Project 2 Part 3

Building an analysis and visualization user interface

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Introduction:

For this part of the project we used Tableau for analysis of the output files generated in the previous project. For the first story, we analyzed how well rooms from each building could be used and how to assign it more efficiently in the coming years using the data we have from past years. This story essentially answers the question of how we can better utilize each room by assigning it to a more compatible course. For example, for our 587 class this semester our classroom could have been bigger to better handle the number of students. When we look at the dashboard, we can get this idea that NSC 215 was used more than its capacity and for next semester find a room with more capacity for CSE 587. We made three dashboards where the first dashboard gives an idea about how many rooms were used in the years for each building, whether they were assigned as Labs or Lecture Halls along with a percentage of how well were they utilized.
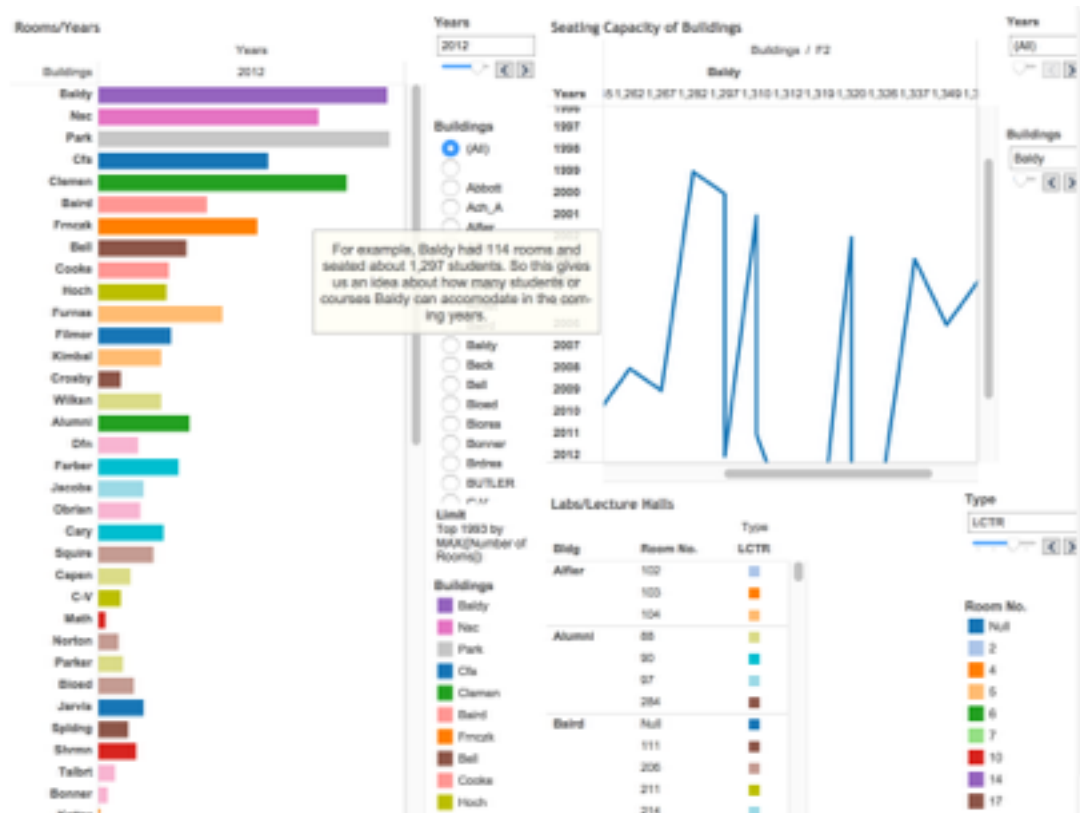

The second dashboard gives more insight into utilization of each rooms so that we can analyze which rooms were not used to their full capacity and which ones were used more than their capacity along with how many seats each building had overall. We found out that most building were generally utilized around 60-70%. We also saw that some buildings like Farber and Cooke were sometimes hugely under utilized with utilization capacity being just under 10%. We also found out which rooms were utilized way above their capacity like Hoch125 where capacity was over 200% which says that those courses assigned to Hoch125 had more enrollments than expected.

