UNIVERSITY of WASHINGTON

UNDERGRADUATE STUDENT RETENTION PROJECT

TEAM 6
MSBA 2022


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CLIENT

UNIVERSITY of WASHINGTON TACOMA

- Founded 1990
- Student enrollment 5400
- Urban serving campus
- Diverse, first-generation students

PROBLEM

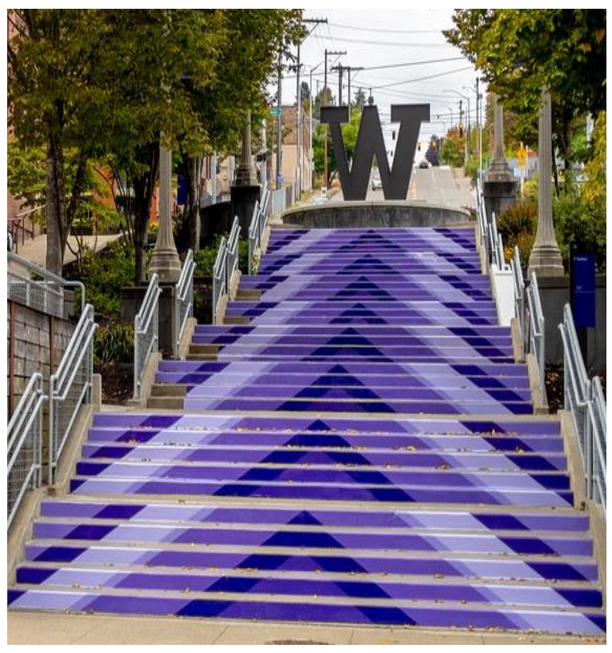
- UW Tacoma experiencing increase in student attrition & decline in student enrollment.

GOAL

- Analyze factors affecting attrition in students and identify factors that will increase student recruiting.

SCOPE

- To predict the at-risk undergraduates and present an analytical solution to improve the retention of students.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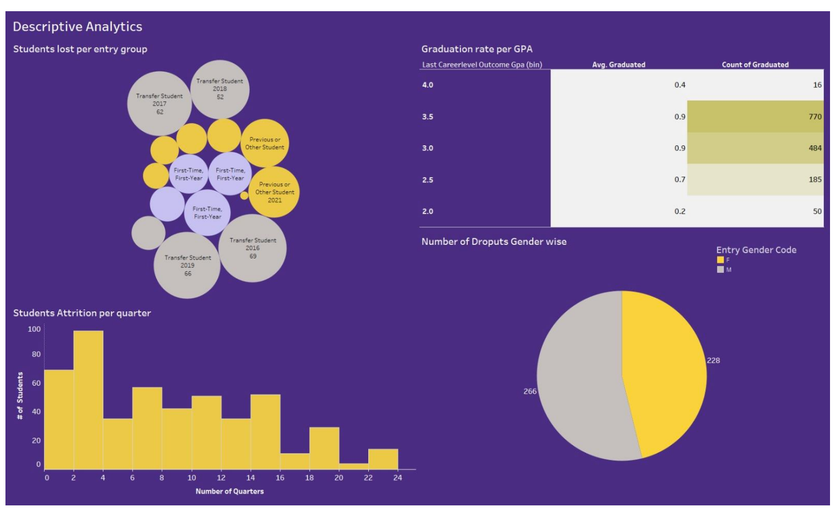
TECH STACK

