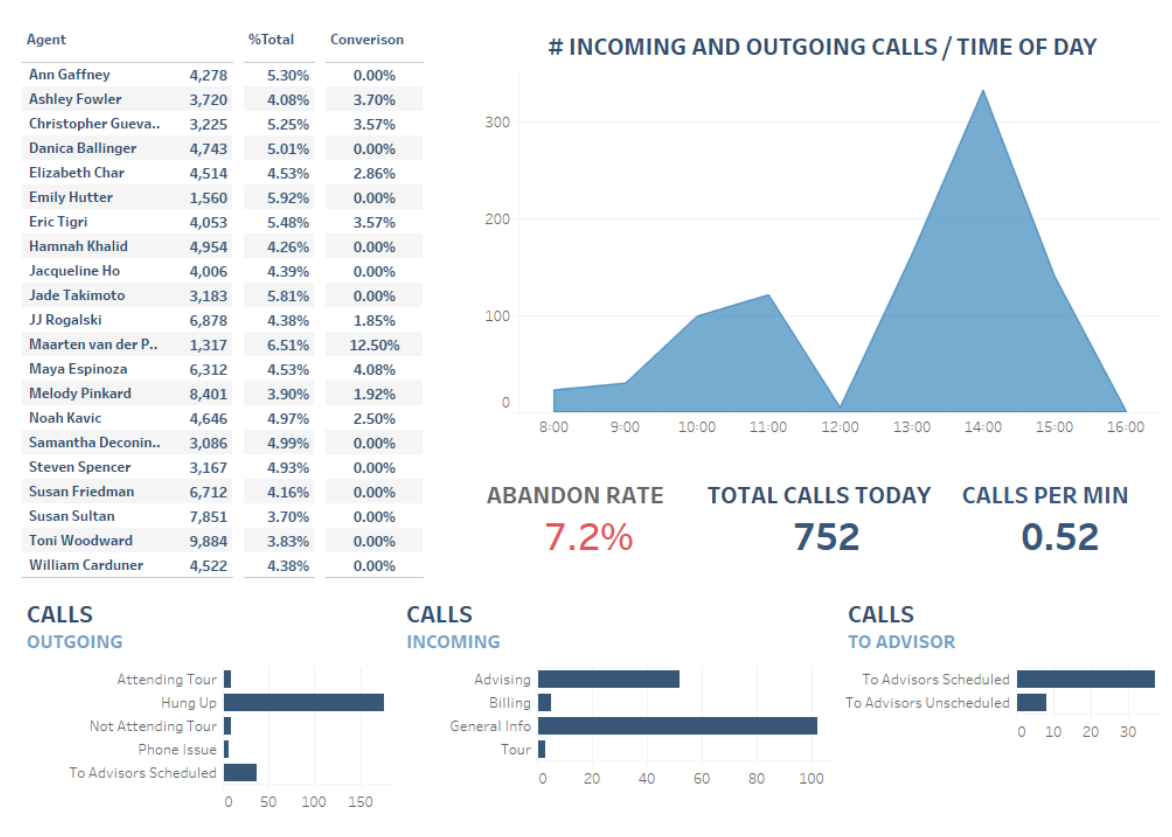
CALLS OUTGOING

CALLS INCOMING

CALLS TO ADVISOR

Figure 6: call center dashboard

- The conversion rate from percentage of total calls to application of each representative was very low. More than 10 agents got 0% conversion rate. There should be some issues here that we have to dig into.

- The number of incoming and outgoing calls were at peak around 2 pm.

- The number of incoming and outgoing calls was 752 and was spent 0.52 per call. The abandon rate was 7.2%

- Top 4 Calls incoming was asking for general information, advising, billing and tour.

- Top 3 Calls outgoing was hanging up, scheduling with our advisors and inviting people to attend the school's tour.

