# Team 02 Project

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## Introduction to Analysis

Our team conducted an anaylysis to determine how an LSU graduate's past internships affect their starting salary after graduation, if at all. We focused on LSU students graduating with a Bachelor's Degree, as their salaries should be vastly different from the salaries of Master's Degree and PhD students.

Our original hypothesis inferred that students who had participated in an internship prior to graduation would be amongst those who have a higher starting salary.

### Steps for Process

We first compared the starting salaries for those accepted to full time positions after graduation against 3 different indicators:

- if the graduate had a previous internship
- the compensation (paid or unpaid) of the internship they had
- if the graduate stayed with that company

Then, we broke down the salary performance statistics we found by LSU Majors against that of the national average from a national study conducted by the Wall Street Journal, "Majors That Pay Back".

## Results

### Number of Internships

```
## Warning in .local(conn, statement, ...): Decimal MySQL column 1 imported as
## numeric
```

```
## Warning in .local(conn, statement, ...): Decimal MySQL column 1 imported as
## numeric
```

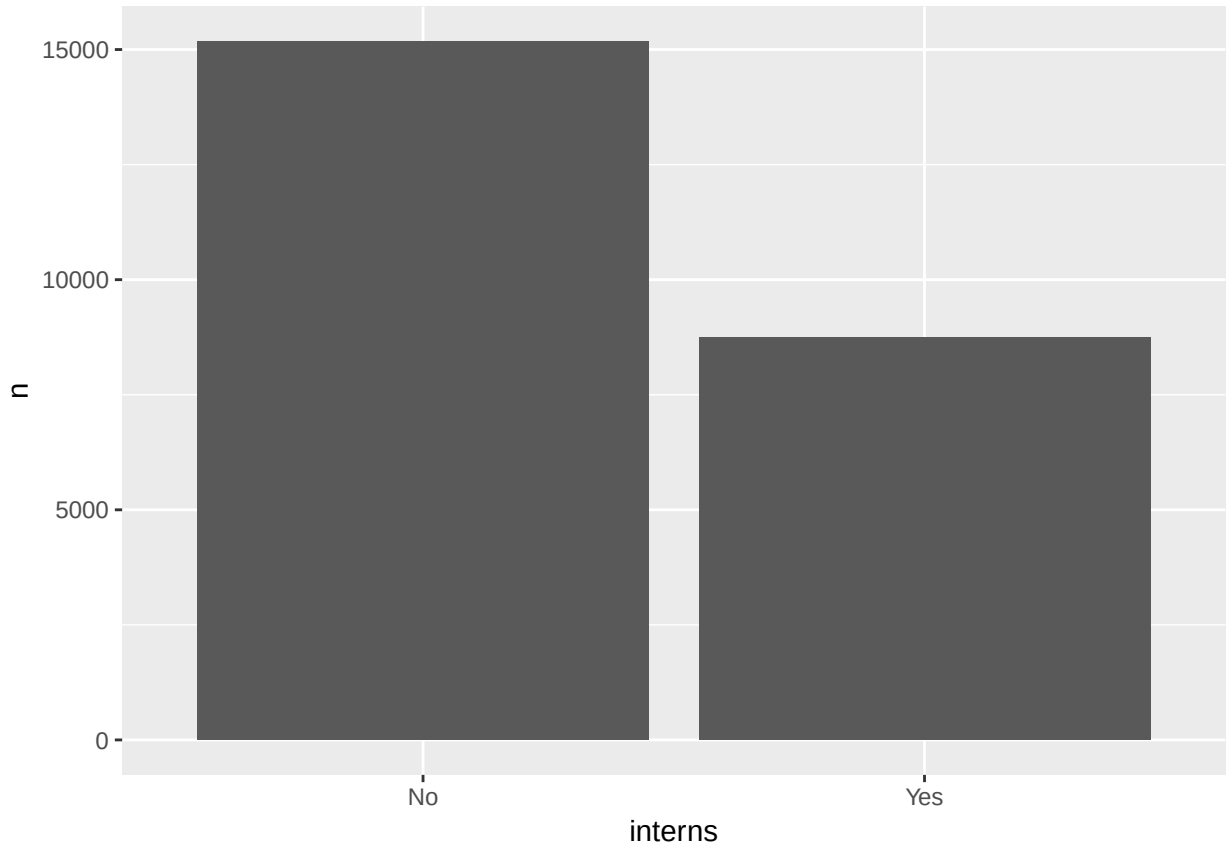
Of all of the LSU graduates from 2017, there was a total of completed internships, with some students completing as many as 4. (do max for this)

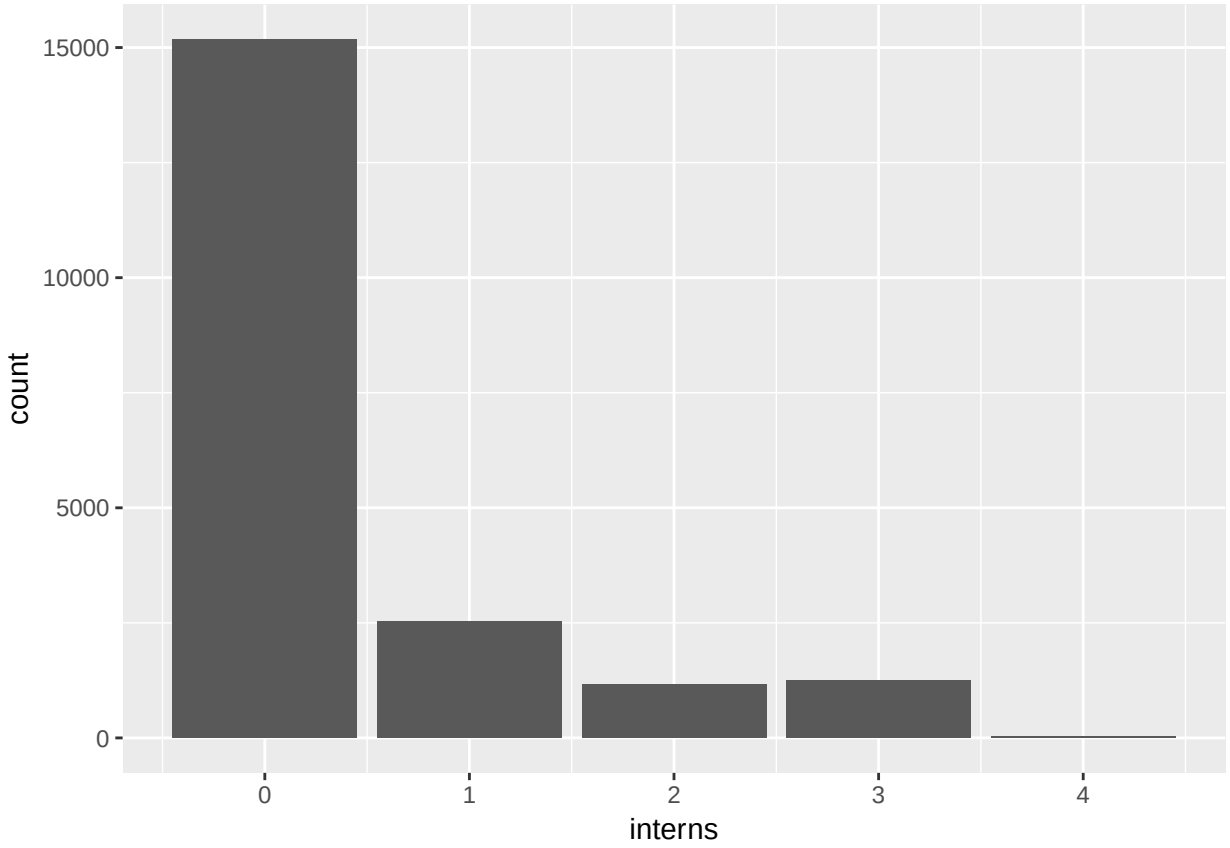
[Inchan part for how many studnets completed # of internships]

