DIC (CSE 587)

Report for Project2 part 3

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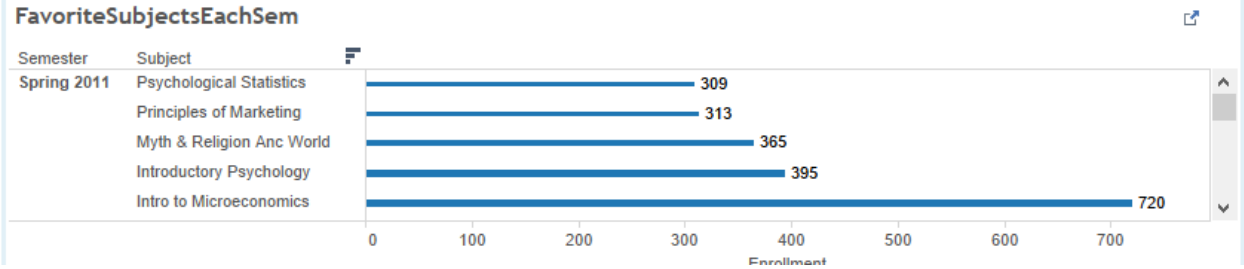
BOOK1:

This dashboard has graphs corresponding to the subjects which have been in demands since the last 2 years or so. The various visualizations present several insights to help us understand the various subjects and their offerings along with time slots.

Since these are the most popular subjects hence, it is necessary for the college authorities to take a special care of these subjects as they feature the maximum enrollments or enrollment increase.

We can understand their current offerings and hence can come up with a better schedule so that they can be scheduled in a better way. Along, with this the dash board also presents the time slot analysis for the subject with the maximum enrollment, in this case it is General Chemistry. Let's understand the significance of each graph one by one so that we can understand and come up with logical ideas post their analysis.

FavoriteSubjectEachSem:

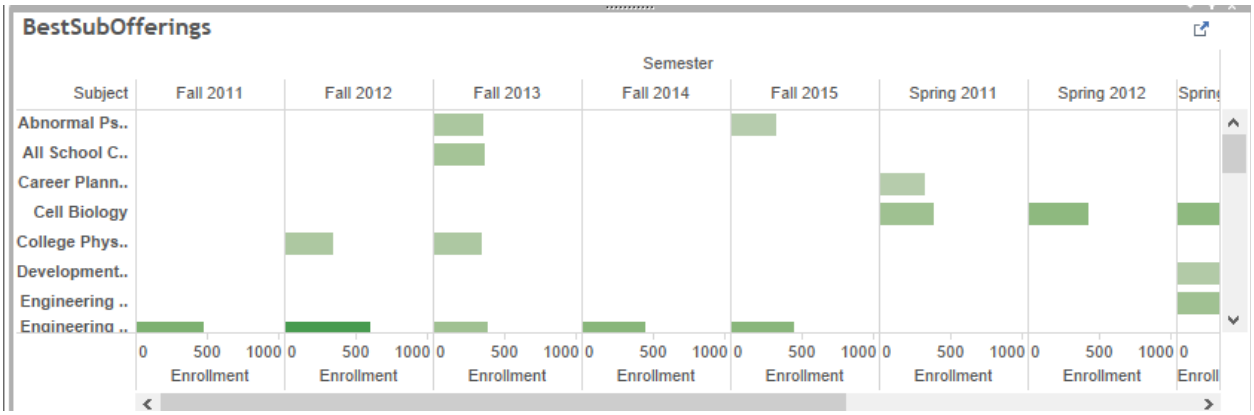


This curve basically gives an idea of the subjects with record enrollments in each of the last five semesters. The insights from these graph can guide us to know as to what are all the subjects which are popular in either fall or spring from the last five. This graph is a visual representation of the same. Seeing this a person can come up with conclusions on which are the best subjects in fall or spring. Also, once the schedulers know this list they can make necessary arrangements for these subjects as they have a lot of people in them.

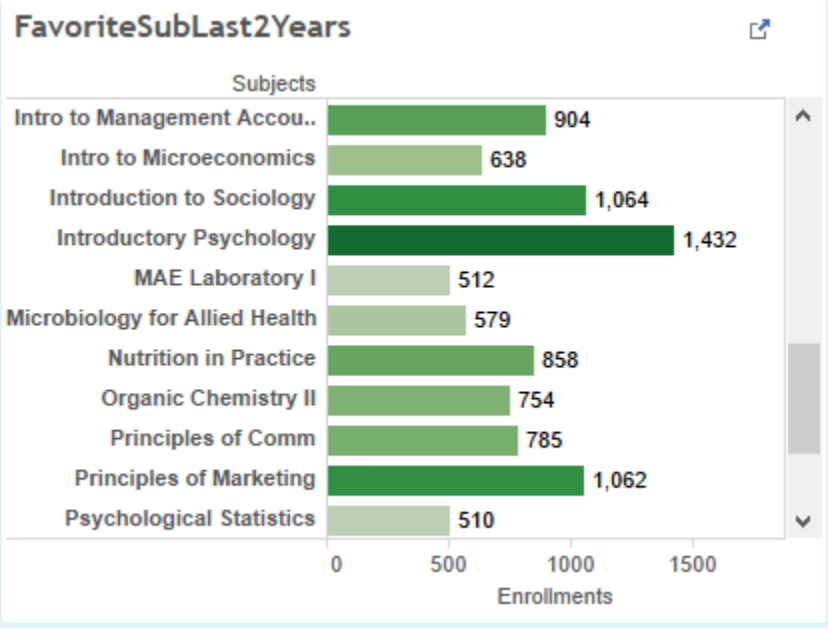
BestSubOfferings:

This visualization is an attempt to show how the popular subjects are offered in spring and fall and what has been their strengths. Seeing this an administrator can understand if the subject is increasing in popularity or decreasing.

A deeper insight can help a person figure out a more convenient schedule for the subjects which are more popular among people. Also, if a subject has a lot of strength, then this chart can guide a person to build a perception based on the past records if the subject strength is going to increase or decrease. This can really help to make prior arrangements for the subject instructors.

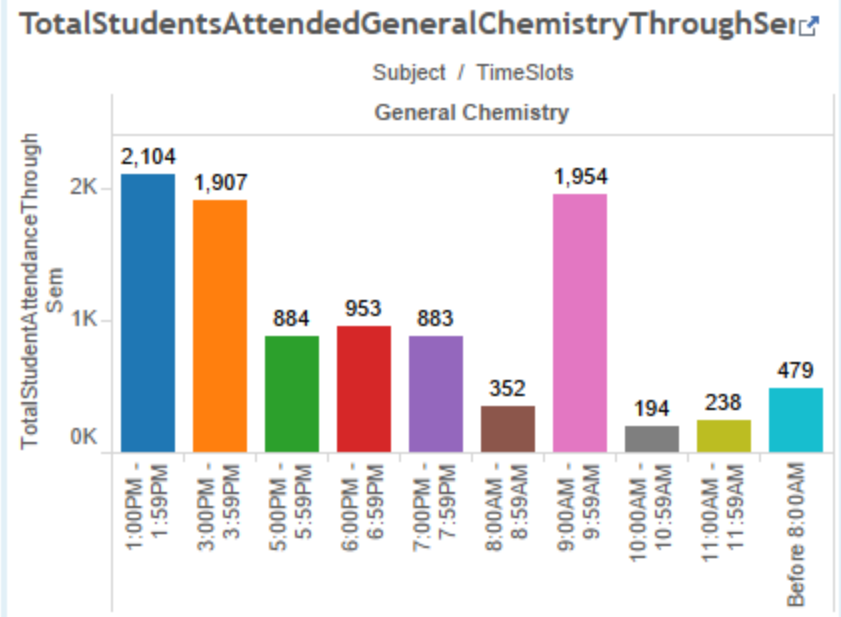


FavoriteSubLast2years:



After having done the above analysis, there was a curiosity to do a further analysis to know which exactly the most popular subject is and give some suggestions based on the timings it is offered at. With the help these instructors can schedule the subject to better manage it. From the conclusive graphs since the last 2 years it was found that the maximum enrollment took place in General Chemistry.