- Called to advisor schedule was greater than called to advisor unscheduled. There should be a way to convert called to advisor unscheduled to called to advisor schedule.
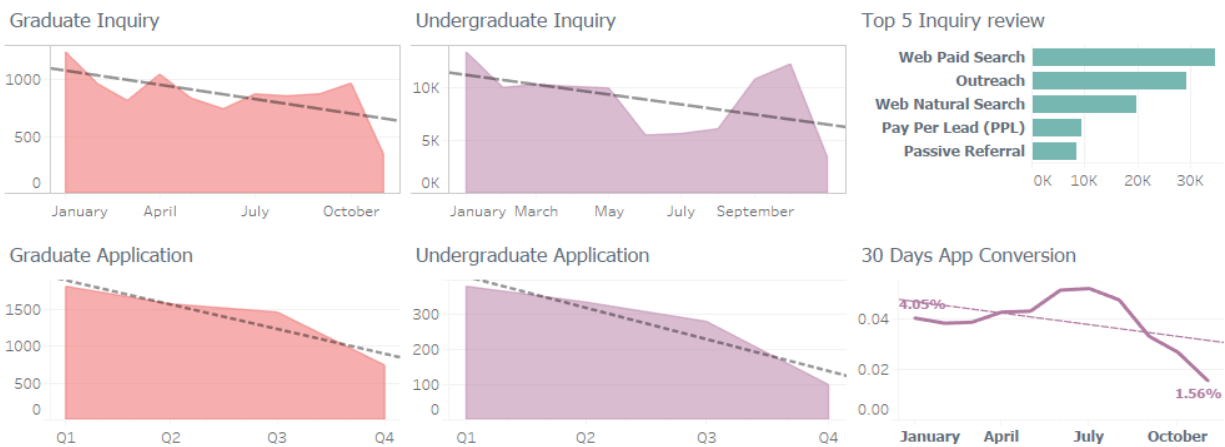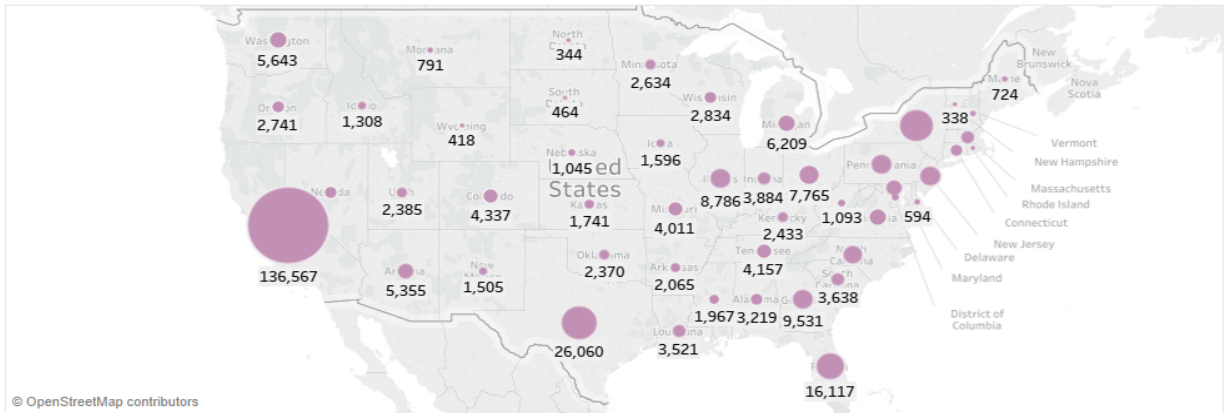


Figure 7: inquiry and application dashboard

- Top 5 states that have the most inquiries were California (136,567), Texas (26,060), Florida (16,117), Illinois (8,786) and Washington (5,643).

- The undergraduate and graduate inquiries trends decreased since the beginning of the year and started to increase from the middle of the year until October.

- The undergraduate and graduate applications trends decreased since the beginning of the year

- Top 5 inquiry channel: web paid research, outreach, web natural search, pay per lead and passive referral

- 30 days app conversion was at peak in July. It was 1.56% which was the lowest 30 days app conversion.