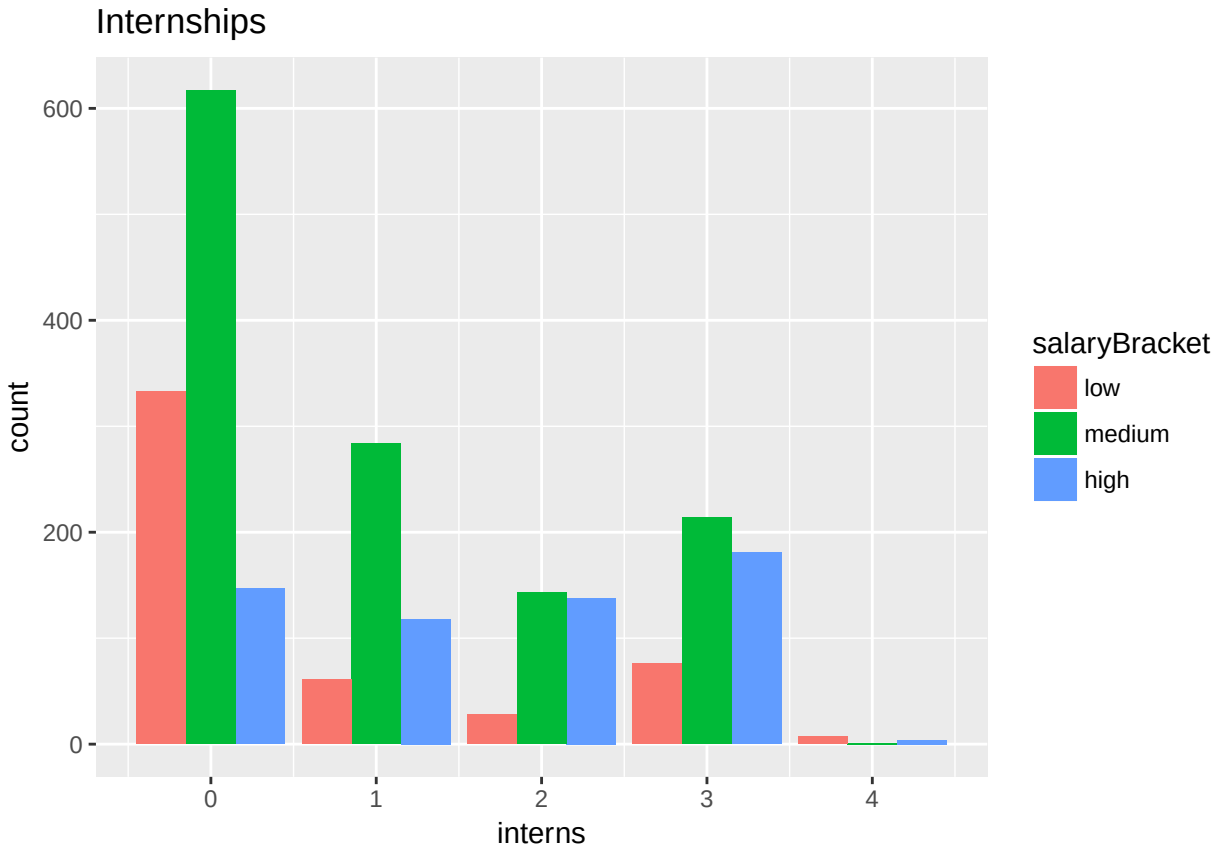
The total number of students who completed internships were of the graduating class.

[inchan put students who didn't] There were students who did not have internships, which is about 13 people without an internship for every 1 with an internship.

| interns | n |
|---|---|
| No | 15174 |
| Yes | 8753 |


15000
10000
5000
0
n
No
Yes
interns


15000
10000
5000
0
count
0
1
2
3
4
interns



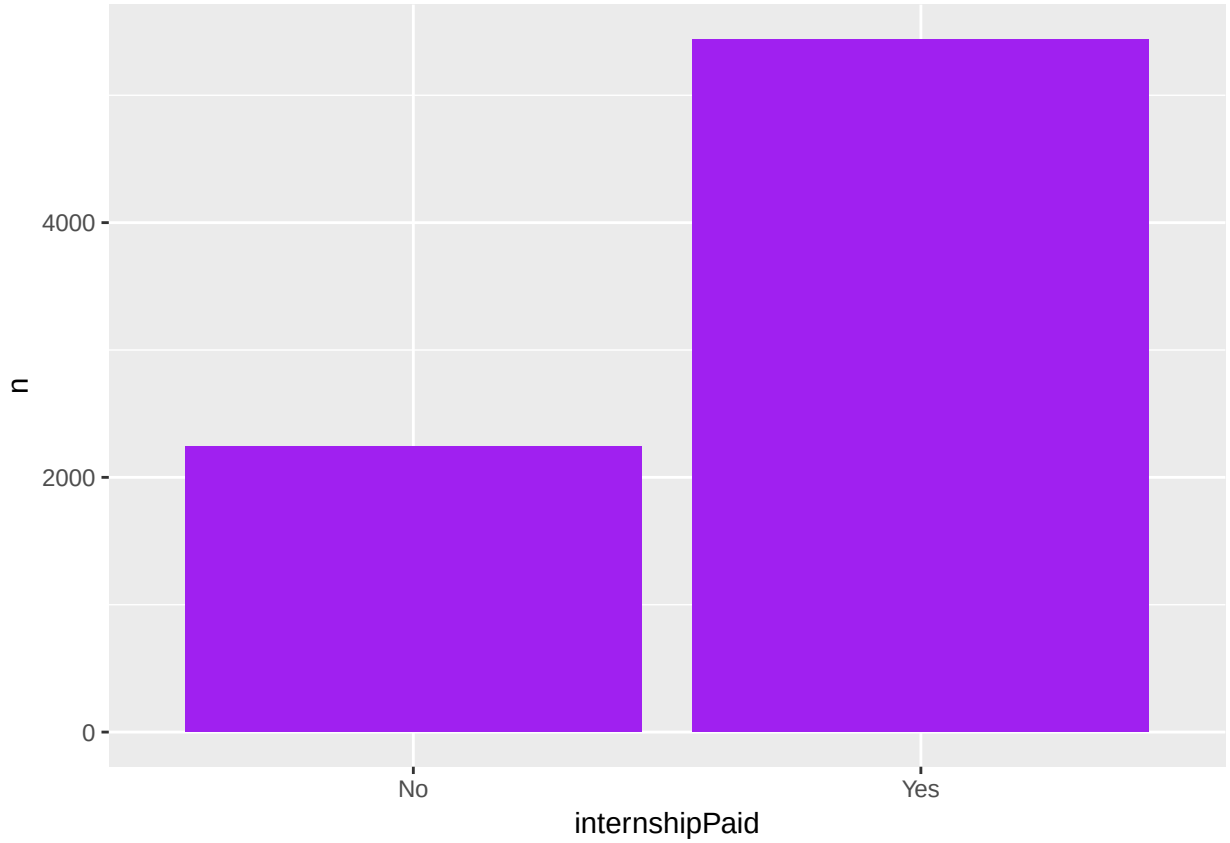

```
## # A tibble: 2,377 x 7
##    graduationId interns idCurrentPosition salary degreeLevel salaryBracket
##           <int>   <int>             <int>  <dbl> <chr>       <fct>
##  1            1       2               500  65000 Bachelor    high
##  2           13       2               501  72000 Bachelor    high
##  3           30       2               506  55000 Bachelor    medium
##  4           33       0               507  15000 Bachelor    low
##  5           36       1               509  58000 Bachelor    medium
##  6           37       2               510  72500 Bachelor    high
##  7           56       1               512  50000 Bachelor    medium
##  8           78       0               517  36000 Bachelor    medium
##  9           80       0               518  35000 Bachelor    medium
## 10           82       0               519  46000 Bachelor    medium
## # ... with 2,367 more rows, and 1 more variable: majorName <chr>
```

**Paid or Unpaid Internships**

As we have stated previously, of all of the LSU graduates from 2017, 4981 graduates had internships while completing their degree.

