# CSE487/587 - Data Intensive Computing
# Project 2

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# I N D E X.

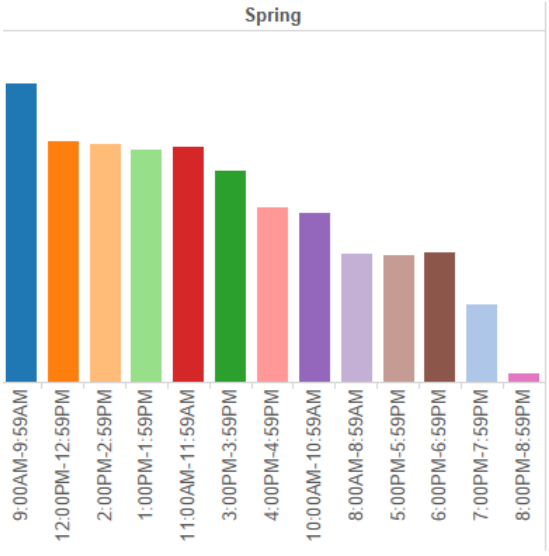
# Problem 1 Report

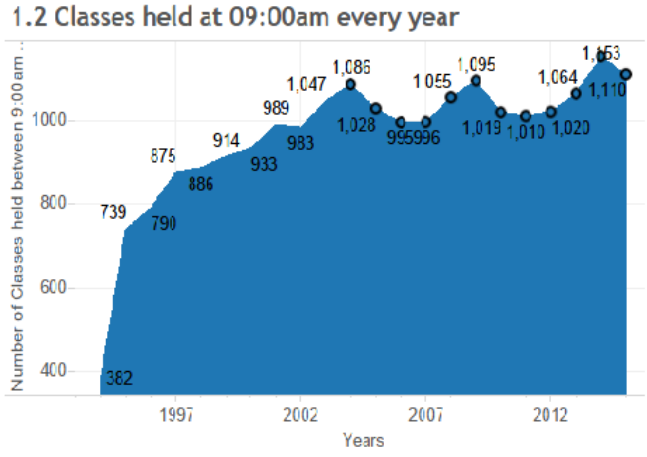
**Problem Statement: What is the busiest/most popular hour between 8am and 12pm in each semester?**

**Observations:** In Problem 1, we plotted the summarized data that we extracted from the class room scheduling csv file. Each day has approximately 12 time slots where classes are scheduled from 9 AM to 9 PM. Some of them are 50 min and some 80 min duration.

In part 2 of our project we calculated the number of classes that are scheduled in all possible time slots in a day for all the years. The below graph shows the results and we can see that the most number of classes are scheduled in the morning timeslot of 9.00 AM to 9.59 AM time slot, for both fall semester and spring semesters.