Our next dashboards bridges the gap between rooms and courses and lets us know which course was taught in which room and how many students enrolled for it. This helps us in better understanding the capacity of rooms from previous dashboards. So that we can assign these courses rooms more appropriately. This dashboard also shows enrollment changes for courses over the years so we can come to conclusion about which course is more popular and which is not.
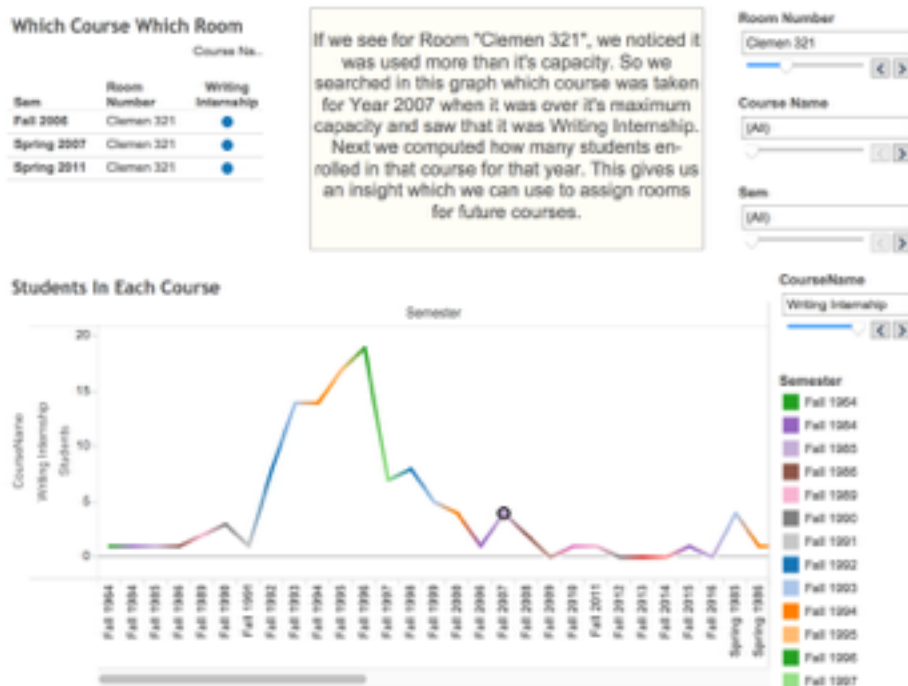