Hence, below we present a visual to enlist the number of students who attended general chemistry in various time slots throughout the semester. This helped us to find out the preferred time slot of students who took this course.



CONCLUSION:

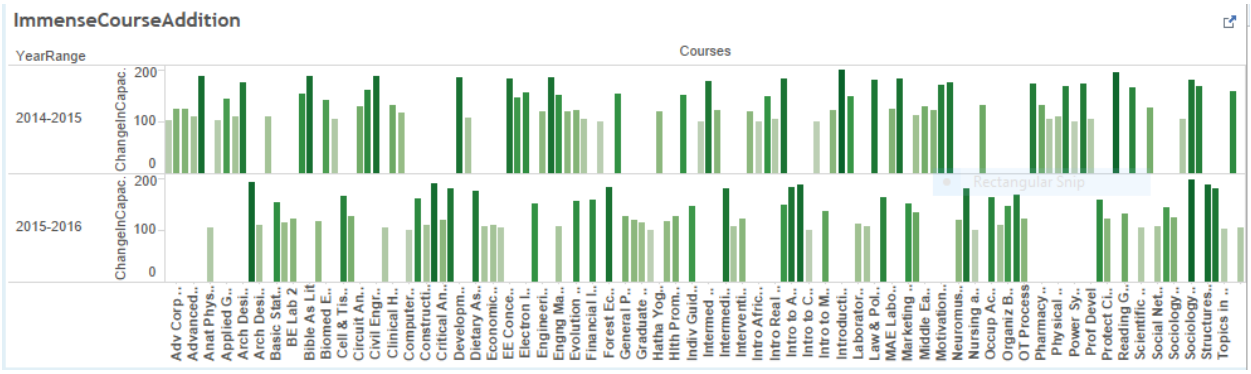
The above dashboard presents interesting insights on the popular subjects in UB and their offerings along with enrollments and schedules.

BOOK2:

This dashboard is an attempt to present the growth trends of UB. The increase in the university capacities or increase in university courses. Growth in Halls and their capacities.

Let's now understand each graph independently to know its importance.

ImmenseCourseAddition:

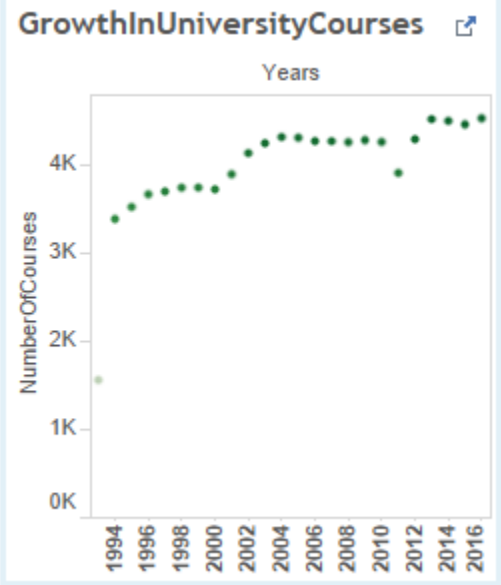


The graph, shows the data for the 2 years and presents stats for the change in course enrollments. It presents those courses which have undergone change in enrollment more than 100. When we analyze this scenario, and understand that there is an increase of 100 in enrollment this indirectly refers to that an entire new subject has been added.

Hence, the above can also be considered as newly added subjects since the last 2 years.

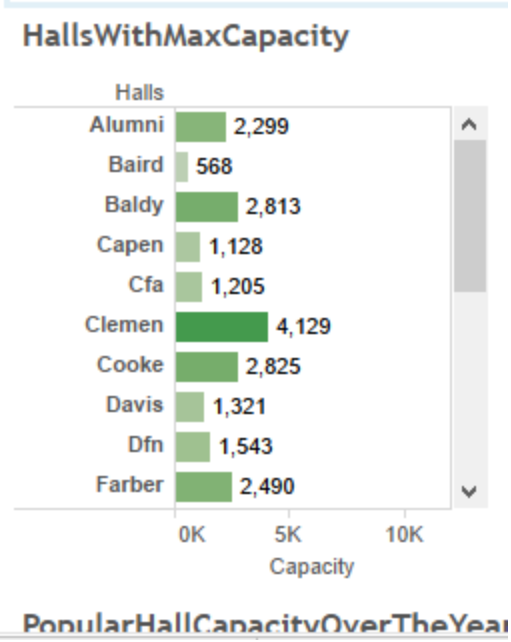
GrowthInUniversityCourses:

In the below graph we attempt to show the increase in university courses since the time data was given. The trends project a general growth scenario and it is good to see that UB is growing as a university.

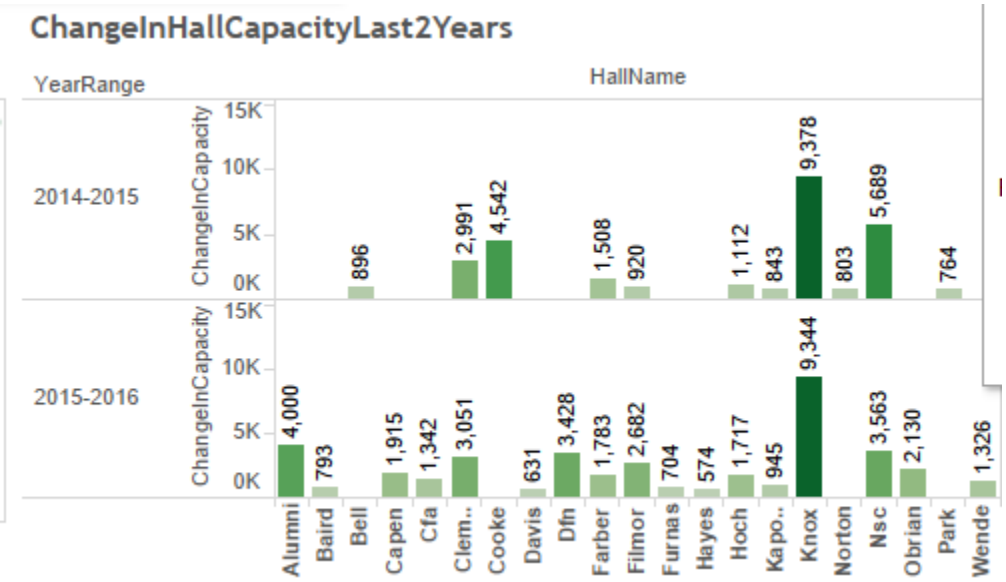


HallsWithMaxCapacity:

Post all this analysis, like growth trends and best course we wanted to know the hall with the maximum capacity. Since, we know that General chemistry has a lot of enrollment so, knowing the hall with the maximum capacity we can advise the instructors to schedule this course in this Hall.



ChangeInHallCapacityLast2Years:



The above graph is one more addendum to project the overall growth picture of the university. Hence, we see increase in courses and many new courses getting added along with space increase. This gives a fairly positive picture of the university.

CONCLUSION:

The above dashboard is thus an attempt, to present the overall growth picture of the university. It shows the subjects in which university is growing. Also, with these subjects a person can get to know about which areas university is growing towards and hence can predict the specialization areas in which university is expanding.