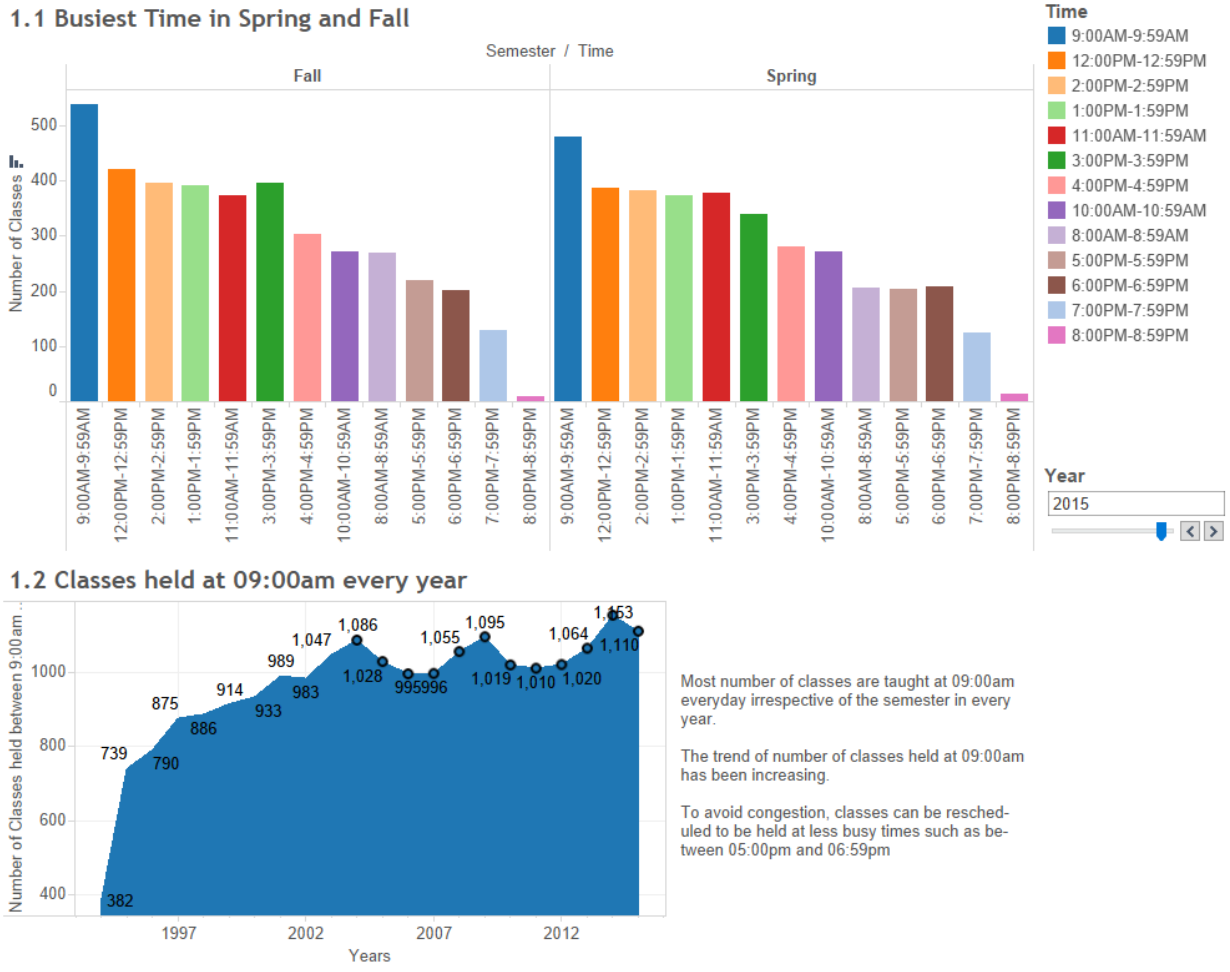
We can also see the variation of number of classes that are scheduled for the 9.00 AM to 9.59 AM time slot every year.




**Conclusion:** From the obtained results we can suggest that some of the classes in the morning time can be rescheduled to different time where the frequency of the class is low. This should also help us effectively utilize the classroom space.

## Dashboard View for Problem1:







Most number of classes are taught at 09:00am everyday irrespective of the semester in every year.

The trend of number of classes held at 09:00am has been increasing.