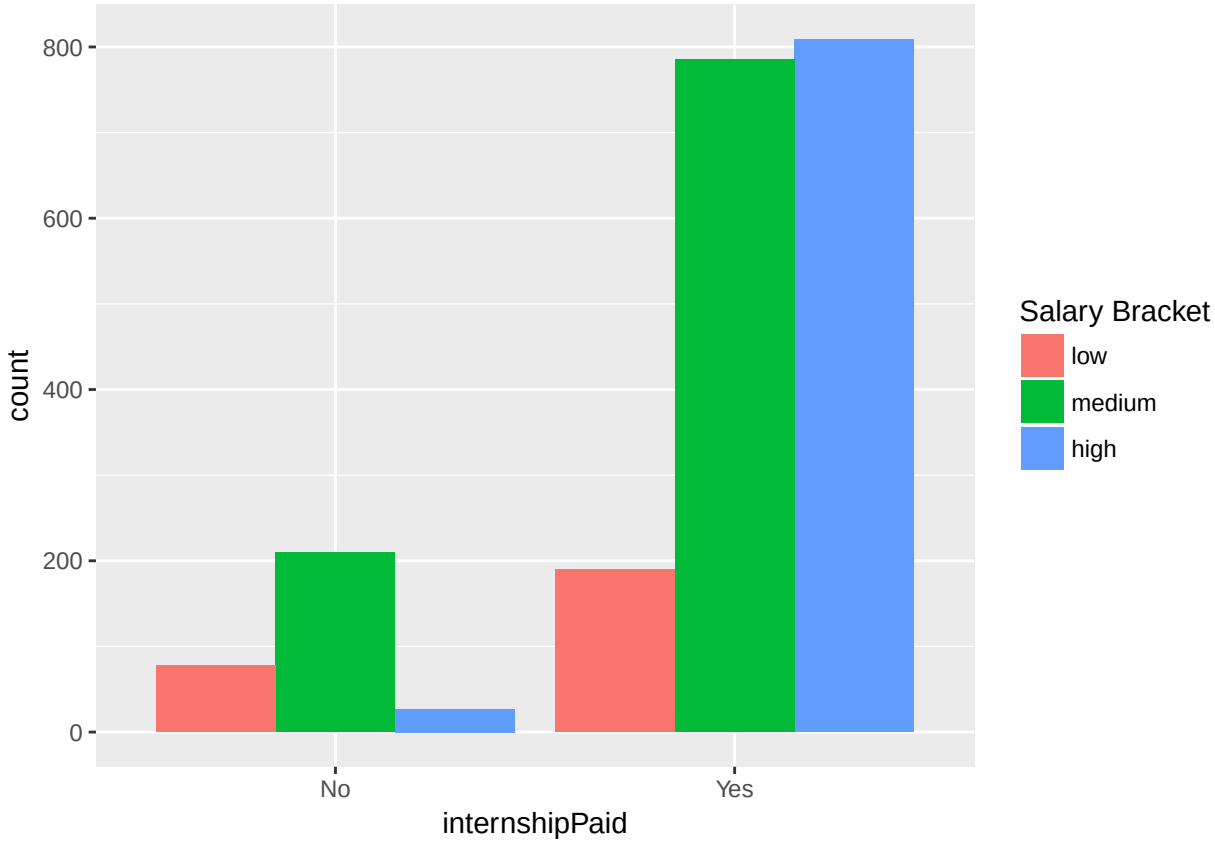
From this number there is a total of 2240 unpaid internships, and 5440 paid internships taken by students that graduated in 2017.

In this analysis we will find out about the correlation between paid and unpaid internship on the starting salaries for graduated students in 2017.




From the dataset we found out that 2099 get a job right after graduation. The distribution based on the salary bracket is :

- 78 graduates with unpaid internships, and 190 graduates with paid internships got low starting salaries.
- 210 graduates with unpaid internship, and 785 graduates with paid internship got medium starting salaries.
- 27 graduates with unpaid internship, and 809 graduates with paid internship got high starting salaries.




Based on data and graph above we can coclude that paid internship have highly positive correlation on starting salary with the overwhelming majority of 38.5% beginning with a high starting salary, and second highest number with 37.4% for medium starting salary, making up more than half of those who had an internship.

Based on data and graph above we can coclude that paid internship have highly positive correlation on starting salary with the highest percentage of 38.5% for high starting salary, and second highest of 37.4% for medium starting salary.

### Internship Turnovers

### How LSU Graduates Stack Up

To put everything in perspective, we wanted to compare the starting salaries of LSU graduates to that of the average college graduate in the US. To do this, we used a dataset from *The Wall Street Journal* (WSJ) that included the median starting salaries of college graduates by major: http://online.wsj.com/public/resources/documents/info-Degrees_that_Pay_you_Back-sort.html.
Of the 50 majors listed in the WSJ dataset, only 39 matched up with the majors of the LSU graduates who went into the workforce after graduation. Some of the major names had to be adjusted to match up properly to the WSJ dataset.

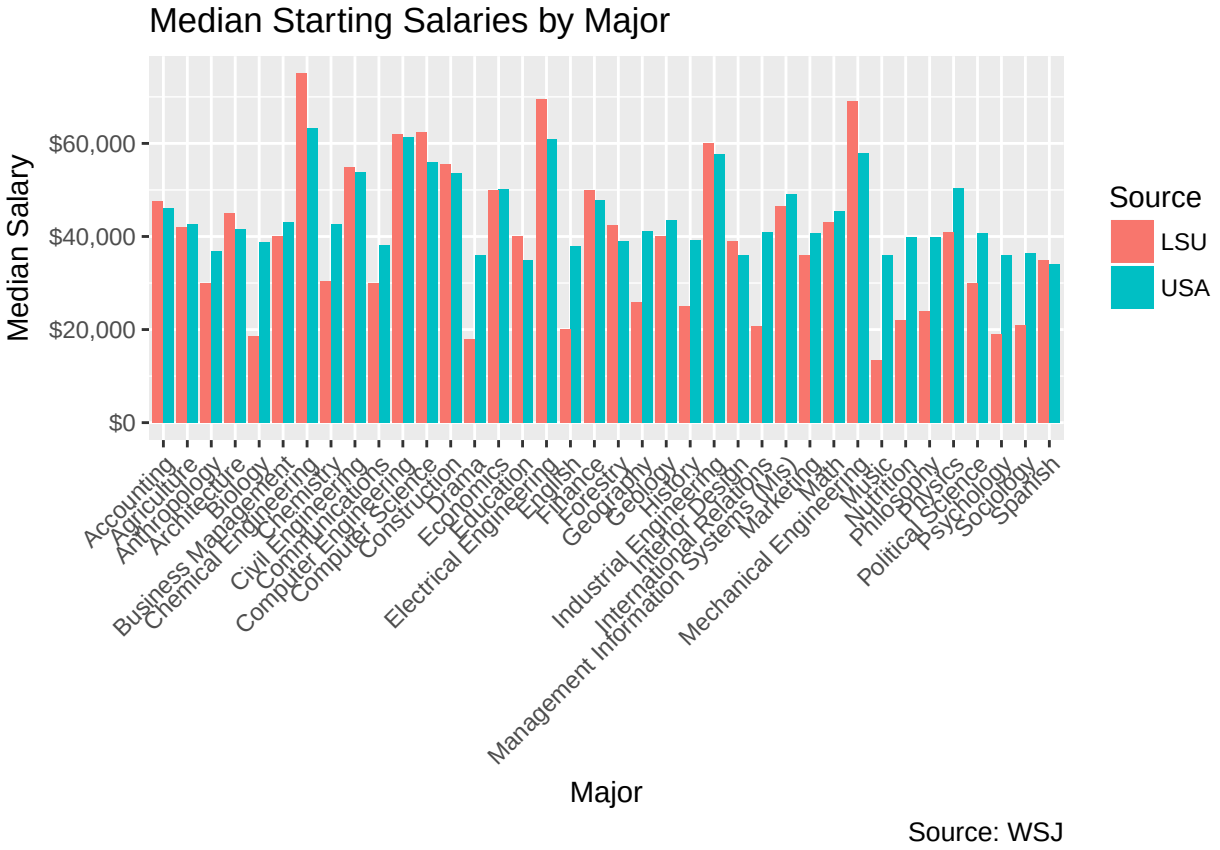
The changes that were made:

| LSU | WSJ |
|---|---|
| biological sciences | biology |
| management | business management |

