

Stack Overflow Developer Survey



2018 Developer Survey

About Dataset

Each year, Stack Overflow conducts a survey over 170 countries for the Developer community.

85 questions were asked ranging from the favorite technologies to the job preferences of the developers. Around 90000 programmer answered the questionnaire.

In this project, we are analyzing the survey results of developers for the year 2018.

You ask why StackOverflow?

Because when this happens..



www.phdcomics.com

And you ask why StackOverflow..

StackOverflow: The Saviour comes to the rescue!



Dataset Cleaning

The obtained dataset was in unstructured form. With many options provided to developers for giving as many as possible languages known, coding practices preferred, salary in currency etc. Some questions are also based on personal information of programmer like number of children and location preferred to work.

As the choices for different questions were not necessarily answered in a proper format or answered at all, a lot of data cleaning and prepping was needed.

To begin with, we calculated how many questions were left unanswered. The rest of the data was cleaned and features were selected depending on the requirements as the project progressed. Finally, we used 50 features to do our analysis with.

Dataset Cleaning

```
#checking NA values
names(so_survey_result)
len_so <- length(so_survey_result)
na_col=c()
for(i in 1:len_so)

{
  na_count<-sum(is.na(so_survey_result[i,]))
  if(na_count>0){
    na_col<-so_survey_result[i]
  }
}
```

Countries

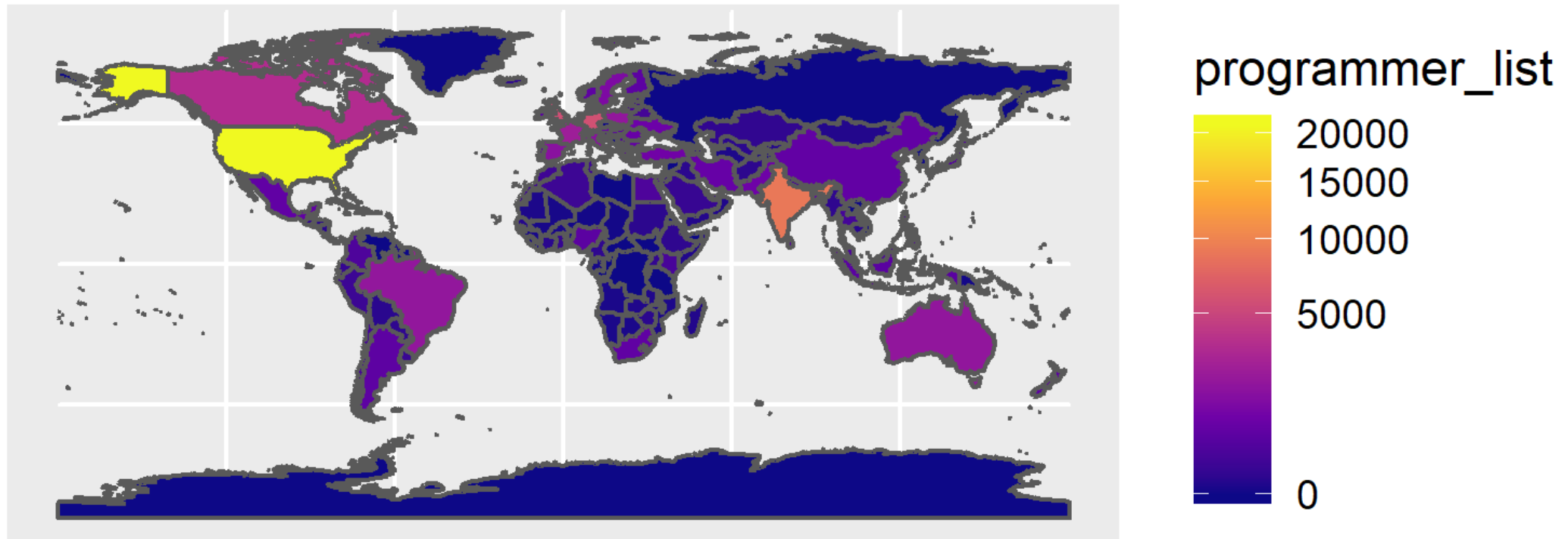
Lets begin with the number of developers in each country



Which countries of the world have most numbers of programmers?