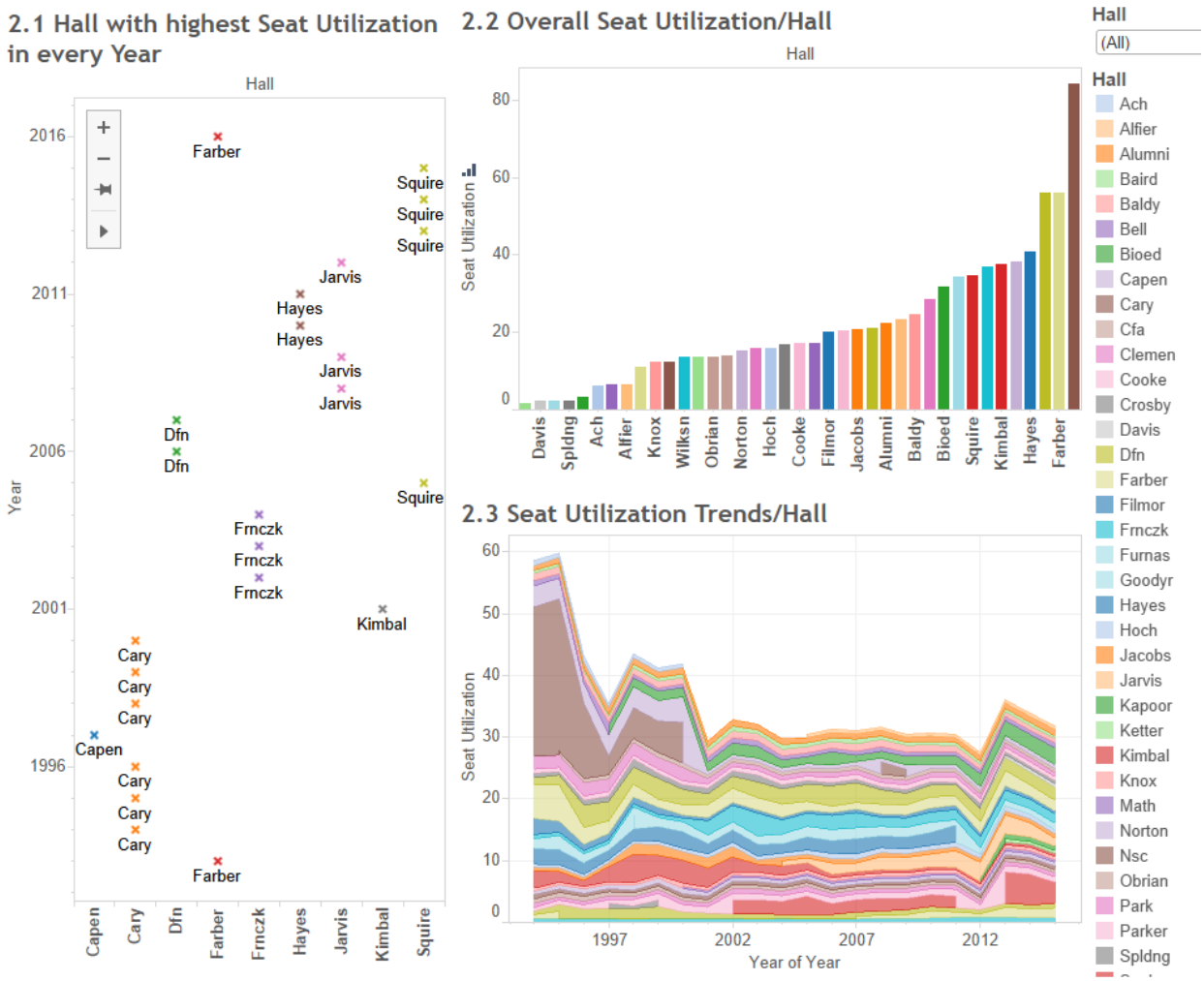
To avoid congestion, classes can be rescheduled to be held at less busy times such as between 05:00pm and 06:59pm

# Problem 2 Report

**Problem Statement: Which hall has the highest seat utilization in each year?**
**Observations:** In Problem 2, we have visualized how effectively each Hall is used for every term. The Most important observation is that some class rooms are over utilized over others. The below plot shows the utilization of highest utilized hall for each year.

**Conclusion**: We can see that some halls are heavily booked/utilized. By looking at the trend we can also see that the utilization of the Halls is not the same across each year. We can balance the load of each Hall if we can reschedule some of the classes in these halls which are used more than others.