Microsoft SQL Server Management · tableau · RStudio · Microsoft PowerApps

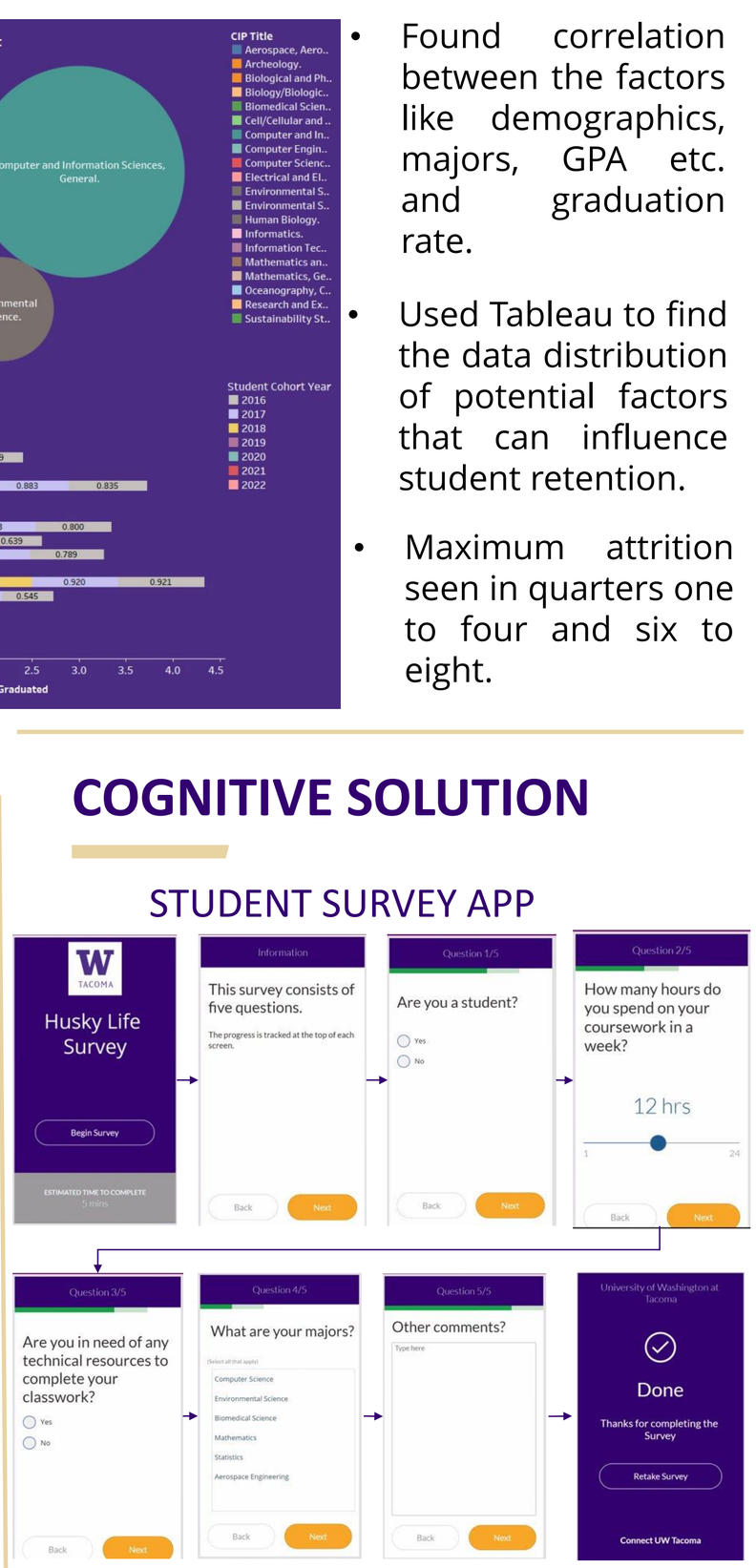
DESCRIPTIVE / DIAGNOSTIC

- Found correlation between the factors like demographics, majors, GPA etc. and graduation rate.
- Used Tableau to find the data distribution of potential factors that can influence student retention.
- Maximum attrition seen in quarters one to four and six to eight.



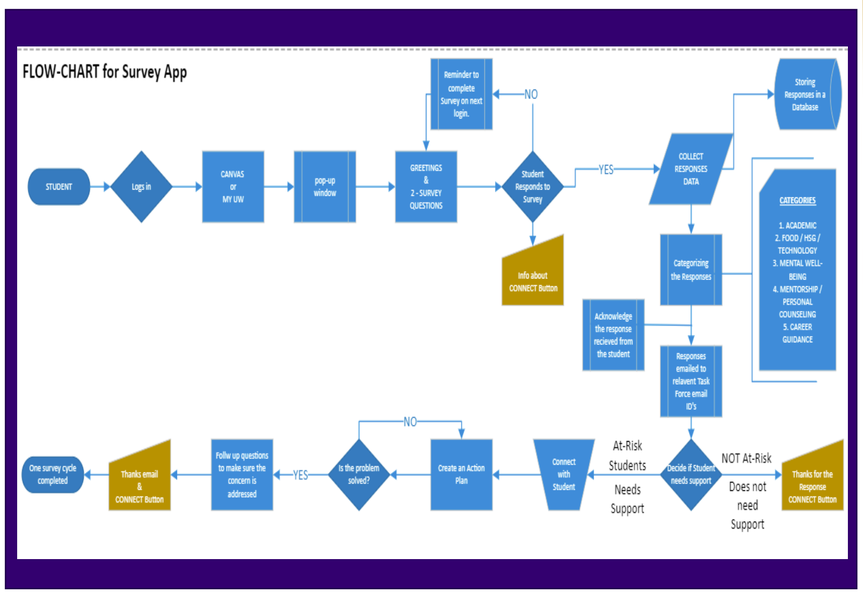
COGNITIVE SOLUTION

STUDENT SURVEY APP



SCREEN SHOTS OF THE APP

- This proto-type of the App has sample questions. The actual survey questions will be different, aligned with predefined categories.
- This App will provide overall sentiments and identify at-risk students and help UWT to proactively correct the unsatisfaction rather than reacting on it later.



FLOW OF INFORMATION FROM THE STUDENT THROUGH THE SURVEY APP

PREDICTIVE

- Developed predictive models in R.
- The process involved data clean-up – removing missing values, removing skewness etc. Data transformation – creating new categorical variables and trying multiple algorithms like logistic regression, decision trees etc. Best model was a logistic regression model that gave close to 90% accuracy in predicting whether a student will graduate or not.

	0	1
0	**True Positive** 1187	False Positive 305
1	False Negative 468	**True Negative** 5216

CONFUSION MATRIX & STATISTICS

```
               Accuracy : 0.8923
                 95% CI : (0.8849, 0.8994)
    No Information Rate : 0.7694
    P-Value [Acc > NIR] : < 2.2e-16

                  Kappa : 0.6856

 Mcnemar's Test P-Value : 5.652e-09

            Sensitivity : 0.7172
            Specificity : 0.9448
         Pos Pred Value : 0.7956
         Neg Pred Value : 0.9177
             Prevalence : 0.2306
         Detection Rate : 0.1654
   Detection Prevalence : 0.2079
      Balanced Accuracy : 0.8310

       'Positive' Class : 0
```

RECOMMENDATIONS

- Integrate the Survey App with MyUW or Canvas platforms.
- Encourage more and more students to participate in the Survey.
- Design the survey questions specific to predefined categories.
- Add student helpdesk numbers and FAQ information in the Power App so that students have another way to refer it.
- A Mentorship/Buddy system should be introduced to help at-risk students.
- Constant Follow up sessions