We can check for each building how many rooms were used for each year and whether they were Labs or Lectures. Not only rooms, but we can also see how many seats overall each building had every year from the Seating Capacity of Buildings graph.
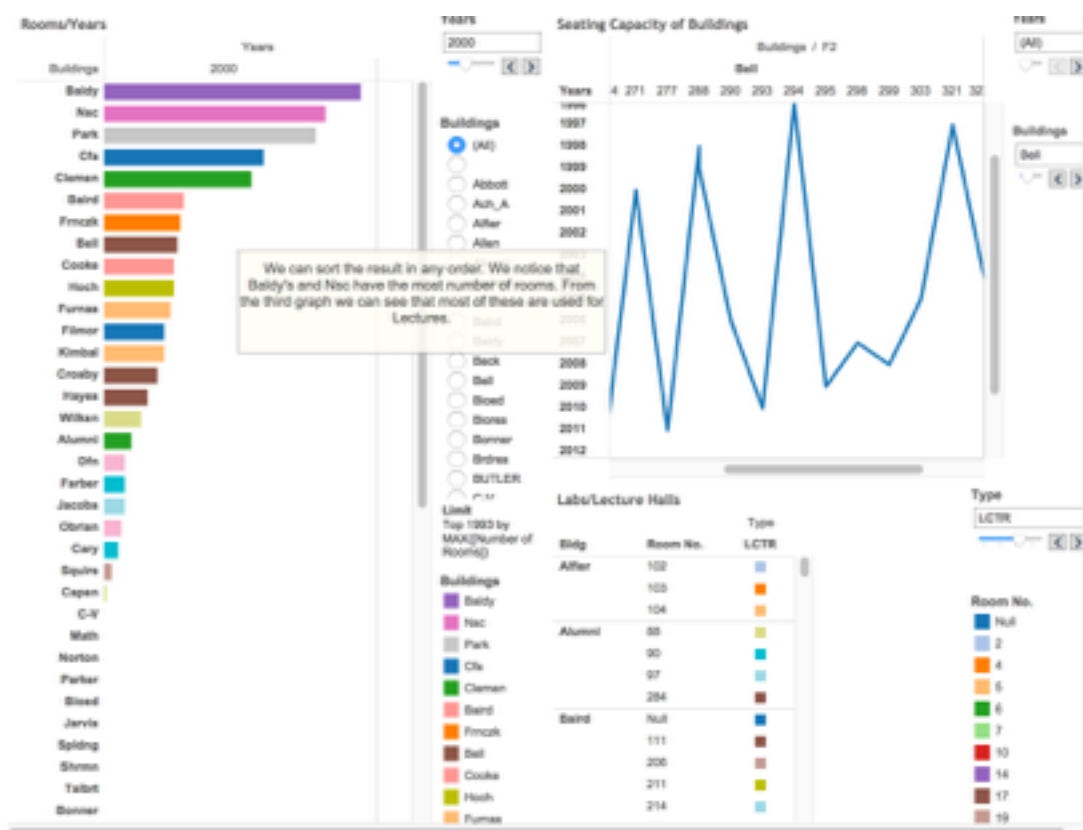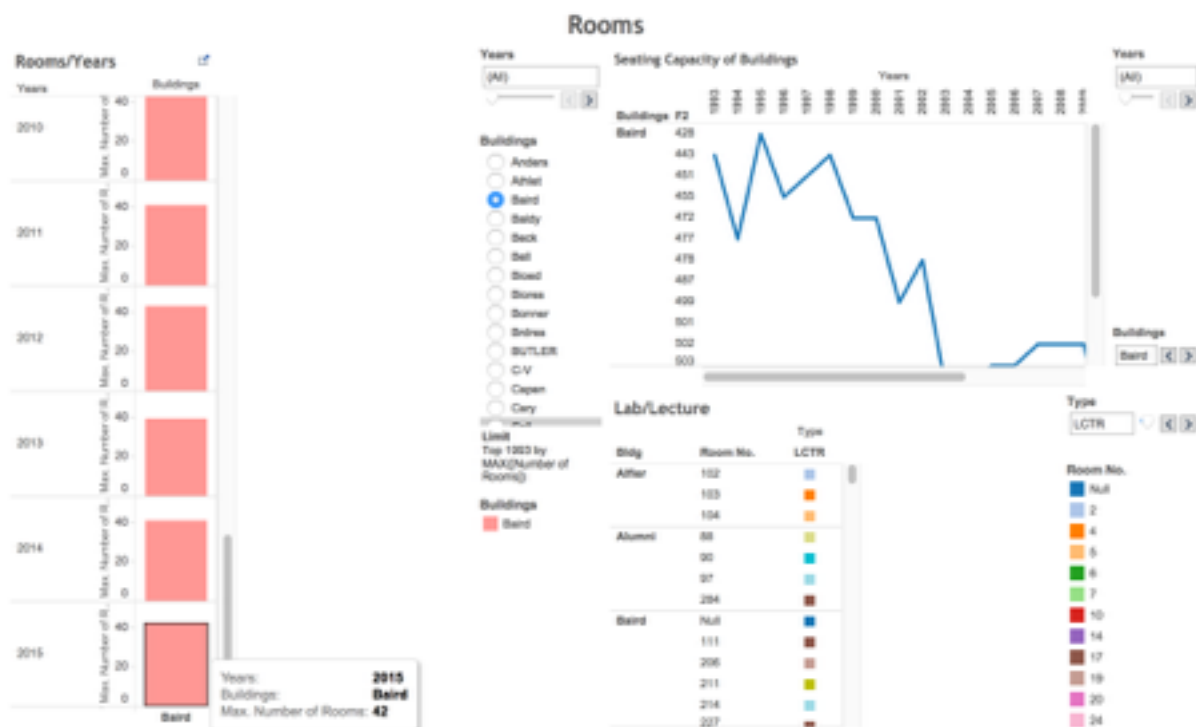
Here we can get a lot of information by playing with the filters and parameters like room number or building or year. For example, the figure below shows the trend of Hoch building in the last five years.