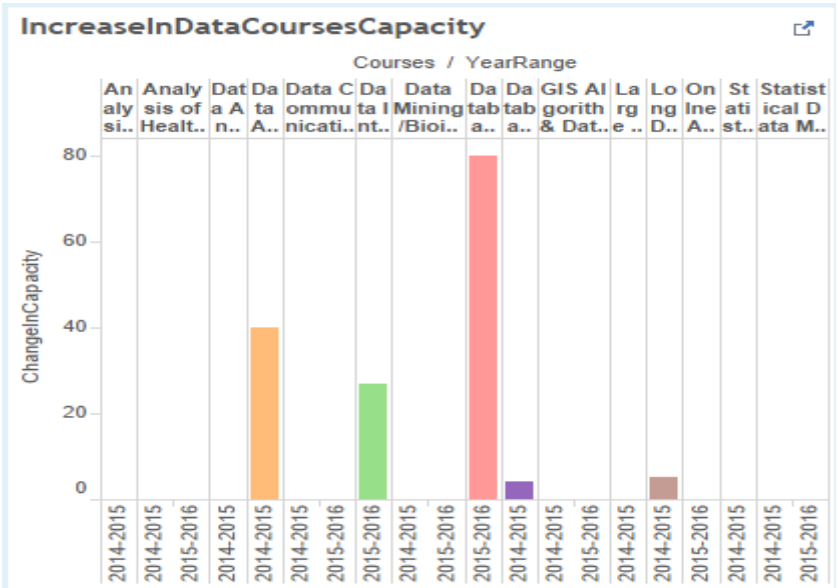
BOOK3:

Book3 is an attempt to understand the latest trends in Data Science fields. It is an attempt to know which way the interest of the people is heading towards and where data as a field is heading.

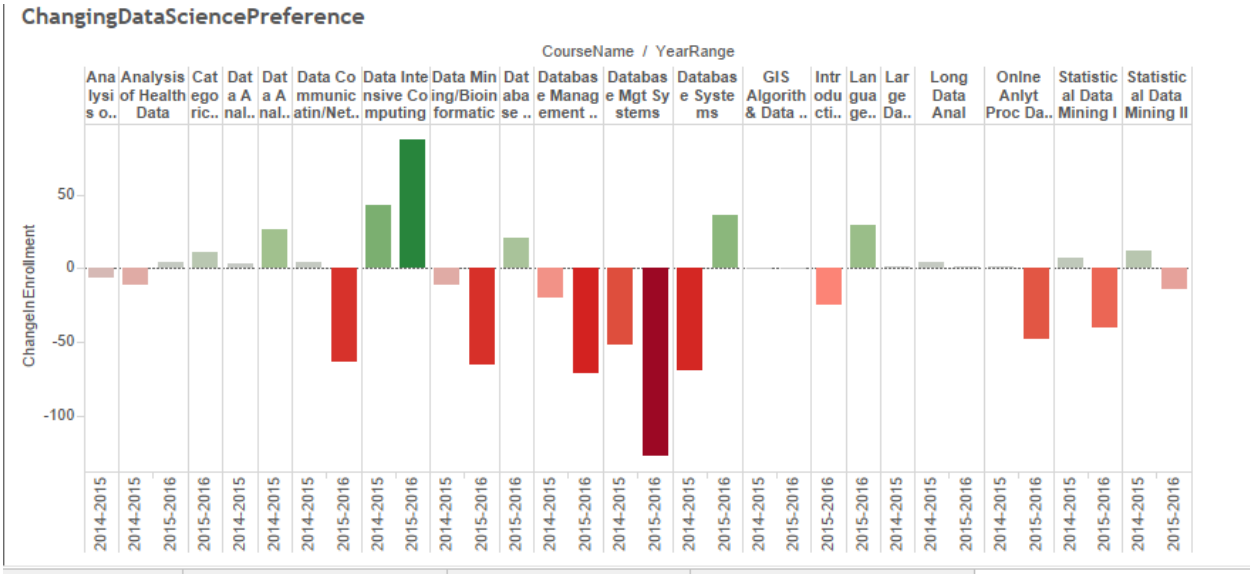
The below is the explanation of the individual visuals:

IncreaseInDataCoursesCapacity:

The graph is an attempt to display a change in the capacity of the data science related courses. It neglects the subjects for which the capacity has decreased since we just wanted to know the increasing trend and where the data as a field is heading towards.



ChangingDataSciencePreference:

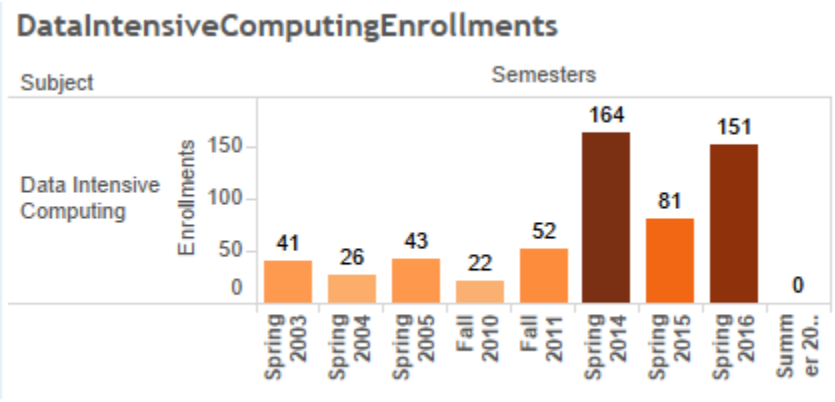


The above graph attempts to show the change in enrollment in the last 2 years. It is clear that there is an increasing trend to study subjects related to unorganized data i.e. Data Intensive Computing.

DataIntensiveComputingEnrollments:

Once we know from the above that the popularity of the Data Intensive Computing is increasing we wanted to know what has been the trend in the growth of Data Intensive Computing.

It is clear that lately since the last couple of years there is a growth in the number of enrollments. This indicates that unorganized data analysis is gaining popularity.



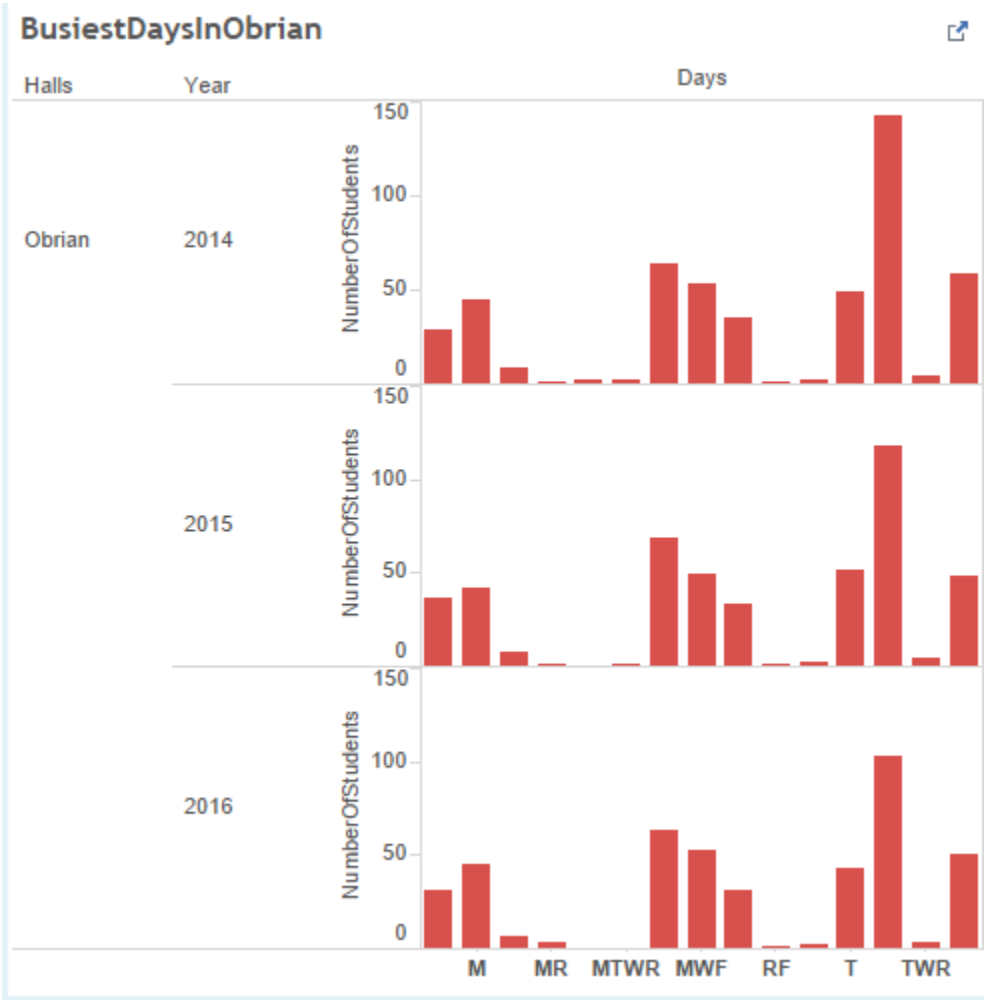
BOOK4:

In this section, we want to do time slot analysis. Based on this, and analyzing how many people are there in college at one particular time, we can recommend the shops to be prepared for a lot of people in the college at a particular time. This can guide them to manage their work force better.