## Student Body Count

| | Fall 2018 | | Spring 2018 | | Summer 2018 | |
|---|---|---|---|---|---|---|
| | **17,783** | | **19,898** | | **9,284** | |
| GRAD | | UGRD | GRAD | UGRD | GRAD | UGRD |
| **5,755** | | **12,028** | **6,533** | **13,365** | **2,747** | **6,537** |

| | Graduate | | | | | | Undergraduate | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | DOM | | | INTL | | | DOM | | | INTL | | |
| | Blended | Online | Onsite | Blended | Online | Onsite | Blended | Online | Onsite | Blended | Online | Onsite |
| Bgn Term Non Retur.. | 30 | 376 | 71 | 41 | 52 | 137 | 211 | 1,098 | 305 | 96 | 74 | 125 |
| Comp Term | 28 | 134 | 57 | 95 | 25 | 306 | 140 | 185 | 114 | 119 | 34 | 103 |
| Net Transfer | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 92 | 18 | 0 | 2 | 11 |
| New | 61 | 501 | 113 | 132 | 79 | 351 | 211 | 1,983 | 683 | 47 | 84 | 355 |
| Reenter | 19 | 274 | 27 | 25 | 38 | 37 | 110 | 618 | 150 | 54 | 62 | 49 |
| SSB | 422 | 3,270 | 717 | 1,233 | 708 | 2,954 | 2,886 | 7,591 | 3,206 | 2,168 | 1,204 | 1,993 |
| Summer Leave | 72 | 506 | 118 | 165 | 56 | 342 | 394 | 1,107 | 513 | 182 | 53 | 203 |
| Summer Leave Return | 62 | 503 | 101 | 171 | 55 | 321 | 423 | 1,023 | 405 | 167 | 55 | 192 |
| Withdrawal | 11 | 170 | 14 | 6 | 30 | 19 | 65 | 742 | 108 | 28 | 57 | 28 |

Top 5 Departments with Withdrawal

Top 5 Departments with Summer Leave
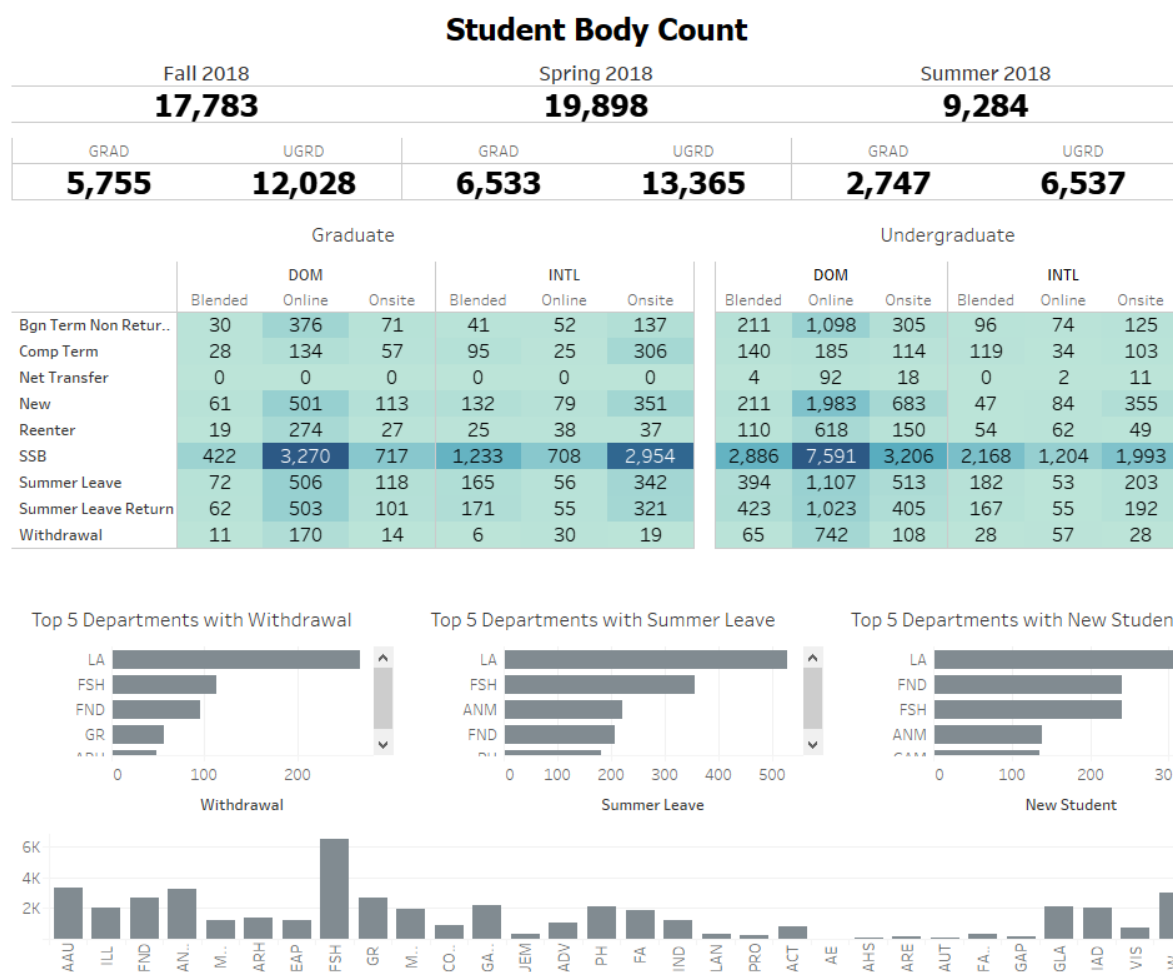
Top 5 Departments with New Students

