An Analysis on the status of Visa Cases

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##Load Library Packages

```
library(tidyverse)
```

```
## -- Attaching packages ------------------------------------------------------------------------ tidy
```

```
## v tibble  3.0.3     v purrr   0.3.4
## v tidyr   1.1.1     v dplyr   1.0.1
## v readr   1.3.1     v forcats 0.5.0
```

```
## -- Conflicts --------------------------------------------------------------------------- tidyverse_
## x lubridate::as.difftime() masks base::as.difftime()
## x lubridate::date()        masks base::date()
## x dplyr::filter()          masks stats::filter()
## x readr::guess_encoding()  masks rvest::guess_encoding()
## x lubridate::intersect()   masks base::intersect()
## x dplyr::lag()             masks stats::lag()
## x purrr::pluck()           masks rvest::pluck()
## x lubridate::setdiff()     masks base::setdiff()
## x lubridate::union()       masks base::union()
```

```
library(readxl)
VisaData <- read_excel("DIIG F20 Data Challenge #2.xlsx")
```

```
## Warning in read_fun(path = enc2native(normalizePath(path)), sheet_i = sheet, :
## Coercing text to numeric in O146963 / R146963C15: '45870'
```

```
## Warning in read_fun(path = enc2native(normalizePath(path)), sheet_i = sheet, :
## Coercing text to numeric in O164631 / R164631C15: '76700'
```

In this dataset we have data on 167,278 different visa applications each with 16 different attributes associated with the application.

During this analysis I want to answer two major questions:

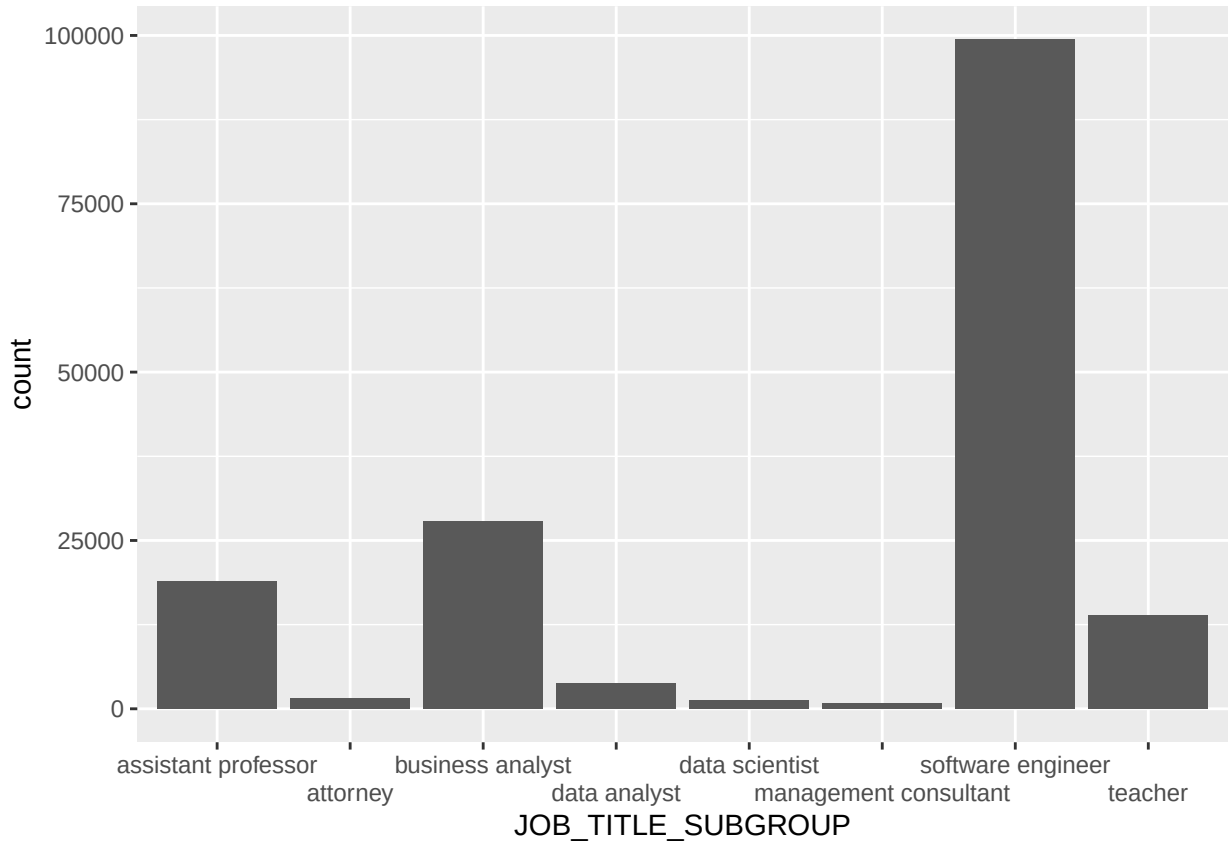
1. What variables makes an application more likely to get approved and what variables make an application less likely to get approved.
2. How do Job wages compare across locations?