We can tweek the percentage parameter to get an idea about which rooms are under utilized and which are used above their capacity to better assign them in the future.
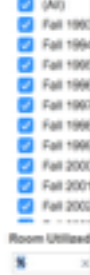
For example, these buildings were highly under used for these years. So looking into their capacity and re-assigning them better courses would be a good move.

To see in the past five years if the building is being used to it's full capacity, we can select just those years and see the trend.

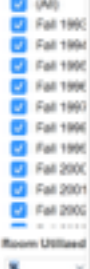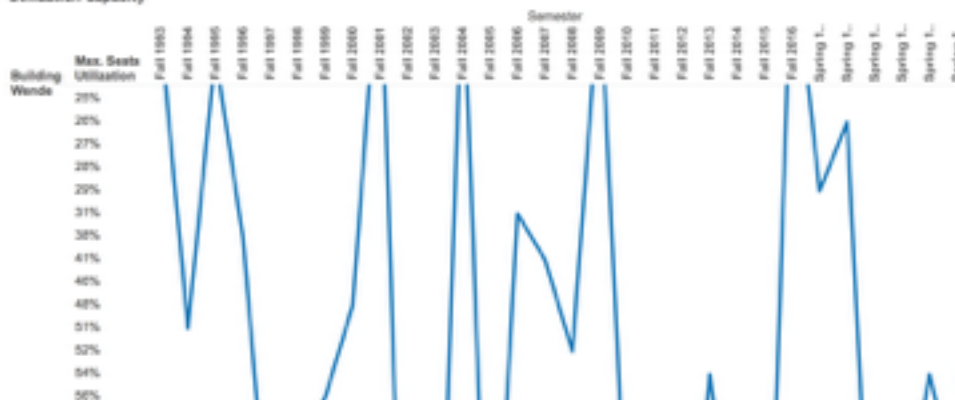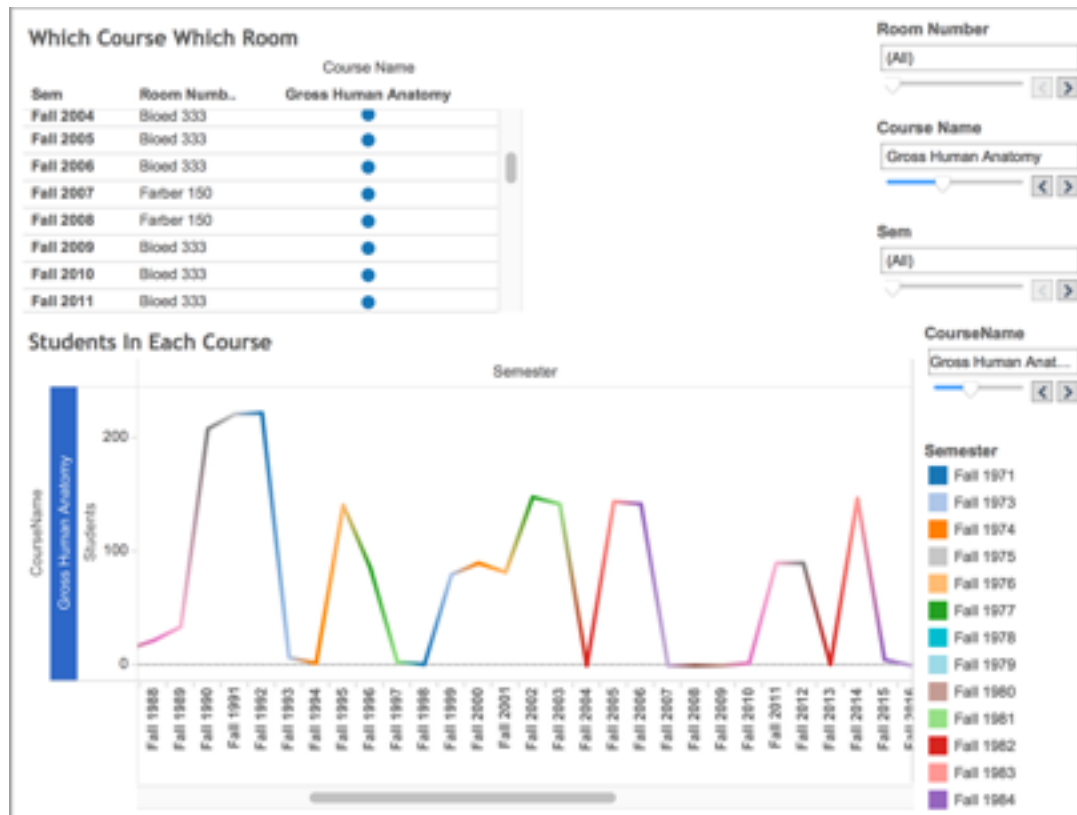Here, we can see the number of students enrolled for any course for any years. Or see it's growth over the years. We see that "Gross Human Anatomy" had been taken in Bioed 333 and Farber 150. Similarly we can gather more information by tweaking the parameters.