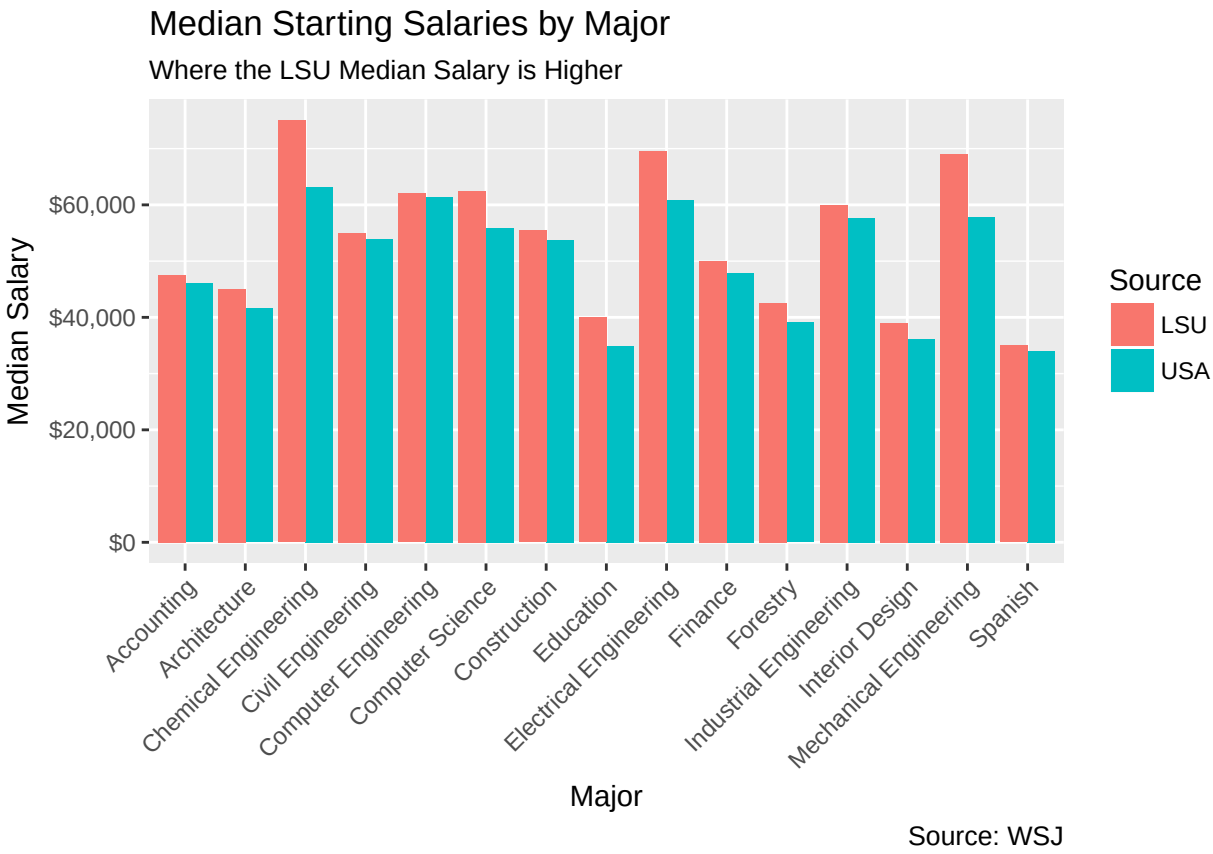
| LSU | WSJ |
|---|---|
| theatre | drama |
| fine arts - art history | art history |
| construction management | construction |
| forestry - forest management | forestry |
| information systems and decision sciences | management information systems (mis) |
| mathematics | math |
| nutrition and food sciences | nutrition |
| international studies | international relations |

Also :

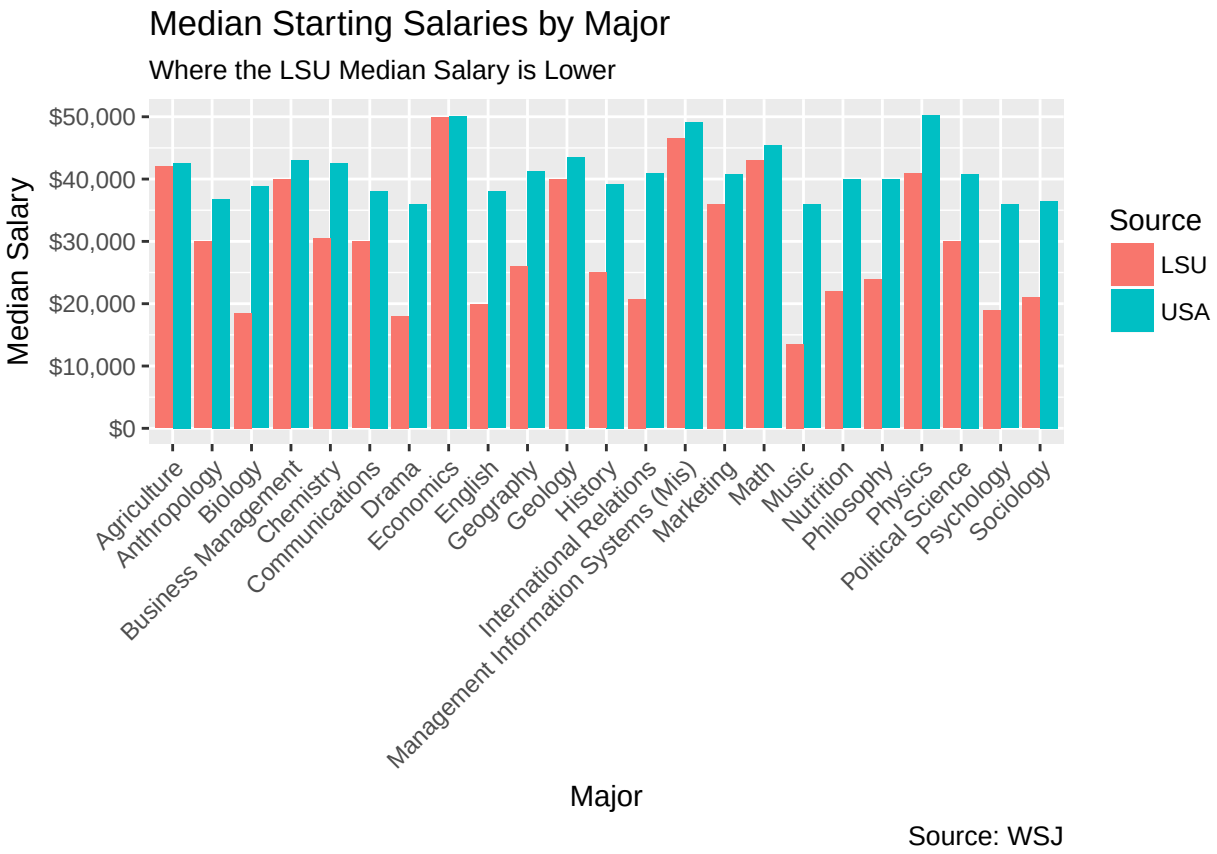
- agricultural & extension education, agricultural education- grades 6 - 12, agriculture and extension education, dual certification general/special education: grades 1-5, early childhood education: pk-3 teacher certification, education, educational leadership, educational leadership & research, elementary education grades 1-5, elementary grades education, gifted education, human resource education, music education, secondary education grades 6-12, special education were changed to **education**
- agricultural business, agricultural economics were changed to **agriculture**
- mass communication, mass communication & public affairs were changed to **mass communication**




There are 38 majors listed in this graph, so it might be hard to tell which is which. We've broken it down into two graphs instead.


Median Starting Salaries by Major
Where the LSU Median Salary is Higher
Median Salary
$60,000
$40,000
$20,000
$0
Accounting
Architecture
Chemical Engineering
Civil Engineering
Computer Engineering
Computer Science
Construction
Education
Electrical Engineering
Finance
Forestry
Industrial Engineering
Interior Design
Mechanical Engineering
Spanish
Major
Source
LSU
USA

Source: WSJ




As you can see, there are 15 LSU majors that pay equal to or higher than the national median and 23 LSU majors that pay less than the national median.