Below is the explanation for each of the graphs separately.

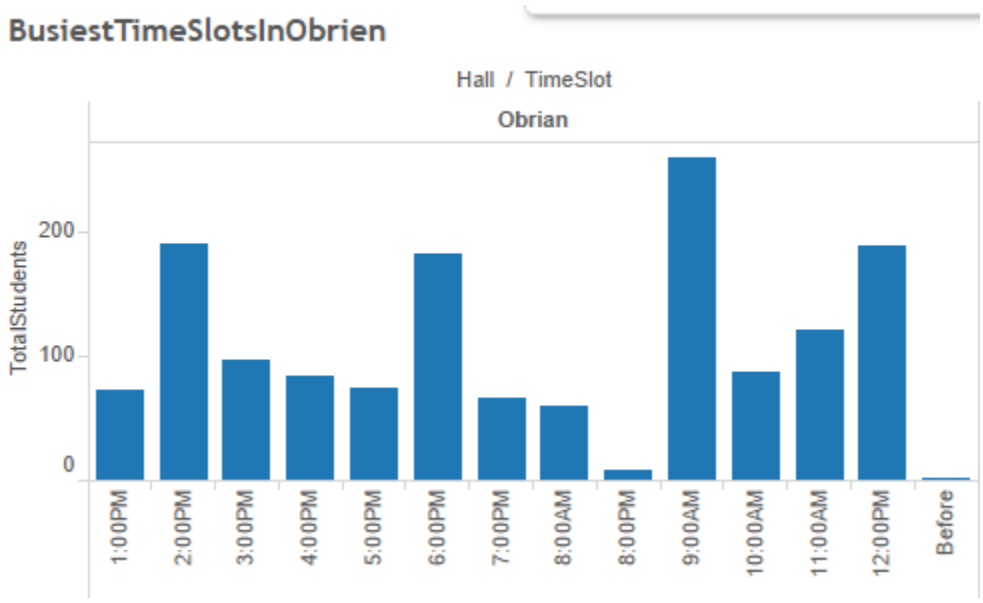
BusiestDaysInObrien:

Since, O' brain is the hall with the maximum capacity we wanted to know which time slots are busiest in O' brain. This means that in these times the utilization in O' brain is very high and hence, if someone wants to schedule a class in O' brain he should refrain from scheduling at these days.



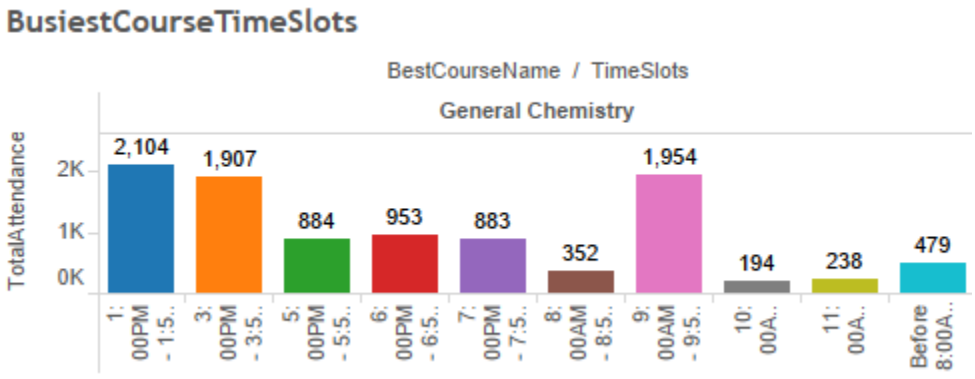
BusiestTimeSlotsInObrian:

The below visual is an attempt to get the busiest time slots in O' brain. Analyzing this graph a person can schedule some event in O' brain at some free space and time.



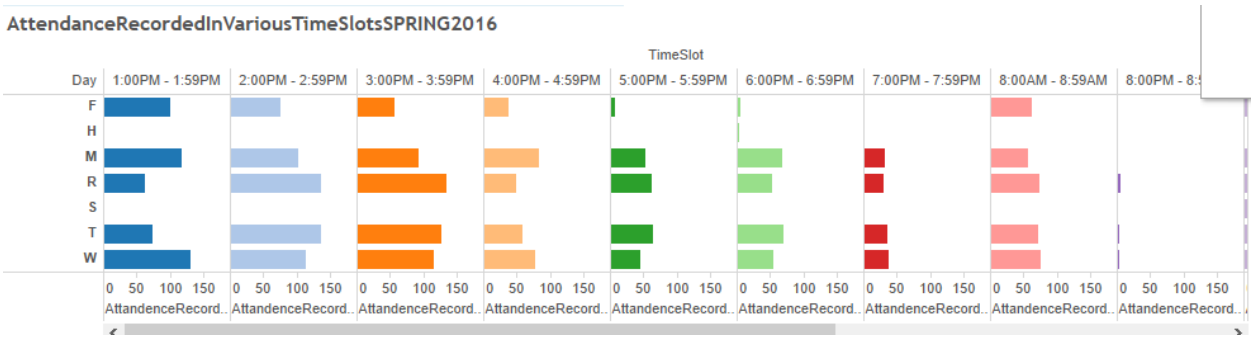
BusiestCourseTimeSlots:

Since general chemistry is the best course we have so, we wanted to recommend to the instructors on how to manage that course. The below curve shows the number of students attending general Chemistry at various times. Since, people are preferring to study the subject at 1 pm, so we should make an attempt to schedule it at this time only. This will be according to the convenience of the students.



AttendanceRecordedInVariousTimeSlotsSPRING2016:

The below visual shows the attendance recorded at various timeslots in various days. This can guide the shops in a campus to know when to be prepared for a rush of people and therefore how to manage their own work force.



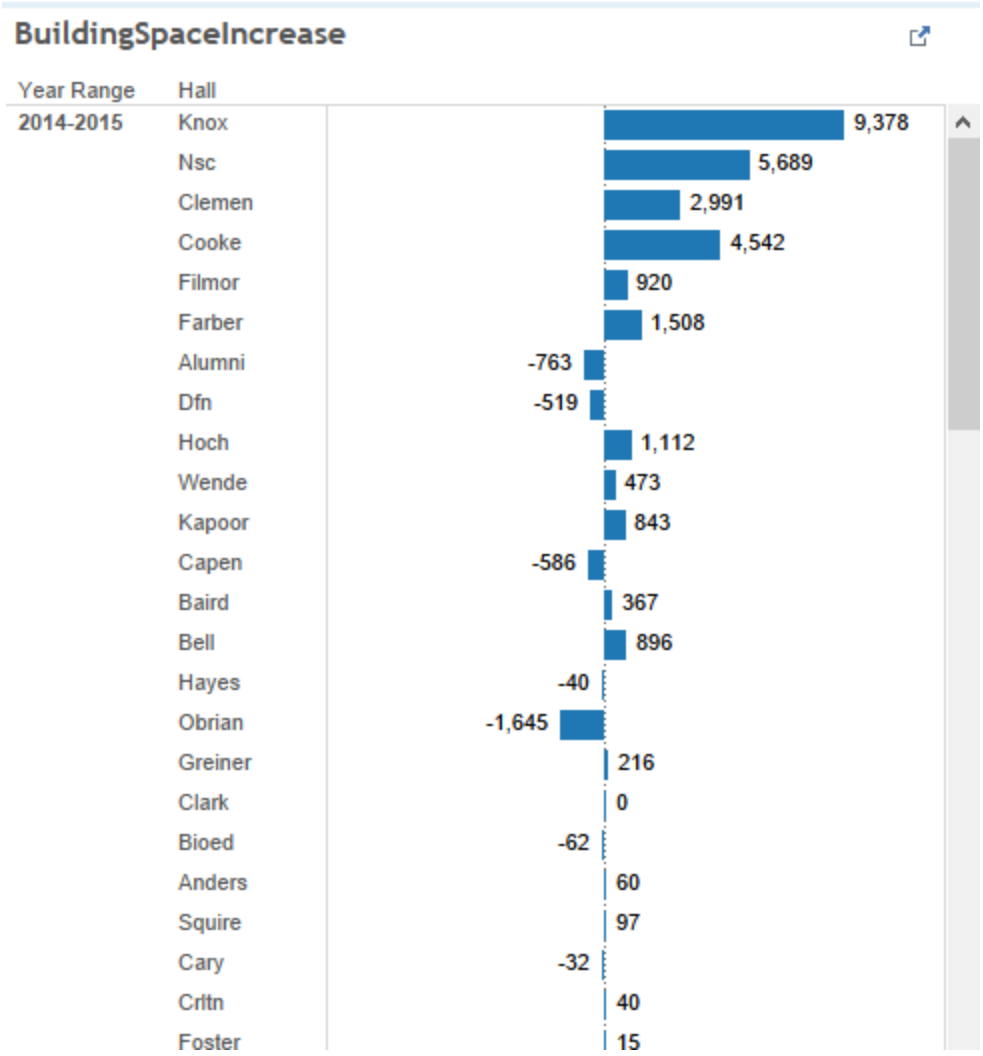
BOOK21:

In this dashboard, we are basically trying to visualize building space increase, course enrollment increase and course capacity increase in the year ranges 2014-2015 and 2015-2016 and tried to correlate these 3 plots amongst each other.

Below is the explanation for each of the graphs separately.

BuildingSpaceIncrease:

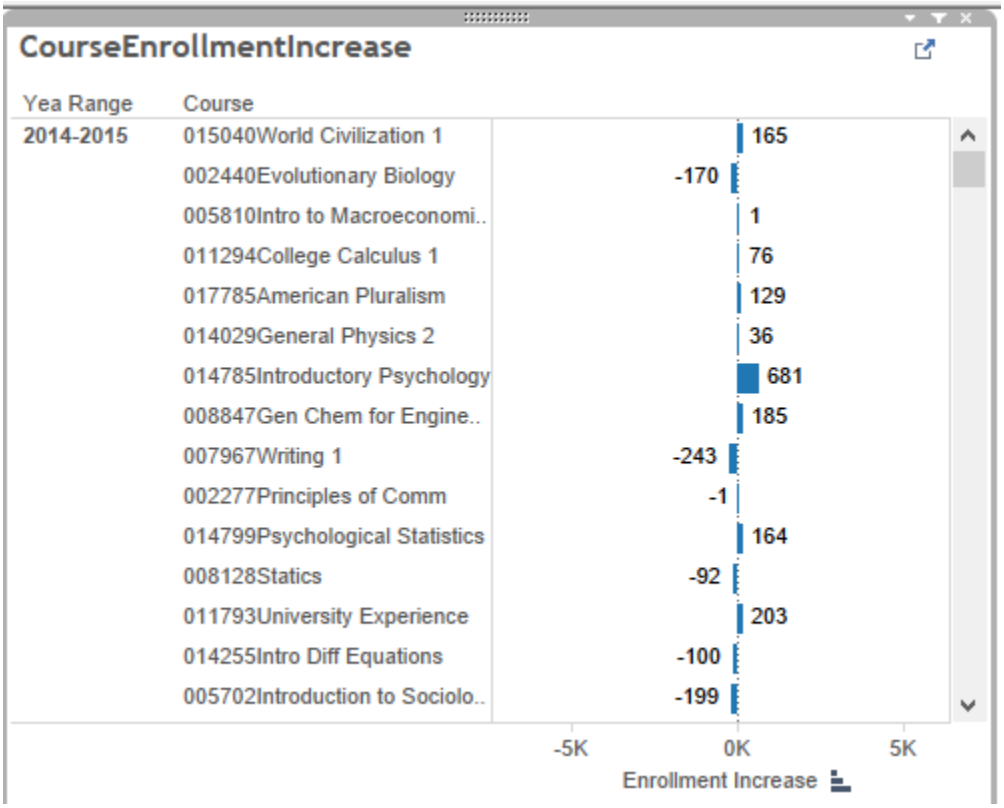
In this plot, we are trying to visualize how the building space has increased in the two year ranges 2014-2015 and 2015-2016. According to the data source provided to us, there are some buildings for which building space has increased enormously. For example, as we can see in the graph below, building space for Knox has increased by 9378 in 2014-2015 and by 9344 in 2015-2016. This has important ramifications in the context of scheduling new courses with very large capacities in the future in such halls in the first place. That is, if any new courses are introduced in the future, then those courses can be planned to be scheduled in those halls preferably for which building space has increased by a significant amount in the past couple for years. The chart is displayed in the sheet below for further reference.



CourseEnrollmentIncrease:

In this plot, we are trying to visualize how the course enrollments have increased in the two year ranges 2014-2015 and 2015-2016. In this case, we are identifying a course uniquely by a concatenated string in tableau which contains course id appended to course name since a unique course should ideally by a unique combination of course id and course name. According to the data source provided to us, there are some courses for which course enrollments have increased enormously. But we tried to focus more on analysis rather than data. For example, as we can see in the graph below, course enrollment increase for course Introductory Psychology has is 681 in 2014-2015. This has important ramifications in the context of scheduling courses with heavy enrollment increase in those buildings preferably where building space has also increased by a significant amount in the past couple of years. Also, we can visualize and try to correlate with the next plot CourseCapacityIncrease whether course enrollment increases are happening in proportion to the course capacity increases in the same year ranges. If this is not

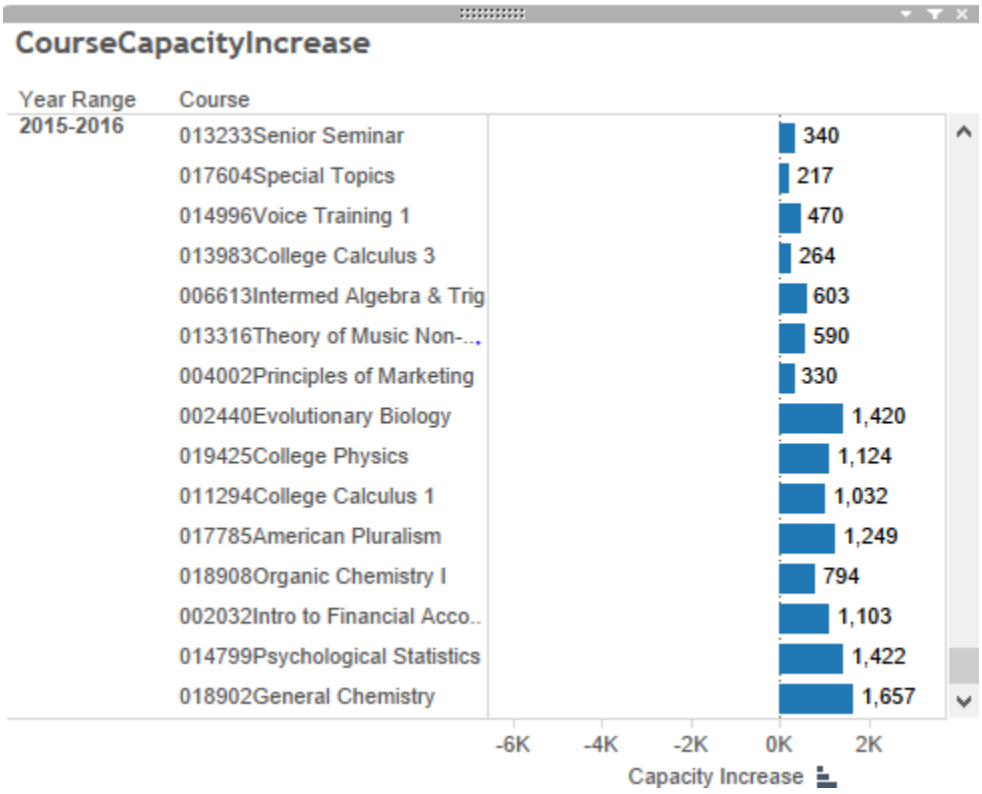
the case, then the course schedulers can take some decisions like increasing the capacity of such courses for which there is a heavy demand in terms of enrollment and there should be a one to one correspondence between course enrollment increase and course capacity increase in a particular year range. . The chart is displayed in the sheet below for further reference.