Yes! It is The USA! Followed by India which isn't too far behind either. We have formatted the data and mapped the data with world map to get a plot which makes it easier for us to explain the statistics of programmers around the world. Also, we find that approximate mean age for 1st code written by people around the world is close to 16 years.

Number of developers in each country

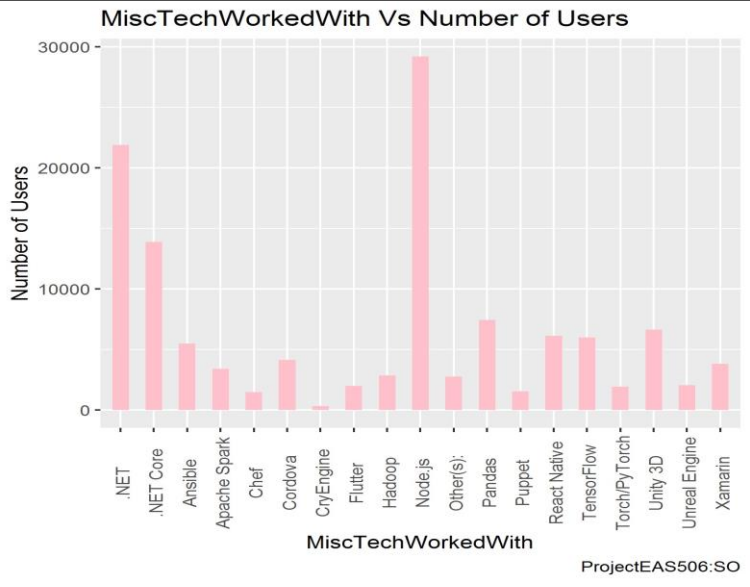
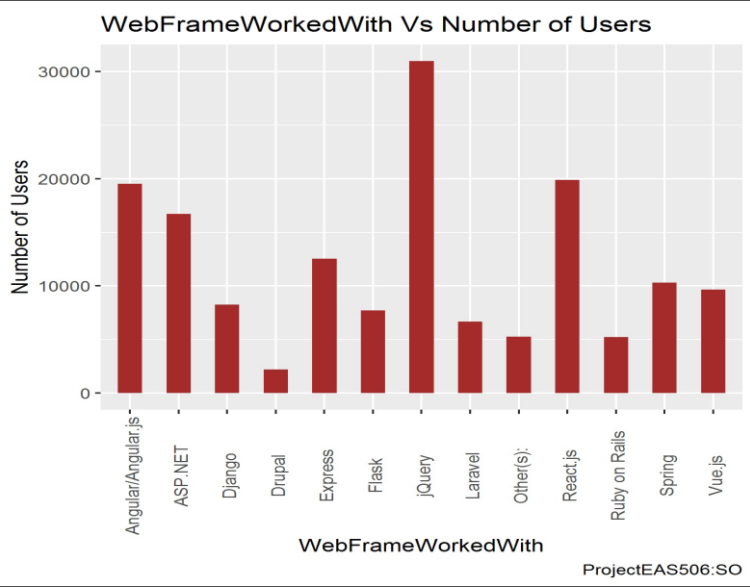
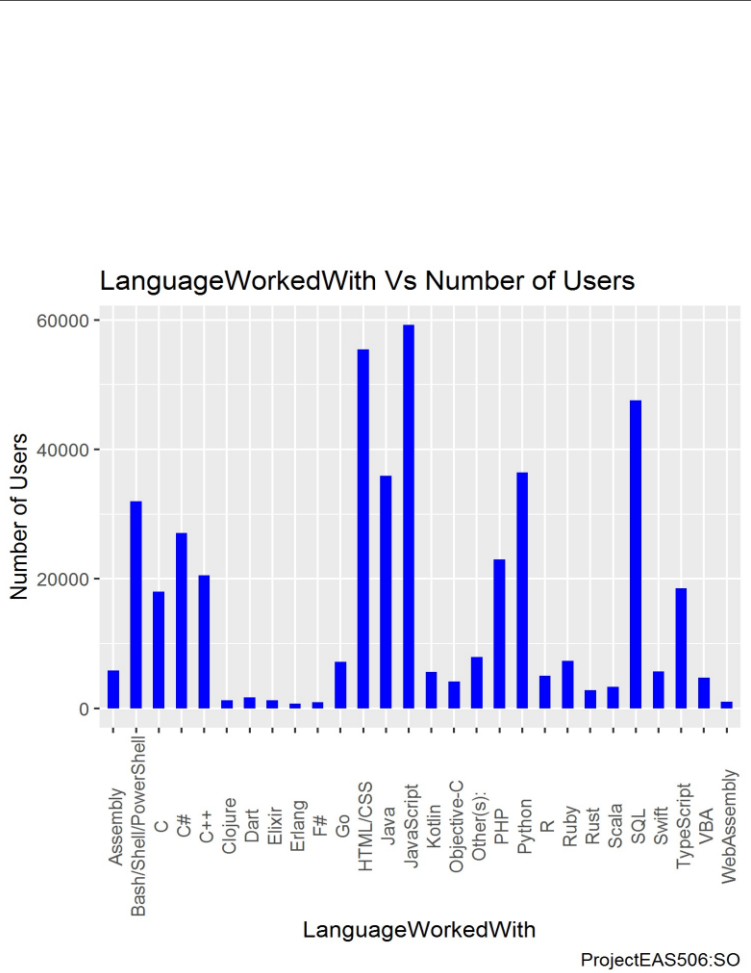
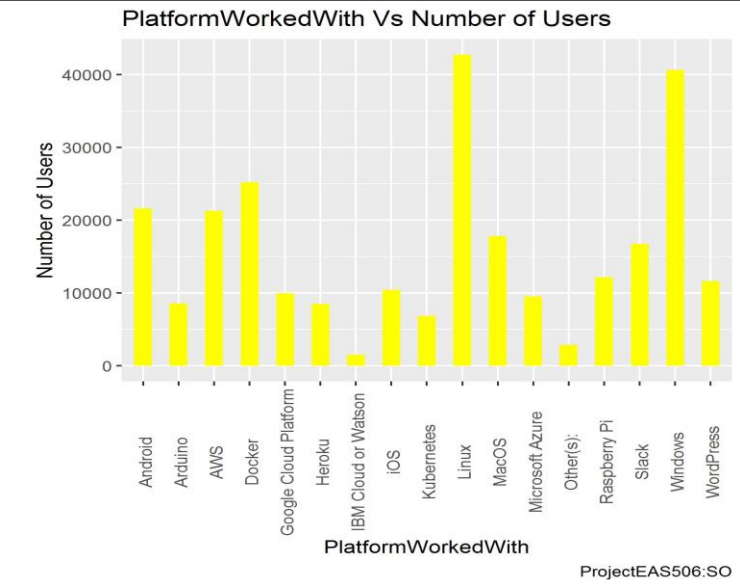
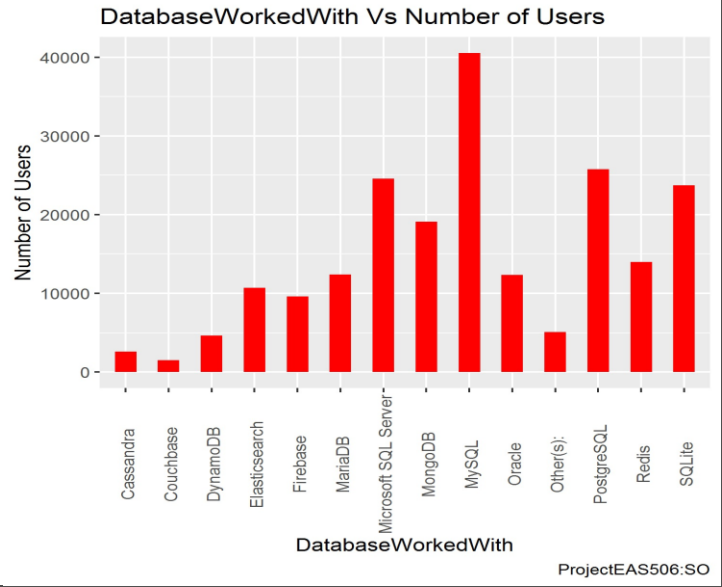


How much and in which domain are the developers experienced in?