Lets look at question 1 first:

Now lets look at how we can answer question 2:

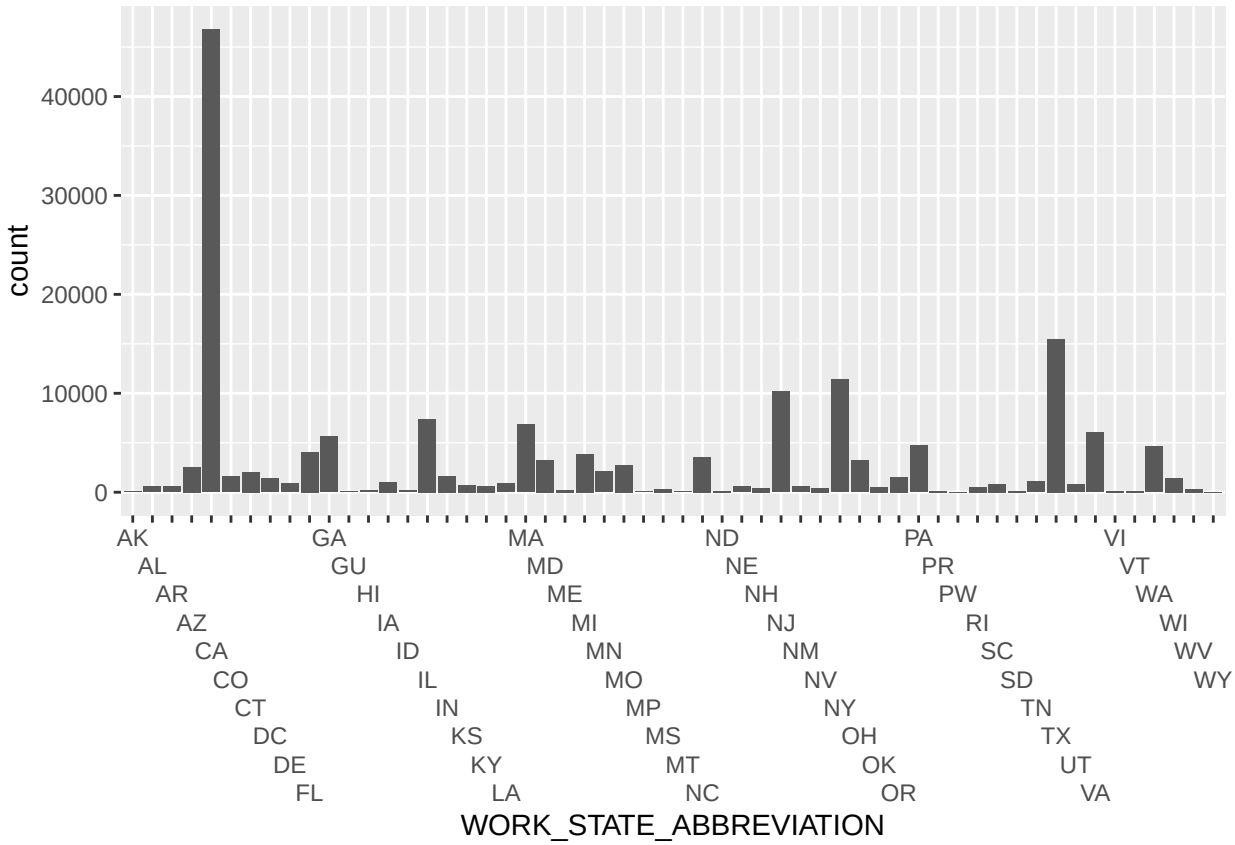
To analyze wages lets first construct a plot of all the different jobs in the dataset

```
ggplot(data = VisaData, mapping = aes(x = JOB_TITLE_SUBGROUP)) + scale_x_discrete(guide=guide_axis(n.do
  geom_bar()
```