Like in the next figure we can see what all courses have been taken in a particular room and then check in the previous dashboard of its utilization. Abbott 165 has had "Health Informatics", "Intro Health" etc.

For the second story we analyzed the courses and enrollment for each semester for all the years. We have analyzed for questions like which course is the most popular in each semester, which hall is used the most each semester, which years had the highest enrollment and which semester offered the most number of courses.
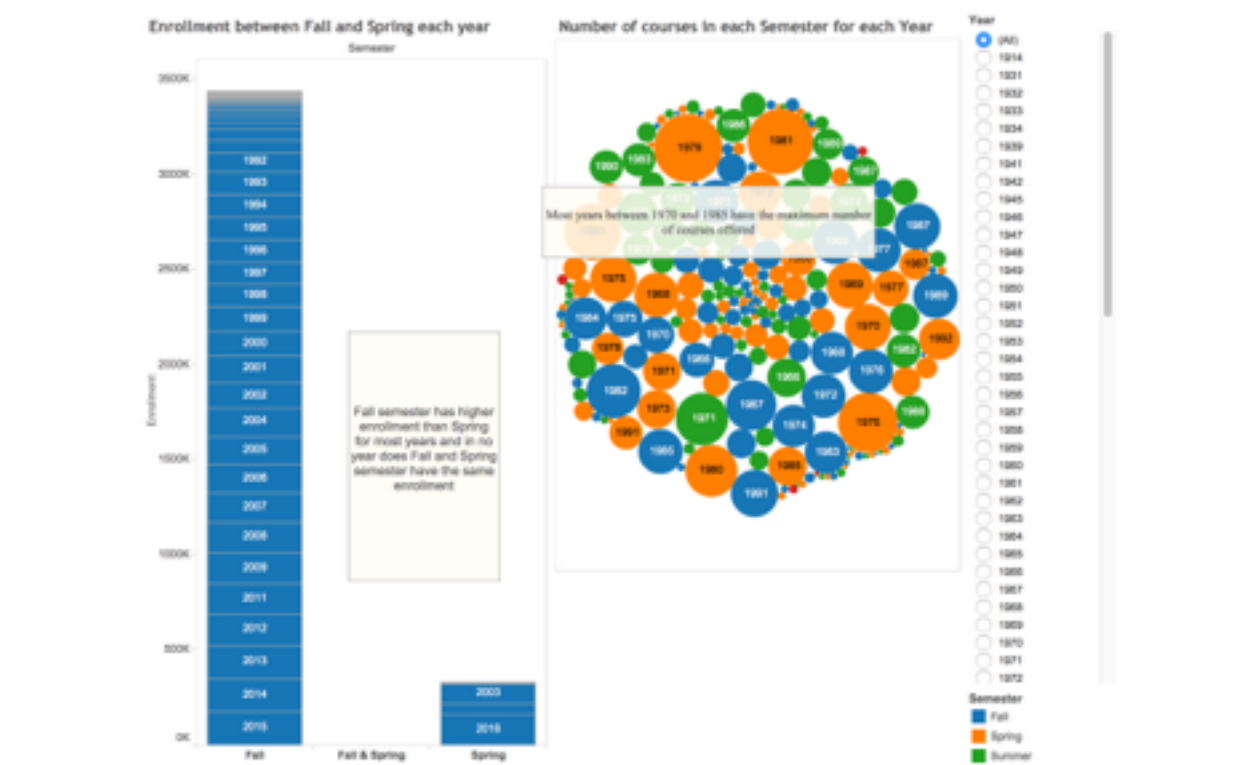
We made 5 graphs using which we made 2 dashboards. First dashboard contains 2 graphs. The first graph is an analysis of which semester between Fall and Spring have the higher enrollment for each year. In the bar graph it shows which years for fall and spring the enrollment is higher and sums up all the enrollments. We can see that Fall semester has more enrollment overall when compared to Spring semester. Also, there is no year which has the same enrollment in Fall and Spring except the year in which there is no enrollment at all.