CourseCapacityIncrease:

In this plot, we are trying to visualize how the course capacities have increased in the two year ranges 2014-2015 and 2015-2016. In this case, we are identifying a course uniquely by a concatenated string in tableau which contains course id appended to course name since a unique course should ideally by a unique combination of course id and course name. According to the data source provided to us, there are some courses for which course capacities have increased enormously. But we tried to focus more on analysis rather than data. For example, as we can see in the graph below, course capacity increase for course General Chemistry is 1657 in 2015-2016. This has important ramifications in the context of scheduling courses with heavy capacitys increase in those buildings preferably where building space has also increased by a significant amount in the past couple of years. Also, we can visualize and try to correlate with the previous plot CourseEnrollmentIncrease whether course enrollment increases are happening in proportion to the course capacity increases in the same year ranges. If this is not the case, then the course schedulers can take some decisions like increasing the capacity of

such courses for which there is a heavy demand in terms of enrollment and there should be a one to one correspondence between course enrollment increase and course capacity increase in a particular year range. . The chart is displayed in the sheet below for further reference.



BOOK22:

In this dashboard, we are basically trying to visualize seat utilization percentage in terms of different parameters such as with respect to last ten years, with respect to different halls in last three years, with respect to different courses in last three years and with respect to different timeslots in last 3 years. In all of these seat utilization percentage is defined as,

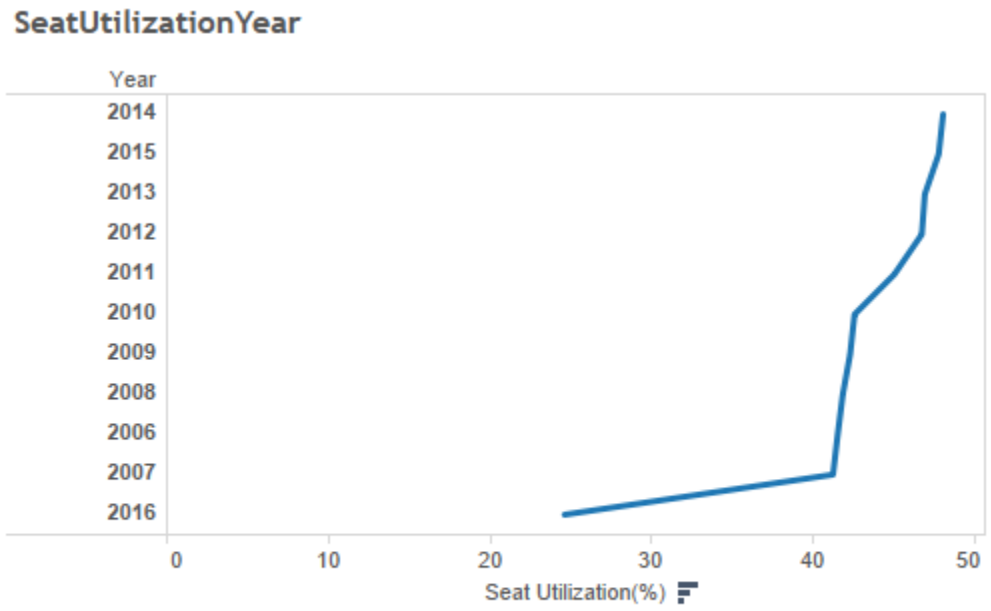
Seat Utilization % = (Course Enrollment/Course Capacity)*100

Below is the explanation for each of the graphs separately.

SeatUtilizationYear:

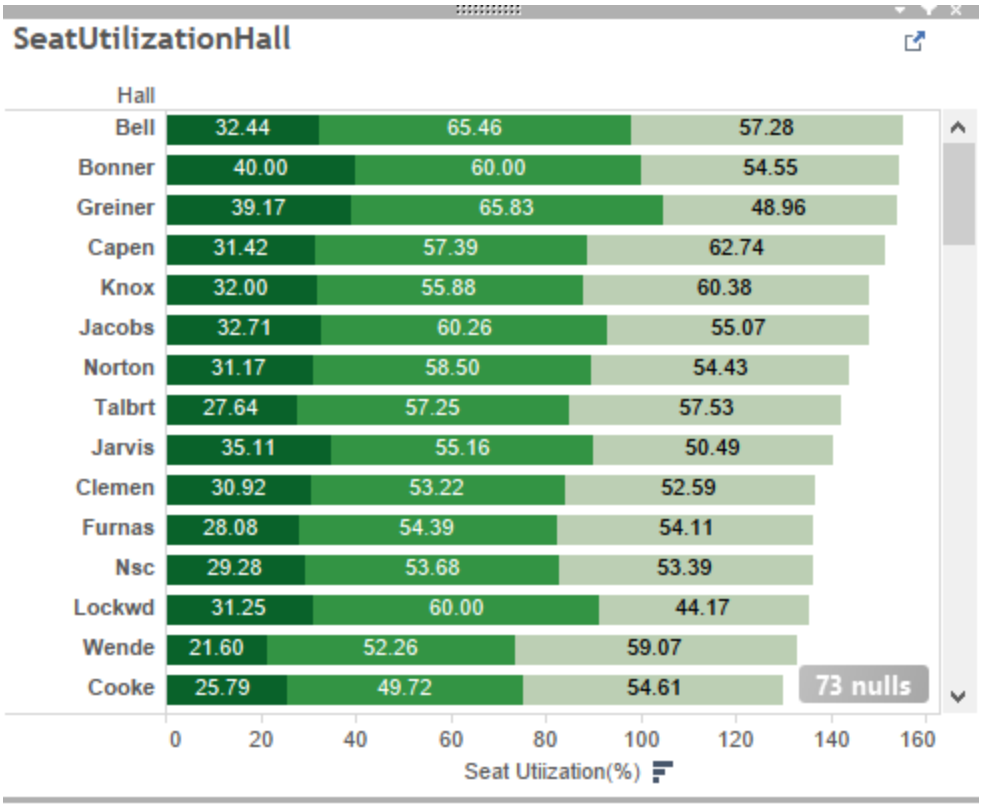
In this plot, we are trying to visualize the trend of seat utilization percentage overall in the last ten years from 2006-2016. According to the data source provided to us, the seat utilization percentage has varied widely in these years. For example, seat utilization percentage was the maximum in 2014 with 48.03%. This has important ramifications for the course schedulers and event planners who can take some key decisions to increase the seat utilization percentage

trend in the future and learning from those experiences specifically where the seat utilization percentage trend was considerably lower. The chart is displayed in the sheet below for further reference.