## Dashboard View for problem 2:



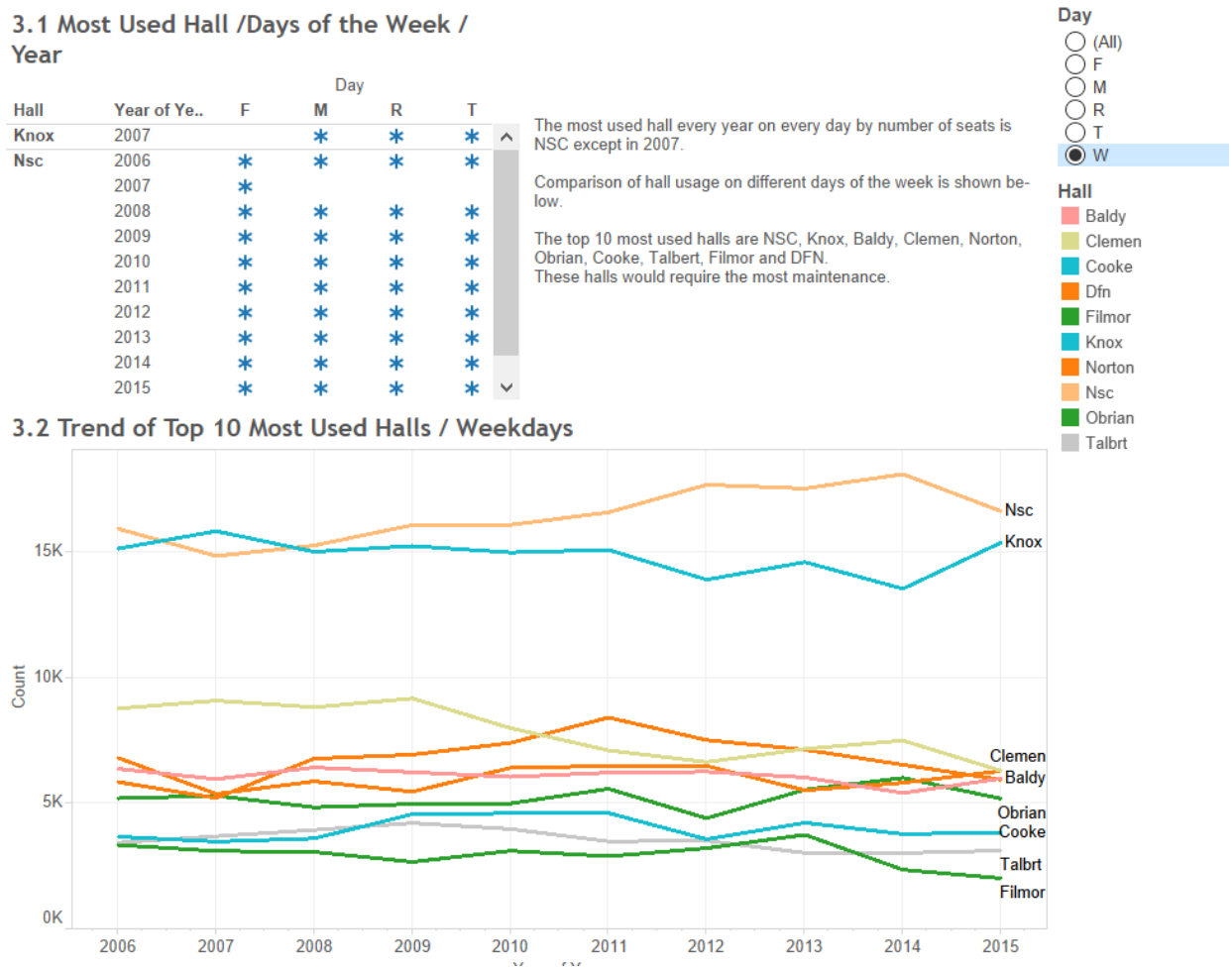
# Problem 3 Report

**Problem Statement: Which is the most used hall by seat capacity on each working day in every year?**

**Observations**: In this problem, we observed the trend of Top **10** Most used Halls (on weekdays) based on seat capacity for all the years. The most used hall every year on every day by number of seats is NSC except in 2007. Comparison of hall usage on different days of the week is shown below. The top 10 most used halls are NSC, Knox, Baldy, Clemen, Norton, Obrian, Cooke, Talbert, Filmor and DFN. These halls would require the most maintenance.

**Conclusion**: We can see that the Most used halls NSC and KNOX have very high score that they almost look as outliers to the rest of the halls. We can suggest that by rescheduling the classes from some of these halls to others, we can balance and solve some of the over utilization problems.