Some majors have a wider range of salaries than others, so we have included box-and-whisker plots at the end of this report for each major.

## Conclusion

## Salary Box-and-Whisker Plots

Each figure shows the box-and-whisker plots of the majors of a particular college. The college of Coast & Environment is not pictured in this report because there was not enough data to generate a substantial box-and-whisker plot. Data with salary values above $150,000 were removed because they are outliers that stretch the scale of the Y axis to the point of making the box-and-whisker plots hard to interpret. Data with salary values of less than $15,000 were removed as well because the national minimum wage in the United States is $7.25 an hour–a full-time position paying minimum wage for the year pays more than $15,000, so all values below this were considered to be typos.

A few changes had to be made regarding the majors in the dataset:

- There were some majors listed as "NA" (not to be mistaken with `NA`), all under the College of Humanities and Social Sciences. These were renamed "Interdisciplinary Studies"
- Some records had a major listed with the wrong college, so the college names were reassigned by major, according to these rules:

| Major | College |
|---|---|
| Biological Sciences | Science |
| Spanish | Humanities and Social Sciences |
| Mass Communication | Mass Communication |
| Mathematics | Science |
| Economics | Business |

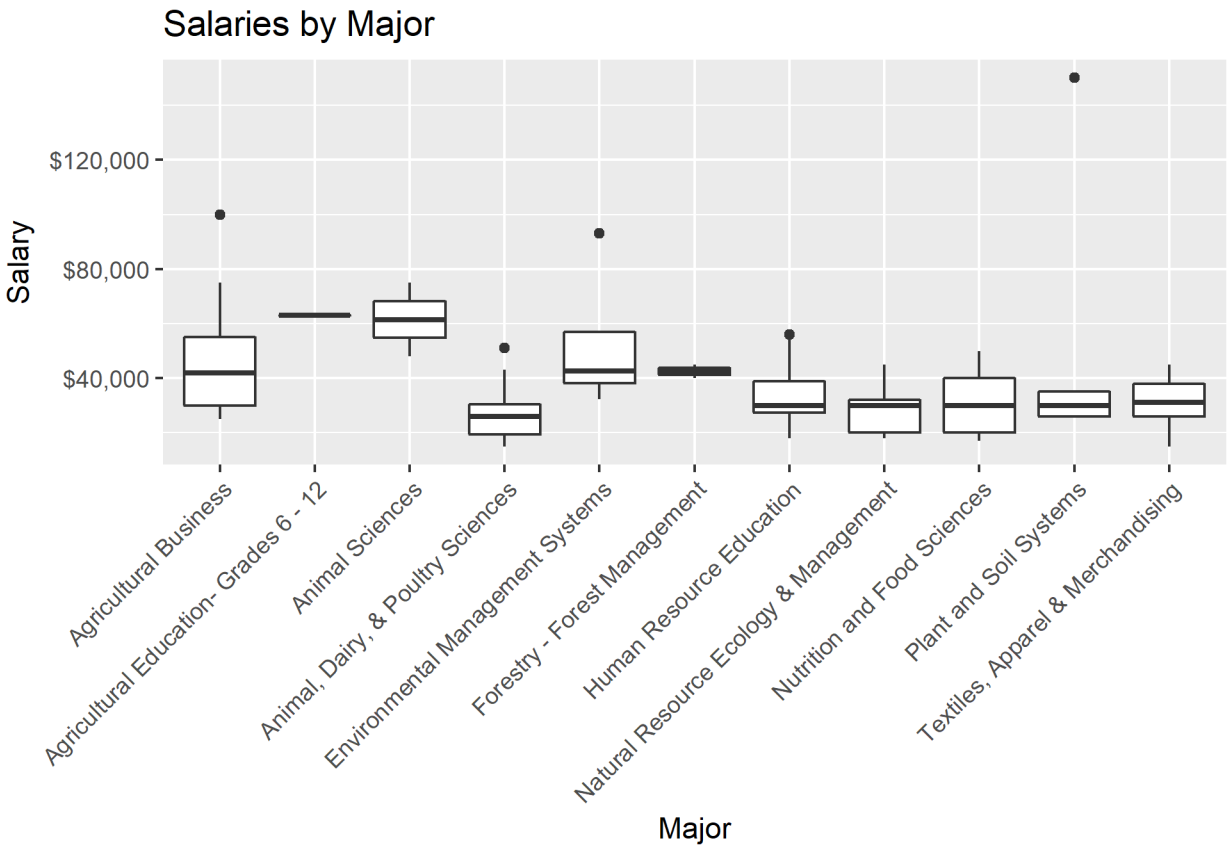



Figure 1: College of Agriculture

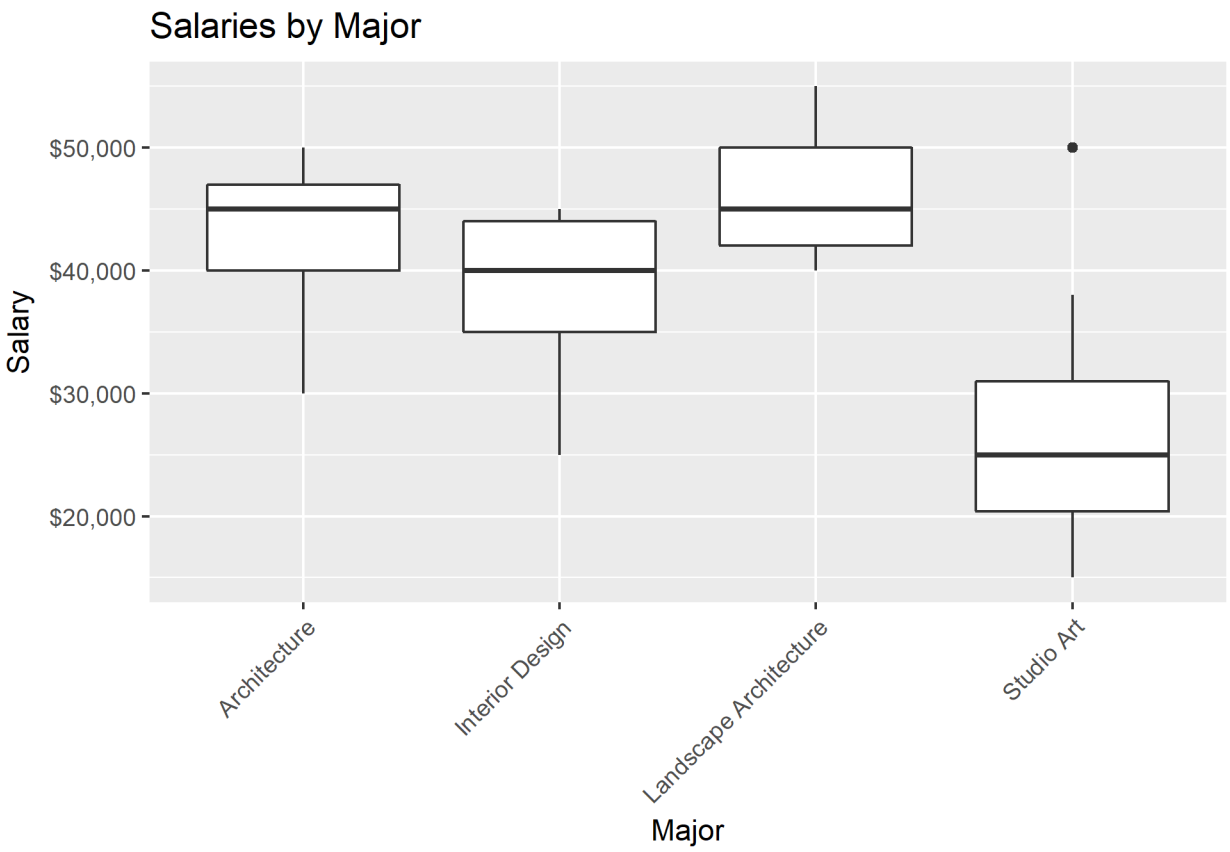



Figure 2: College of Art & Design

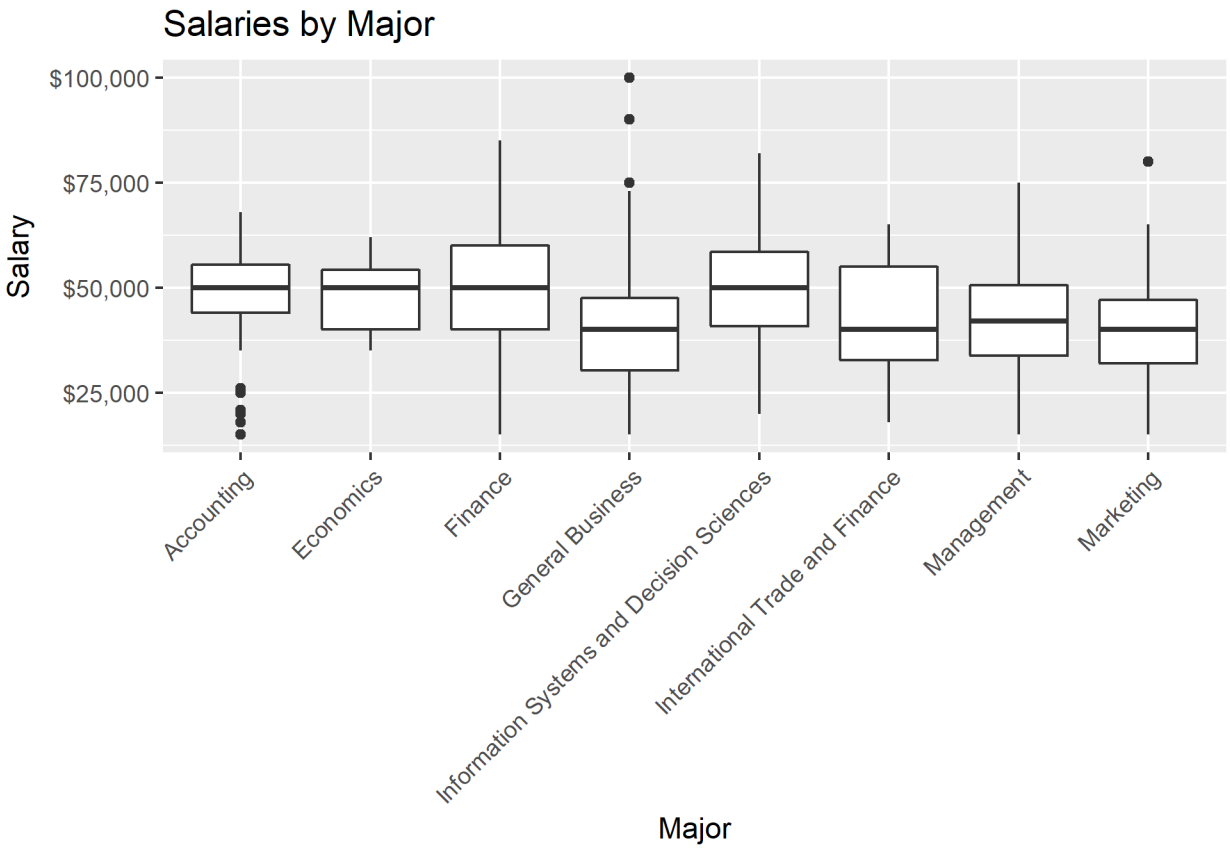



