

Reading 04: Diversity At Notre Dame

Christopher Clarizio<cclarizi@nd.edu>

February 12, 2017

Overview

For this reading I created two very similar scripts to extract data about diversity within the classes of 2013 to 2018 within the department of Computer Science at Notre Dame. One script (gender.sh) extracted data from a provided file (demographics.csv) about the number of Men vs. Women studying Computer Science in each class from 2013 to 2018. In to do this the script called a function countgender with two arguments, year and gender, and printed out the number of Men in a year and the number of Women in a year. The function returned the number of Men and the Number of Women by using a pipeline that was constructed out of curl (to get the file) cut (to extract the field for the given year), grep (to search for the lines that were either Men or Women) and wc (to determine the number of lines containing either Men or Women). The second script (ethnic.sh) performed largely the same task in almost exactly the same way. The difference is that ethnic.sh searched not by gender but instead by ethnicity. In performing this task I was unfortunately not suprised to learn that overwhelmingly the majority of people studying Comptuer Science at Notre Dame are caucasian and that to a slightly lesser degree male. Furthermore, while the number of men and women studying Computer Science at Notre Dame has grown the proportion of Men to Women has remained largely the same. In a similar vein, while the number of people studying Computer Science at Notre Dame has increased overall, the proportion of caucasian students to minorities has swelled over this time period. The takeaway for me is that while Notre Dame's Computer Science department has grown it has continued to be majority caucasian males.

Methodology

In order to process the data inside of demographics.csv I wrote two shell scripts that operated in largely the same way. The first script (gender.sh) used a loop to iterate through the years 2013 to 2018. In each iteration it used echo to display the year, and the output of a function countgender called twice with the current year and either M (for male) or W for (female). This resulted in the number of male and female students studying Computer Science to be diplayed. The function countgender operates very simply, it sets a variable column equal to the column containing the gender information for that year ((year-2013)+1), as well as the variable gender to either M or F. It then uses curl to get the demogrpahics.csv file pipes its output into cut to get the information from the proper columns, grep to look for lines that match the desired gender (M or F) and finally wc to count the number of lines containing that specific gender resulting in the number of either men or women from that specific year. The second script (ethnic.sh) funcitons almost identically the difference being instead of looking for the number of a specified gender it instead looks for a specified ethnicity.

Analysis

Year	Caucasian	Oriental	Hispanic	African	Native	Multiple	Undeclared
2013	43	7	7	3	1	2	0
2014	43	5	4	2	1	1	0
2015	47	9	10	4	1	1	2
2016	53	9	9	1	7	0	0
2017	60	12	3	5	5	6	0
2018	91	8	12	3	4	8	0

Year	Women	Men
2013	14	49
2014	12	44
2015	16	58
2016	19	60
2017	26	65
2018	36	90

1. The overall trend in gender balance at Notre Dame within the department of computer science has shifted towards parity. That is the gender balance has shifted from three and a half men per women in the class of 2013 to only two and a half men per women in the class of 2018.
2. Over time ethnic diversity in the Computer Science and Engineering program at Notre Dame has gotten worse. That is the number of minority students has remained largely the same while the number of caucasian students in the class of 2018 has more than doubled from the number of caucasian students in the class of 2013.

Discussion

1. In my opinion the department of comptuer science's main goal should be to attract as many of the most talented and qualified students as possible. In pursuit of this goal I believe that the department is most likely missing out on some of the best students if it is limited to mainly caucasian males. In pursuit of this goal I do believe that the department working to increase diversity would be a good thing. However, I believe that the department in seeking to increase diversity should keep in mind the diversity of the University as a whole. That is bear in mind that the problem of diversity is not limited to the department but the university as a whole and this may prevent the department from being able to increase its diversity as the University does not have a hugely diverse pool of students to draw from. In regards to whether the technology industry should work to increase diversity my opinion is almost identical to mine about the department increasing diversity. That is they should in order to attract the most competent people, however, that may be difficult as the pool of qualified individuals may not be diverse thanks to university computer science programs not being diverse.
2. I believe that not only the Computer Science and Engineering department but the university as a whole provides a welcoming environment for all students. This however, is a difficult question for me to answer as I am an individual and cannot hope to speak for all students at the university.
3. The most significant challenge that I have faced in the Computer Science and Engineering program is a lack of connection to my peers. That is while the first year engineering program was helpful in introducing me to students studying other engineering disciplines it did not introduce me to any other

students studying computer science and engineering which I feel is very important as these are the people that I will be studying with mostly for my remaining time at the university. I believe that the university could do a better job in this regard by making modifications to the first year engineering class so that I am able to work with my peers earlier or allowing us to take a computer science specific class as a freshman.