The second graph shows the number of courses in each semester fro each year. From the graph we can see that the years between 1960 and 1985 have the bigger circles compared to the rest. And among the big circles Spring seems to have higher number of bigger circles than any other semester. We can modify the graph by filtering based on the year selected. For the year selected it shows what all semesters are present in each year and the total number of courses offered in each semester.

For the second dashboard we have 2 graphs. The first graph shows total number of courses and the total enrollment for each semester. But the graph was modified to show the percentage difference from the previous year rather than the total. The second graph shows the most popular course , and the hall used the most in each semester. The filter has the option of selecting a particular popular course and the graph shows which semesters it was as popular in, the hall used the most for that semester and the total enrollment for that semester.
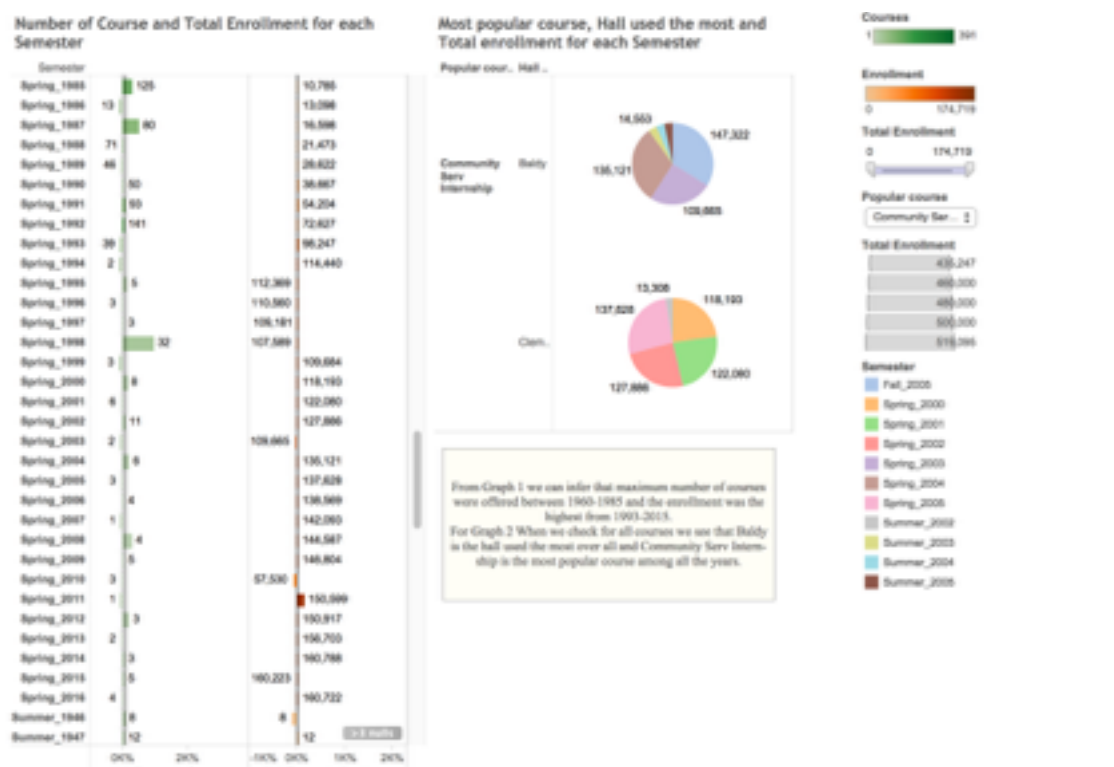
We can also select the a particular semester and all the information related to that semester in that instance of the graph is highlighted. From this dashboard we can infer that courses offered was highest during the period 1960-1985 and the enrollment was highest from 1993-2015 and seems to be increasing over the years. Also, the hall used the most over all the years is Baldy and Community Serv Internship is the most popular course among all semesters and it was offered the most among all the courses.