Figure 3: College of Business

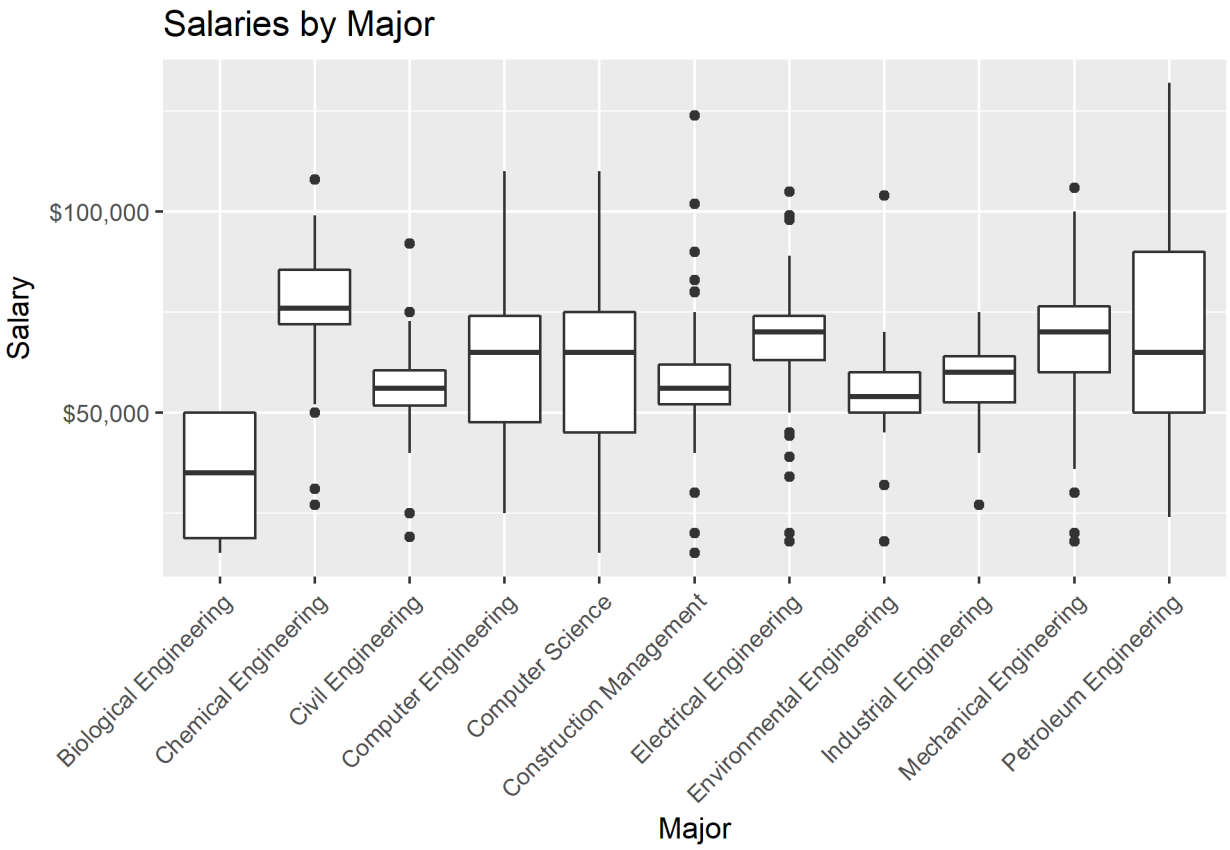



Figure 4: College of Engineering

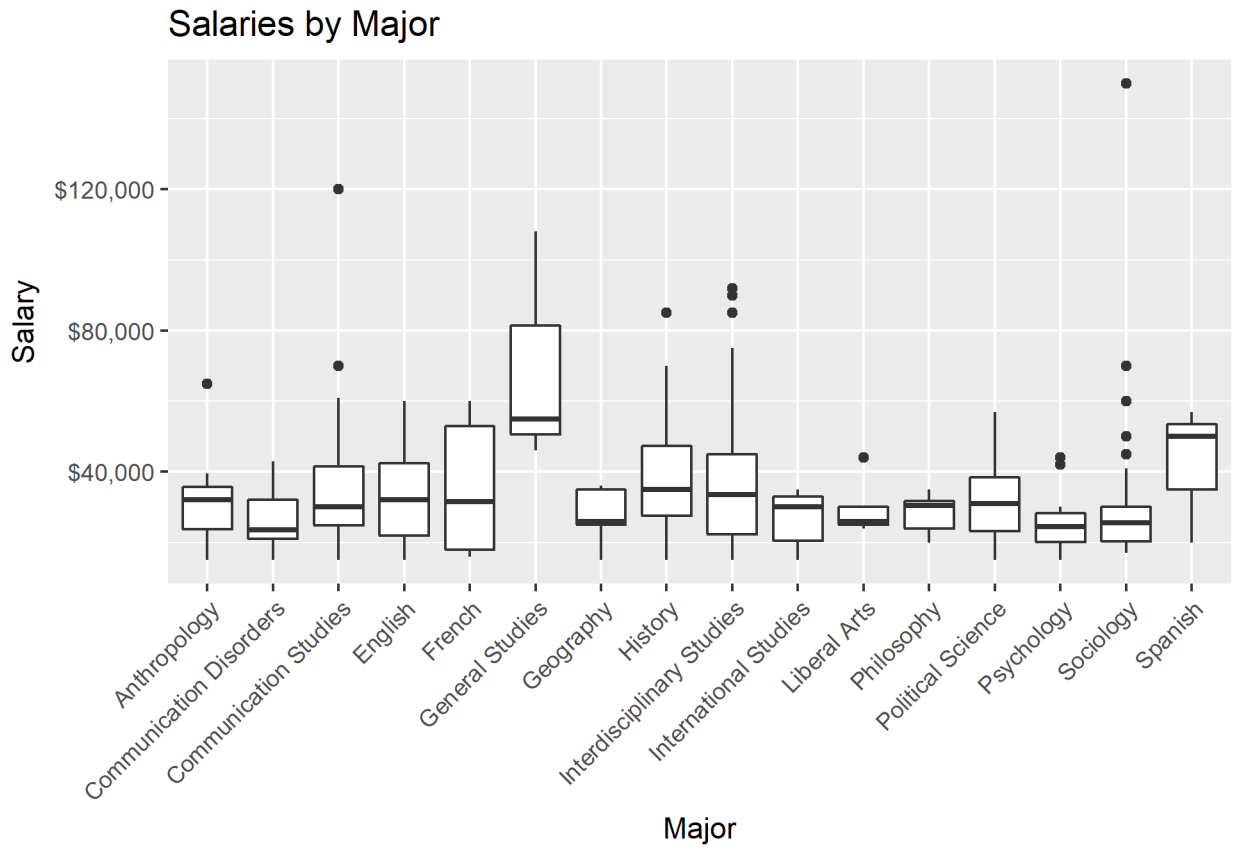



Figure 5: College of Humanities & Social Sciences

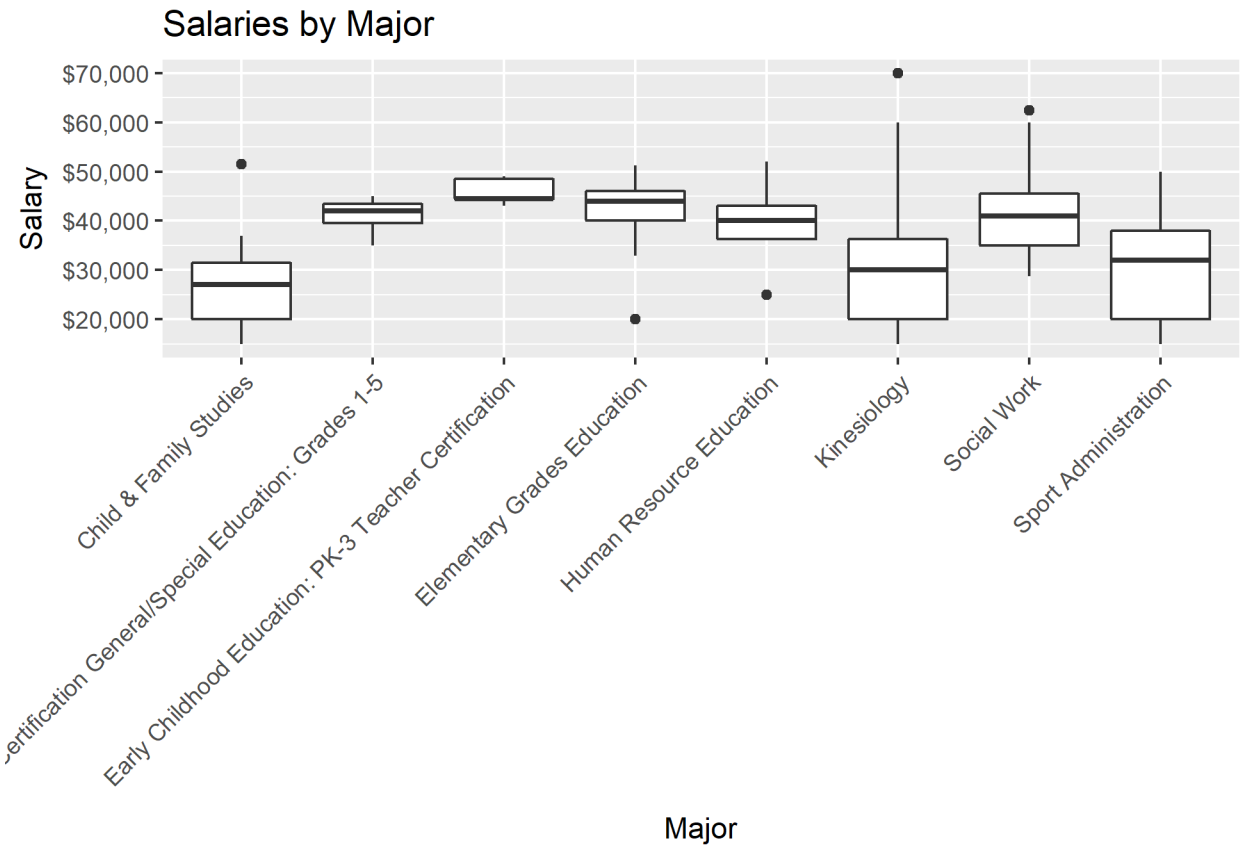



Figure 6: College of Human Sciences & Education

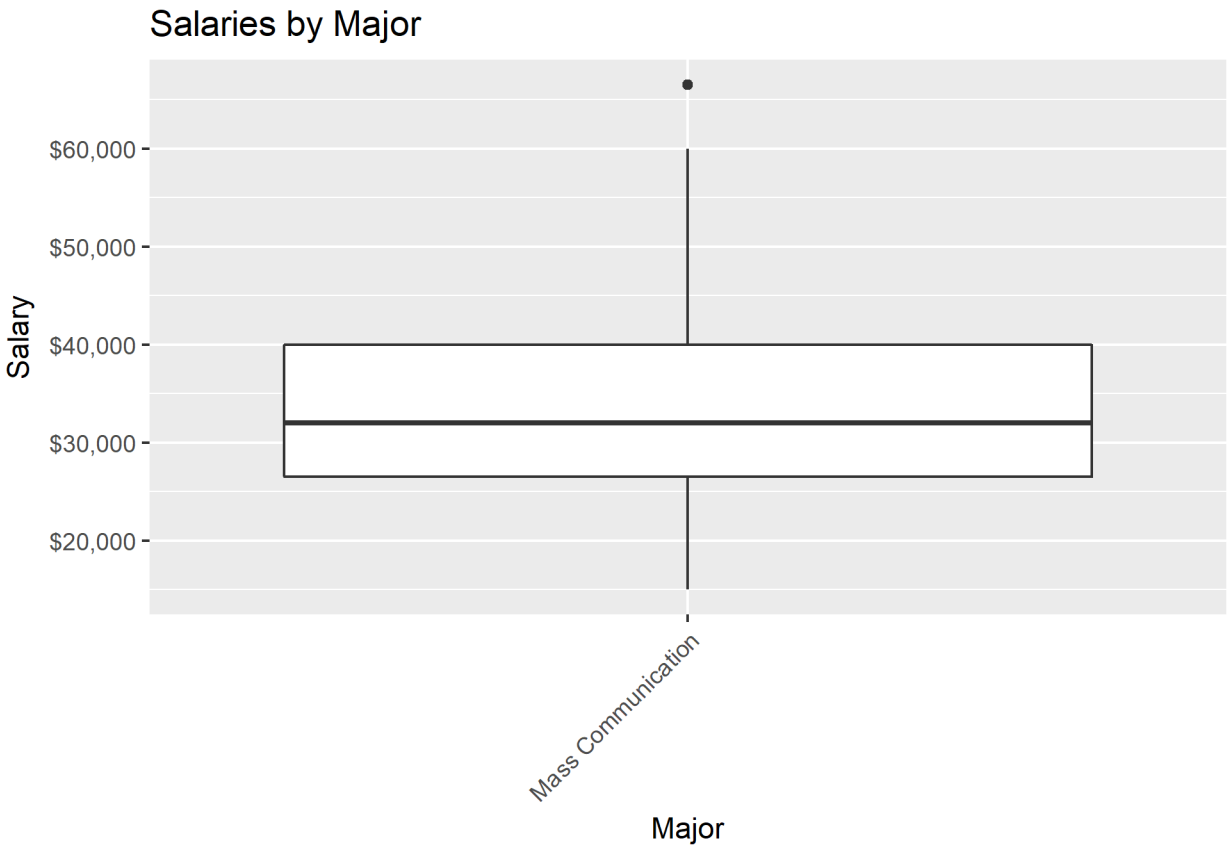



Figure 7: College of Mass Communication

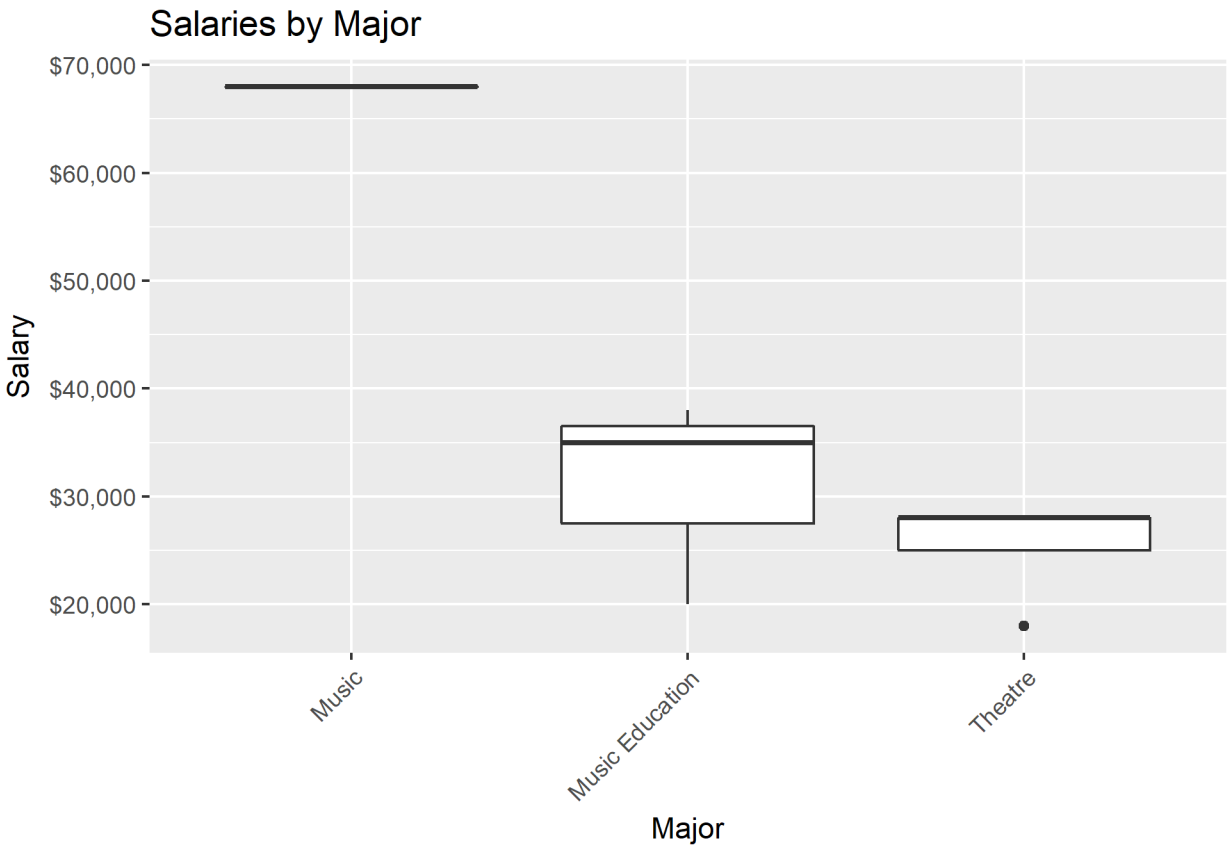



Figure 8: College of Music & Dramatic Arts

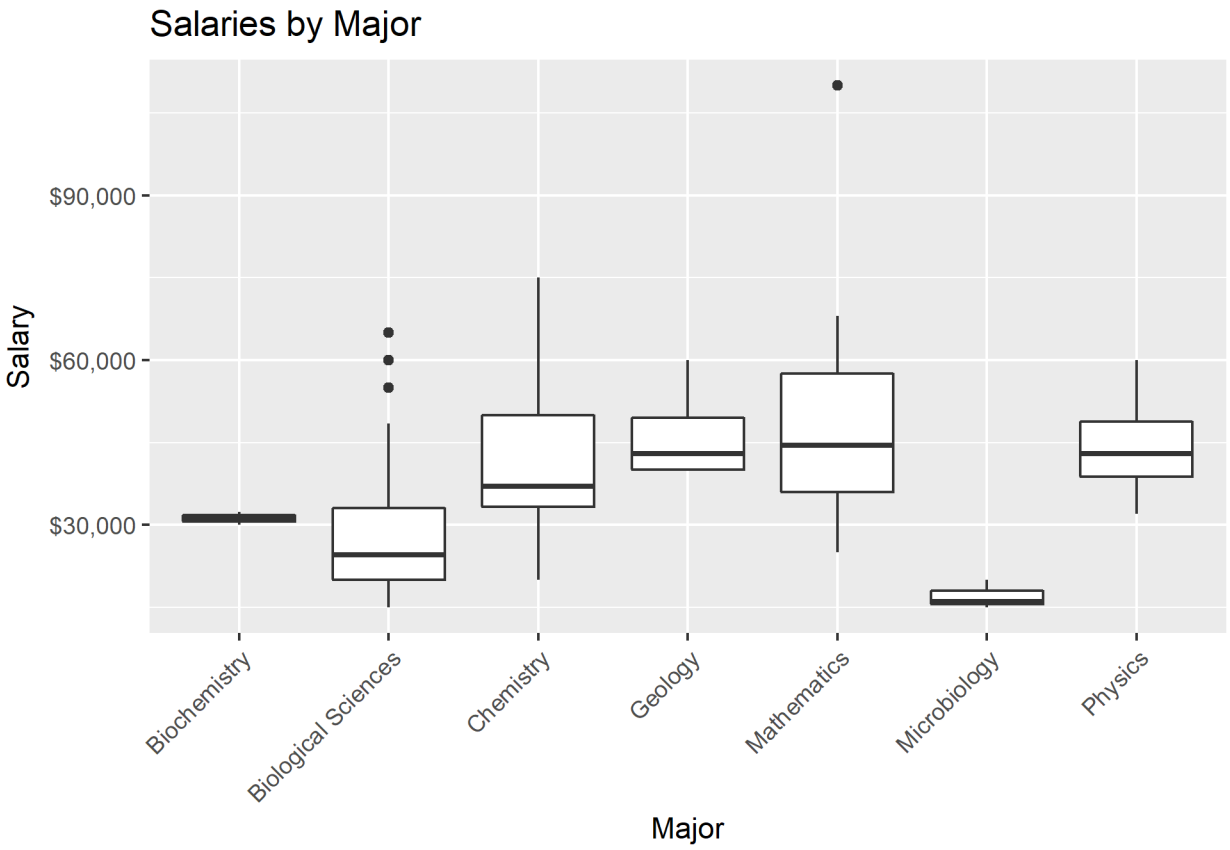



Figure 9: College of Science