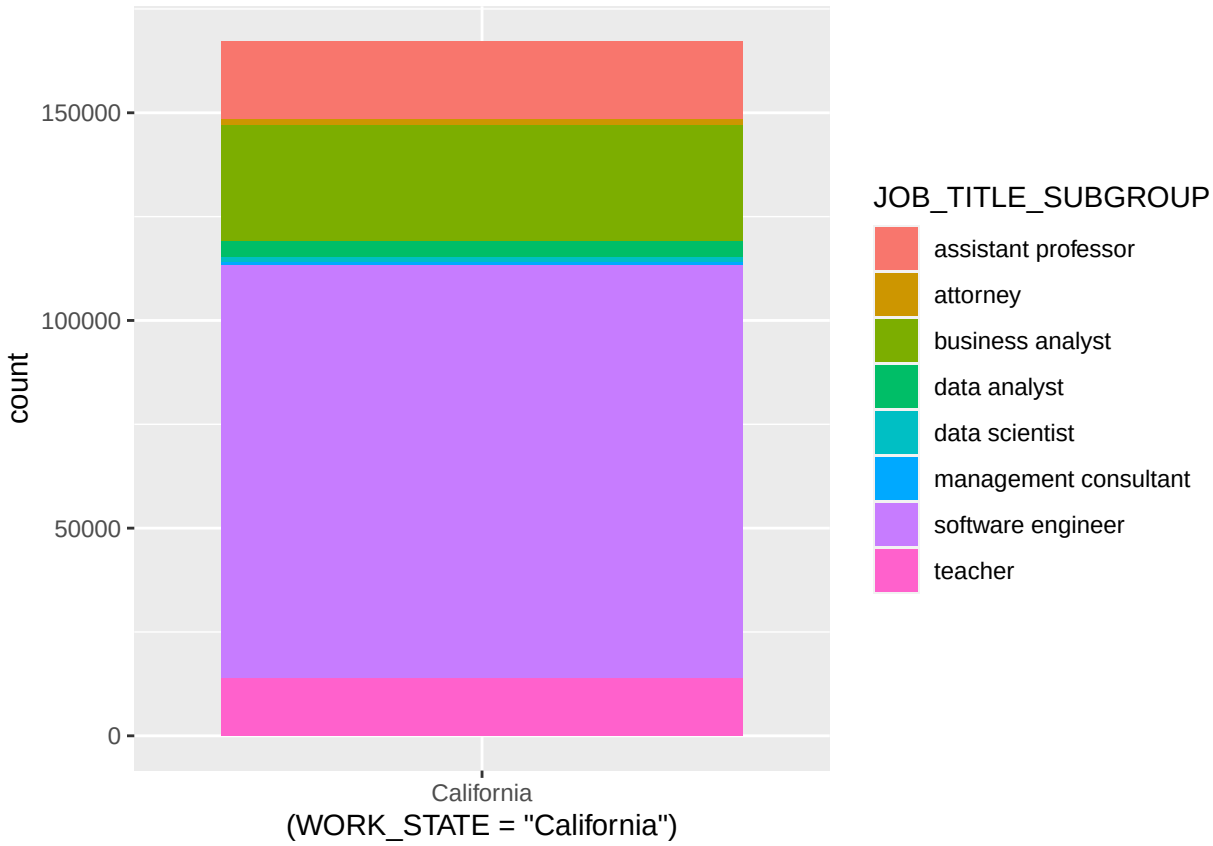
Now lets look at the locations where these visa applicants live:

```
ggplot(data = VisaData, mapping = aes(x = WORK_STATE_ABBREVIATION)) + scale_x_discrete(guide=guide_axis
  geom_bar()
```



It's clear to see that the overwhelming majority of Visa-Applicants in this dataset are residing in California. This is important to note as California is a hub for software development jobs. Lets take a look at how many people who applied for a Visa in California also have a software related job.