In the final graph we have the departments present and the total number of courses offered by each department in each semester. We can filter it by semester. We have line over the graph
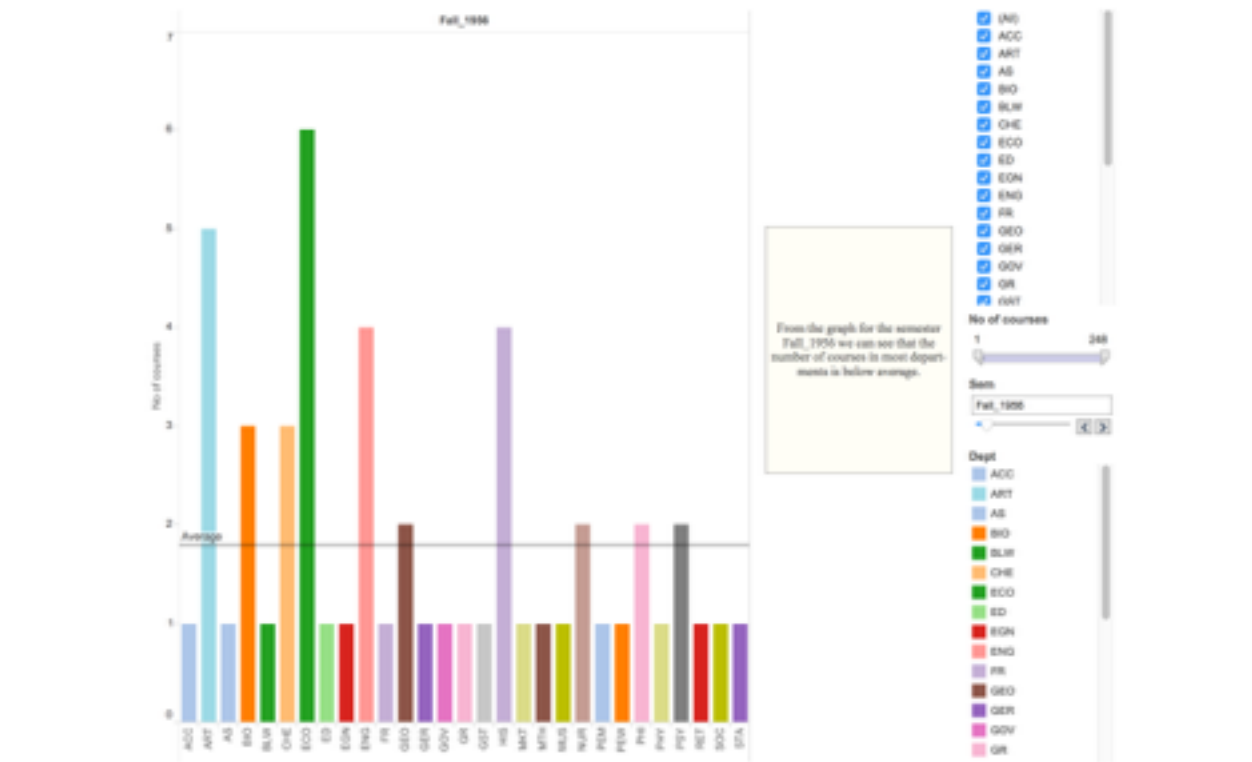
representing the average of the number of course offered and we can see that the courses offered by most departments is below average. We can select the semester we want and the graph is filtered accordingly. On selecting a particular department and excluding all other departments we get the statistics of all the years in which that particular department is present and the number courses offered. It also shows the average number of courses offered for that department over the years and in the particular example we show in the story we see that the highest number of courses offered was 38 by the department PHY for the semester Spring 2004 and we see that department PHY seems to be present for almost all semesters.