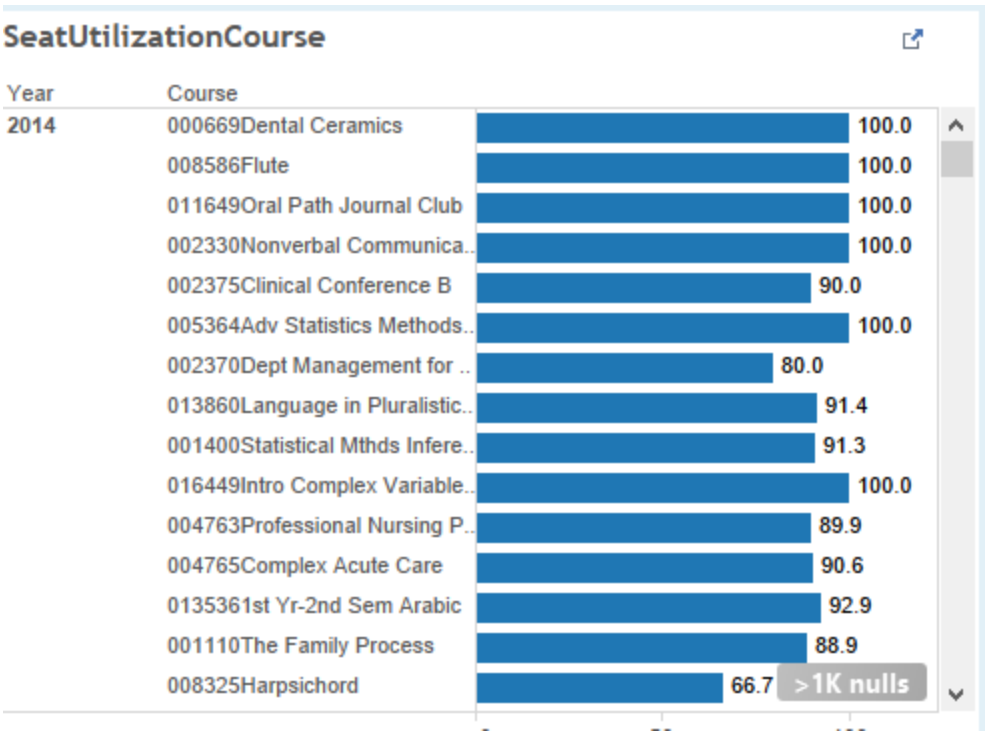
SeatUtilizationHall:

In this plot, we are trying to visualize the trend of seat utilization percentage with respect to different halls in the last three years from 2014-2016. According to the data source provided to us, the seat utilization percentage has varied widely in these years for various halls. For example, seat utilization percentage was the maximum for Capen with 62.74% in 2014 while the seat utilization percentage was 2% for Abbott in 2014. This has important ramifications for the course schedulers and event planners who can take some key decisions to increase the seat utilization percentage for those halls specifically which have done poorly in the past couple of years in terms of utilizing the total available capacity. In order to increase the seat utilization, course capacities can be decreased for some courses for which the enrollment is lesser than the capacity or some steps can be taken to arouse interest in students so as to increase enrollments in those courses for which the capacities are much larger than the enrollment. The chart for this displayed below for further reference.



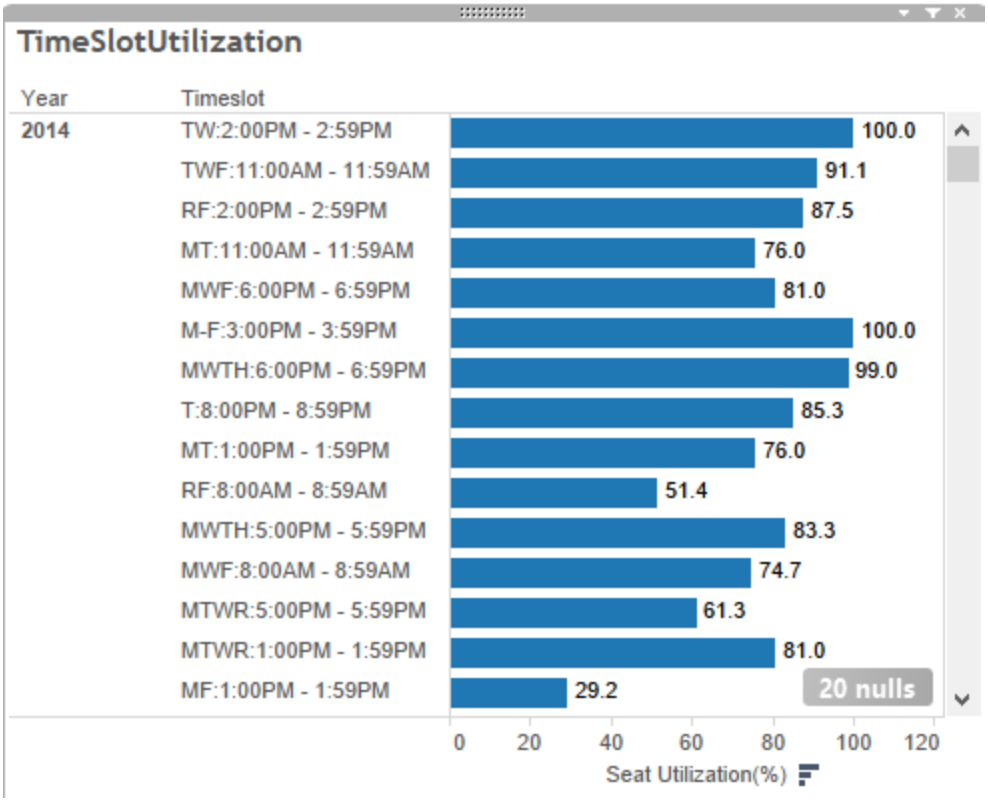
SeatUtilizationCourse:

In this plot, we are trying to visualize the trend of seat utilization percentage with respect to different courses in the last three years from 2014-2016. In this case, we are identifying a course uniquely by a concatenated string in tableau which contains course id appended to course name since a unique course should ideally by a unique combination of course id and course name. According to the data source provided to us, the seat utilization percentage has varied widely in these years for various courses. For example, seat utilization percentage was the maximum for course Dental Ceramics with 100% in 2014 while the seat utilization percentage was 8.3% for Chamber Music in 2014. This has important ramifications for the course schedulers and event planners who can take some key decisions to increase the seat utilization percentage for those courses specifically which have done poorly in the past couple of years in terms of utilizing the total available capacity. In order to increase the seat utilization, course capacities can be decreased for some courses for which the enrollment is lesser than the capacity or some steps can be taken to arouse interest in students so as to increase enrollments in those courses for which the capacities are much larger than the enrollment. The chart for this displayed below for further reference



TimeSlotUtilization:

In this plot, we are trying to visualize the trend of seat utilization percentage with respect to different timeslots in the last three years from 2014-2016. Timeslot is defined as a unique combination of day and time. According to the data source provided to us, the seat utilization percentage has varied widely in these years for various timeslots. For example, seat utilization percentage was the maximum for timeslot TW 2:00-2:59 pm with 100% in 2014 while the seat utilization percentage was very low 29.2% for MF 1:00-1:59 pm in 2014. This has important ramifications for the course schedulers and event planners who can take some key decisions to increase the seat utilization percentage for those time slots specifically which have done poorly in the past couple of years in terms of utilizing the total available capacity. In order to increase the seat utilization for those timeslots which have performed badly in the past couple of years, course capacities can be decreased for some courses for which the enrollment is lesser than the capacity or some steps can be taken to arouse interest in students so as to increase enrollments in those courses for which the capacities are much larger than the enrollment. The chart for this displayed below for further reference



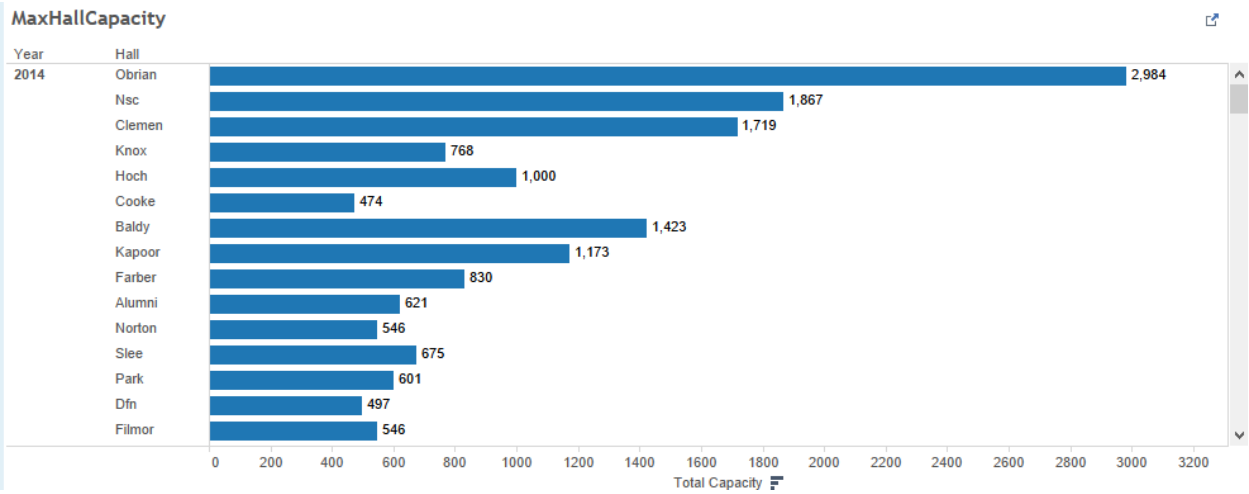
BOOK23:

In this dashboard, we are basically trying to visualize which is the hall with the maximum capacity and which are the busiest days and timeslots in the hall with maximum capacity which came out to be Obrian as per the data provided to us. This analysis can be useful for course schedulers and event planners who can in the future refrain from scheduling popular courses, exams for popular courses or other popular events in the busiest hall specifically in those days and those timeslots preferably which have proved to be the busiest based on our analysis below.