**Dashboard view for problem 3:**



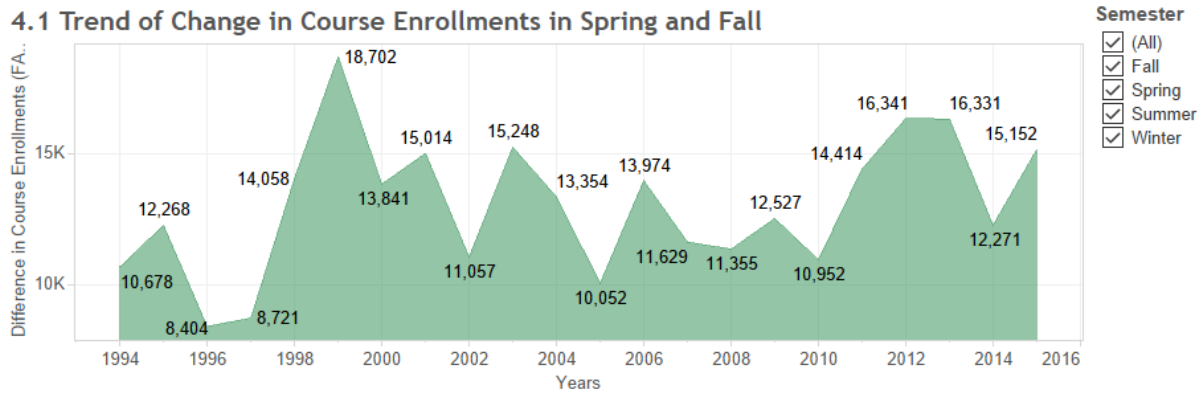
# Problem 4 Report

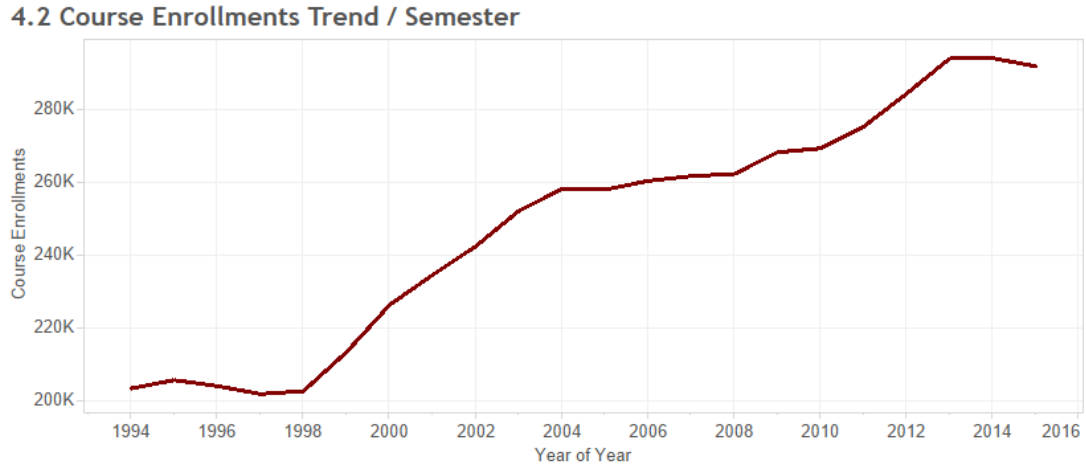
**Problem Statement: What is the difference in course enrollments in spring and fall semesters every year?**

**Observations:** In Problem 4, we calculated and observed the difference in course enrollments for each semester and plotted the difference across all the years.

**Conclusion:** Course enrollments in Fall Semester have always been more than in spring. This indicates that more courses are offered in fall than in spring. By moving some courses that are supposed to be held in fall to the spring semester will allow better utilization of resources such as classrooms. But these suggestions are based on the data that we extracted and may not be possible in reality as course scheduling is subject to many different constraints that are beyond our scope to discuss here.

## Dashboard view for problem 4:




Course enrollments in Fall Semester have always been more than in Spring. This indicates that more courses are offered in Fall than in Spring. By moving some courses that are supposed to be held in Fall to the Spring semester will allow better utilization of resources such as classrooms.