Figure 8: student body flow

- The number of students in fall, spring and summer in 2018 was 17,803, 19,898 and 9,284.

- The number of students in each type: dark (high number) → light (low number)

  o Bgn Term Non Return (students sat in and then dropped it before the drop date)

  o Comp Term (complete semester)

  o Net Transfer (transfer to AAU)

  o New (New students)

- o   Reenter (stop one or more than one semester and came back)

- o   SSB: (students who took a class last semester and took the class in summer)

- o   Summer leave (do not take summer classes)

- o   Summer leave Return (do not take summer classes and applied for Fall)

- o   Withdrawal (sat in the class and the dropped it after the drop date): the number of online DOM undergraduate was very high. This was one main issue that AAU should solve in order to lower this number.

- Top 5 schools with withdrawal: LA, FSH, FND, GR

- Top 5 schools with summer leave: LA, FSH, ANM, FND

- Top 5 schools with new students: LA, FND, FSH, ANM

**Recommendations**

First of all, we can see that most inquiries were from web paid search, outreach and web natural research. Top 5 highest numbers of inquirers were in California, Texas and Florida, Illinois and Washington. We should spend more on web paid search as well as do outreach in these 5 states by attending education fairs to present the school's programs, extracurricular activities, tuition fees, requirements and etc. Secondly, students have started to shift from on-site to online. The school realized that online courses are becoming one of the preferred methods that new generations will learn through. As a result, the school decided to have online degrees provide the same education that they offer on campus with greater flexibility. They can study whenever they want at their own pace and create their own goals. They can even combine online and on-site classes to finish a degree. We definitely have opportunity to create a more in-depth report for online retention and student success for the online courses in the future. Thirdly, we found that our peak time that people will accept calls from schools were around 2pm. It may

increase a chance for people to pick up our calls at 2 pm. We can have a more detailed report about the low conversion rate for each individual representative by drilling down into each representative and see the type of calls that they are having. Lastly, student body flow showed us the high level of where is our student going. I see an opportunity for more reports on student retention, churn and potential tutoring session programs to support students success in the future.

**Personal and Professional Development**

This innovation project contributed to my professional development in data analytics. I am interested in data analytics since I moved to live in Bay area to pursue an MBA program at University of San Francisco. Moreover, data science is one of the sexiest jobs of the 21st century. Data scientists have to involve with coding, math and statistics, and business. I had a chance to take a coding class at USF and learned coding online courses. Also, I like to learn how to run businesses and launch advertisements. I decided to choose business analytics to be my concentration. Even though my background and working experience were not related to data analytics. This project has led me to understand how data analysts at universities/colleges work in their daily routine. It was quite hard for me to understand all steps that they have done in the beginning of the project. It was not complicated but It was very new to me. Over time, I realized what steps and tools that they have taken and used to finish reports for their management team in order to make a business decision to make more money as well as improve quality of employees in school to make sure that they reach their targets or goals.  This was a great opportunity for me to learn by doing it.

**Conclusion**

In conclusion, I think there are a lot of opportunities to improve AAU by using insights because there are still many tables and data that I haven't used. I was able to use raw data from joining multiple tables together and create meaningful reports for different departments. It is important and interesting to see why the enrollment numbers have been going down. These reports tell the weaknesses for each department and what each department need to focus on at a high level. If we continue to focus into more detailed reports, we have the potential to find more issues that AAU could fix. These metrics can potentially show us if we are making the right decision.