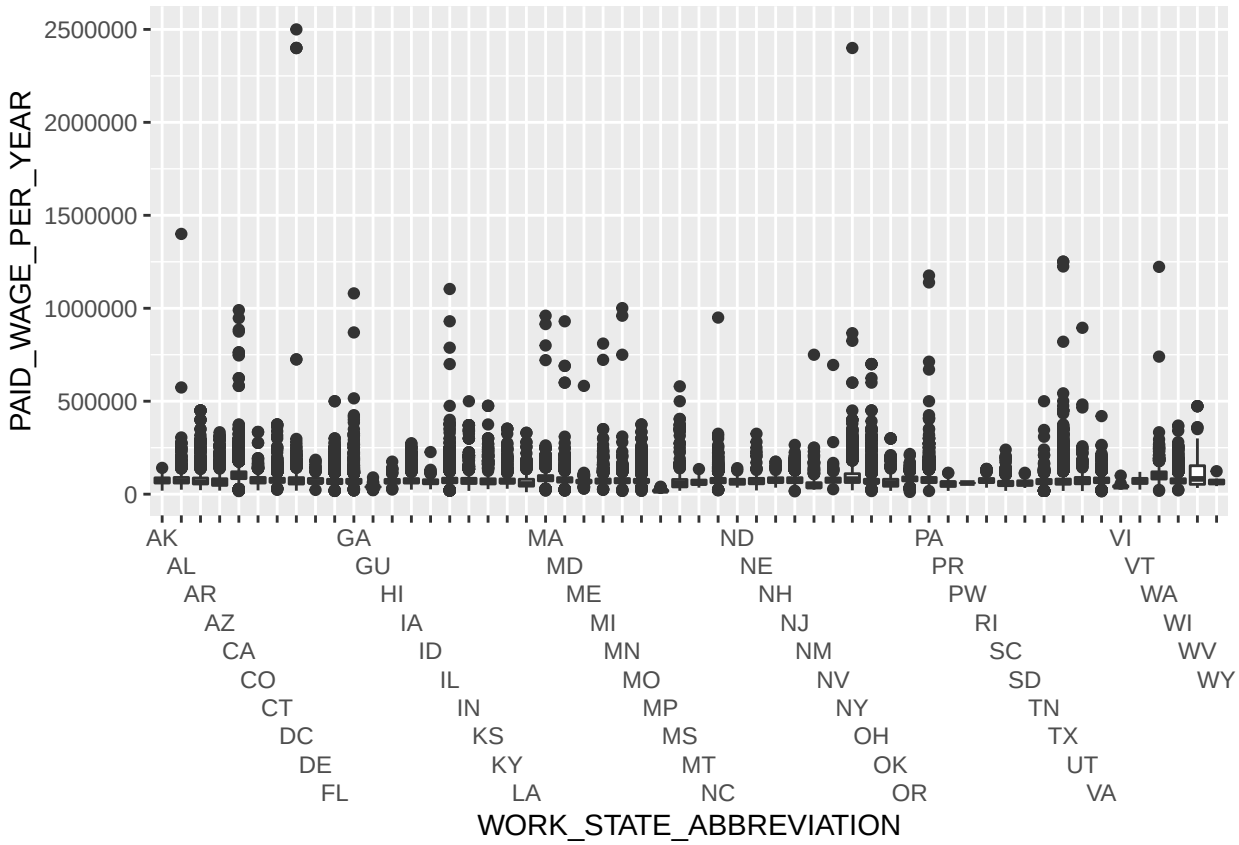
```
ggplot(data = VisaData, mapping = aes(x = (WORK_STATE = "California"), fill = JOB_TITLE_SUBGROUP)) + sca
  geom_bar()
```



An overwhelming majority of the applicants from California are working some sort of software job. This is important to note as these software related jobs typically pay much more than say a teacher.

To further analyze this lets take a look at a Box plots of wages in each state

```
ggplot(data = VisaData, mapping = aes(y = PAID_WAGE_PER_YEAR, x = WORK_STATE_ABBREVIATION)) +
  scale_x_discrete(guide=guide_axis(n.dodge=10)) +
  geom_boxplot()
```


PAID_WAGE_PER_YEAR
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WORK_STATE_ABBREVIATION