Below is the explanation for each of the graphs separately.

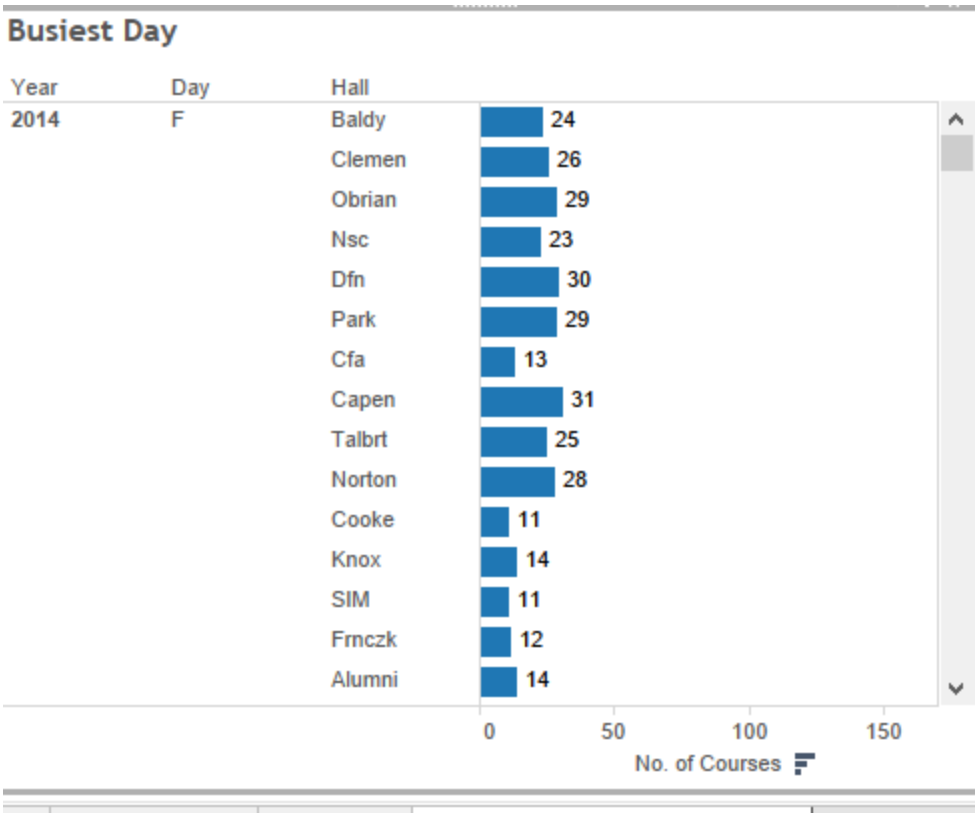
MaxHallCapacity:

In this plot we are trying to visualize which hall is serving the maximum capacity in the past couple of years. According to the data source provided to us, the capacities of different halls have varied widely in these years. For example, Obrian served the maximum capacity in 2014 with 2984. This has important ramifications for the course schedulers and event planners who can visualize which are the halls in the highest capacity range and can then schedule popular courses, exams or other events in those halls specifically in those timeslots which are not too much busy. The chart is displayed in the sheet below for further reference.



BusiestDay:

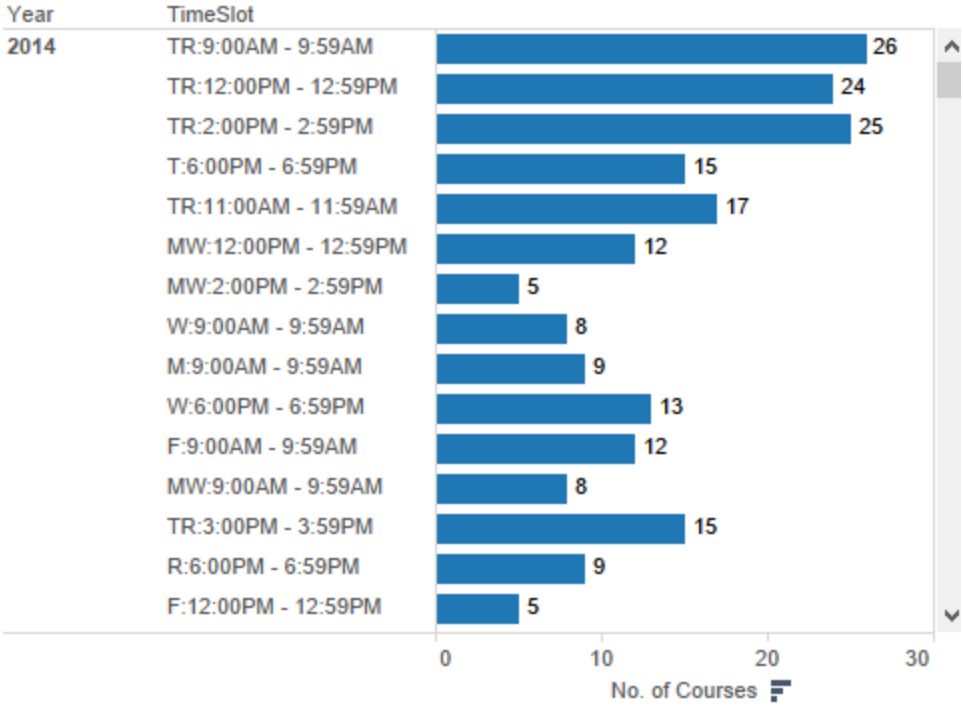
In this plot we are trying to visualize which is the busiest day in different halls in the past couple of years. Since we found out in previous plot that Obrian was the hall which usually served the maximum capacity in the past couple of years. Henceforth, we are more interested in finding out which is the busiest day in Obrian in the past couple of years. This has important ramifications for course schedulers and event planners who can refrain from scheduling popular courses, exams or other events in Obrian in the busiest days based on our analysis. For example, the busiest days in Obrian in 2014 were Tuesday and Thursday. The chart is being displayed below for further reference.



BusiestTimeSlotInObrian:

In this plot we are trying to visualize which is the busiest timeslot in Obrian in the past couple of years. Since we found out in previous plots that Obrian was the hall which usually served the maximum capacity in the past couple of years. Henceforth, we are more interested in finding out which is the busiest timeslot in Obrian in the past couple of years. This has important ramifications for course schedulers and event planners who can refrain from scheduling popular courses, exams or other events in Obrian in the busiest timeslots based on our analysis. For example, the busiest timeslots in Obrian in 2014 and 2015 were TR 9:00-9:59 pm, TR 12:00-12:59 pm and TR 2:00-2:59 pm. The chart is being displayed below for further reference.

Busiest Timeslot



CONCLUSIONS:

The book therefore presents the time analysis for some interesting cases. We understand that there could have been lot more to analyze but given the time this is what we have come up with. The major focus is to bring to picture some interesting statistics and then produce some visuals.

WORK ALLOCATIONS:

50% each teammate.