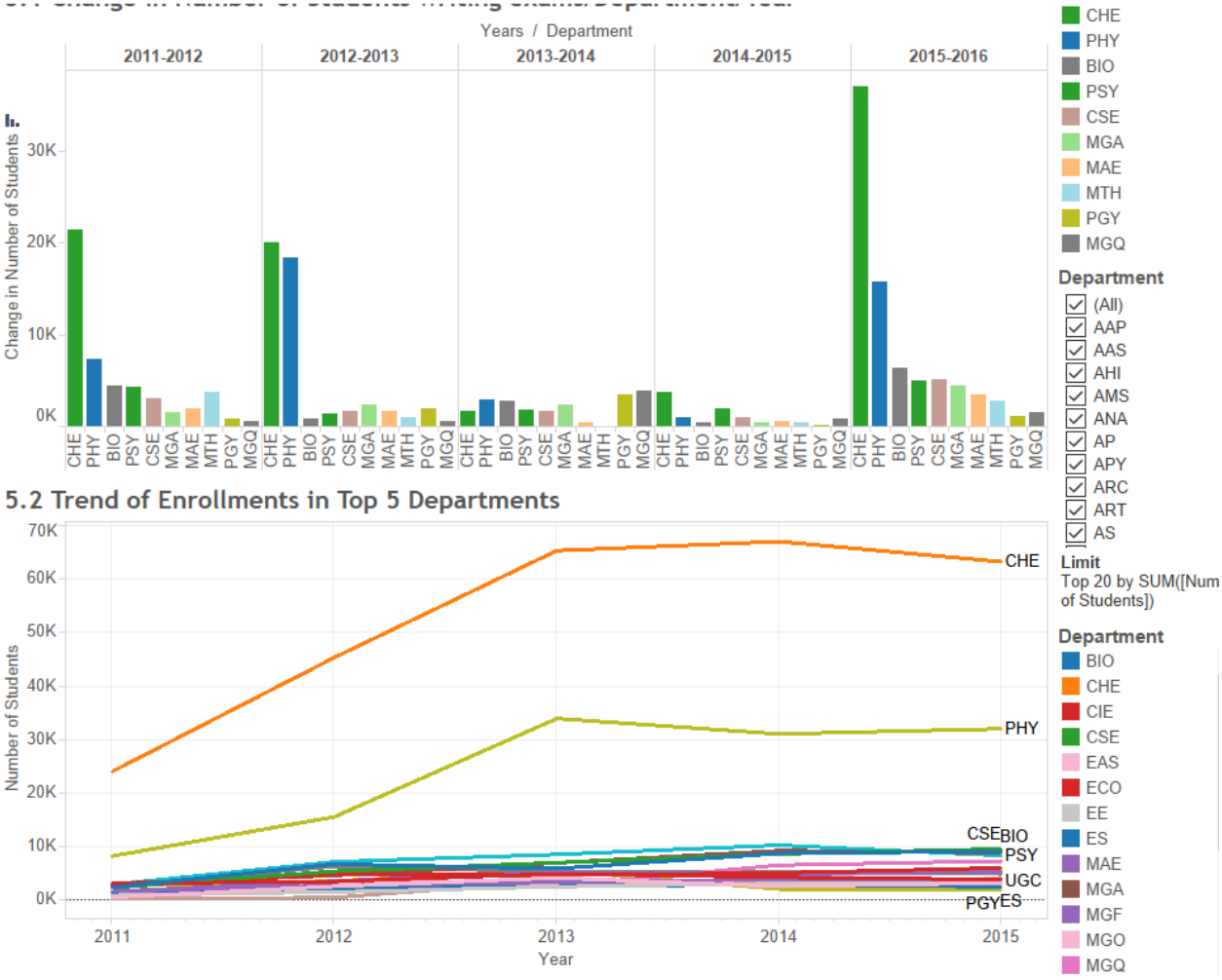
In Fig 4.2, it can be seen that course enrollments have been continuously increasing since the last 20 years. The University would need to arrange for additional classrooms to support the increased capacity in the future.

# Problem 5 Report

**Problem Statement: What is the change in the number of students writing exams in each department inconsecutive years?**

**Observations:** For this problem we used the Exam data. We have categorized the number of students attending exam each year and then find out which department has the most number of students enrolled. Since the data is provided for past 5 years, we plotted the trend of last 5 years and we could see that every year CHE department has the highest enrollments.

## Dashboard view for problem 5:




**Conclusion**: The chemistry and physics department have the highest number of students writing exams every year. Exams for these classes must be scheduled correctly in halls with high capacity.