In the dataset, a few questions that were asked gave us an insight into the statistics of the experience of the developers and what they know.

We could also analyze the usage statistics for Languages, Database, Platform, Web Frame, Dev Environment, etc.

In the next few slides we observe the visual analysis.



Programming Languages



Databases



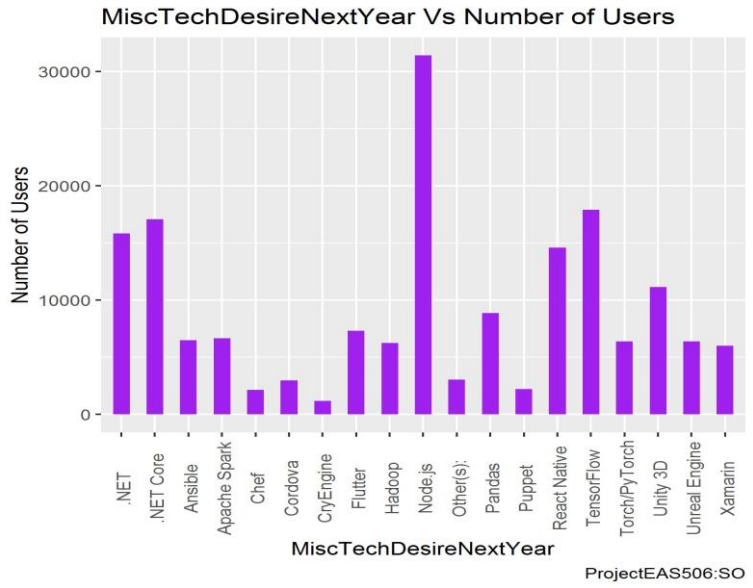
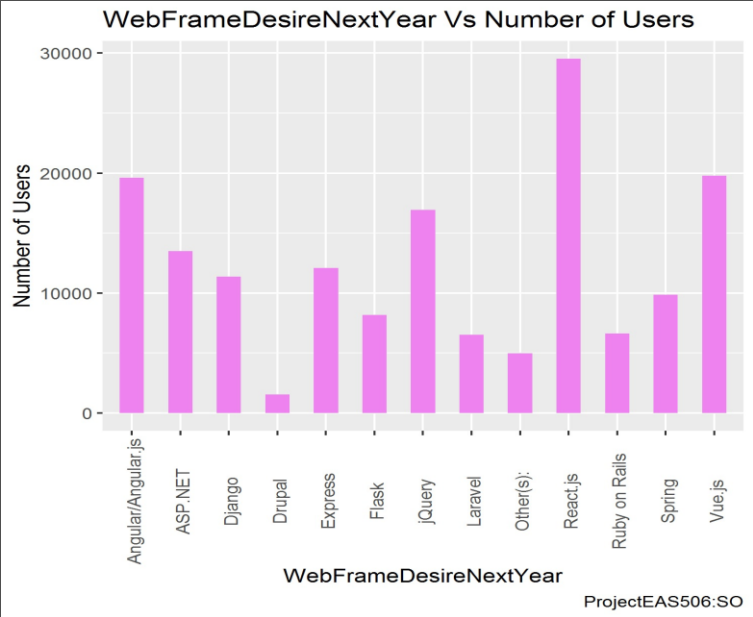
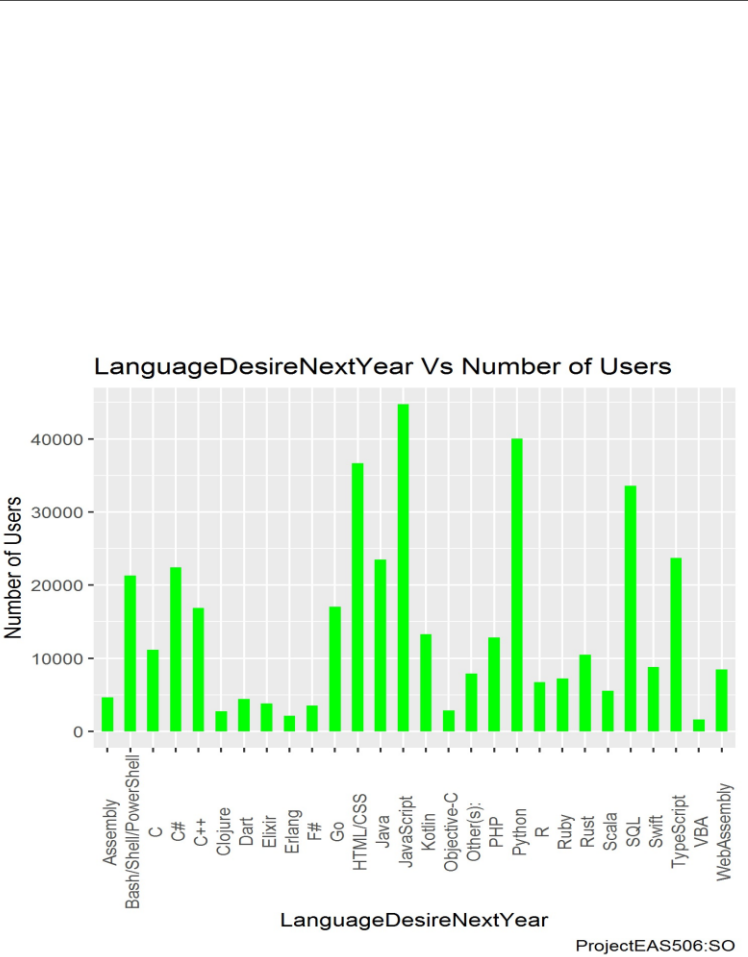
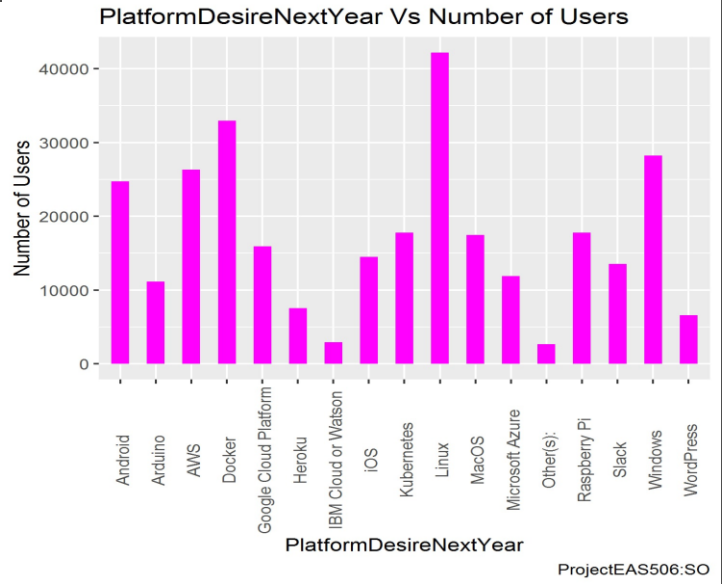
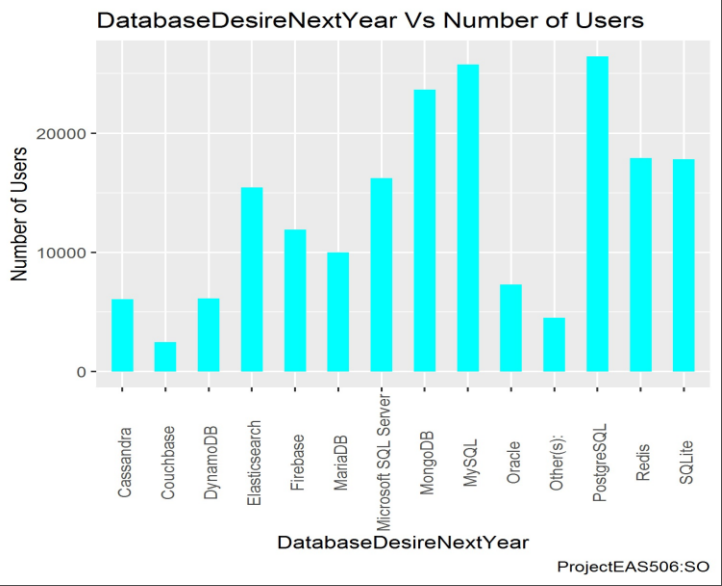
Web Framework

Some more Insights about domain of developers interest...

What does a developer want?

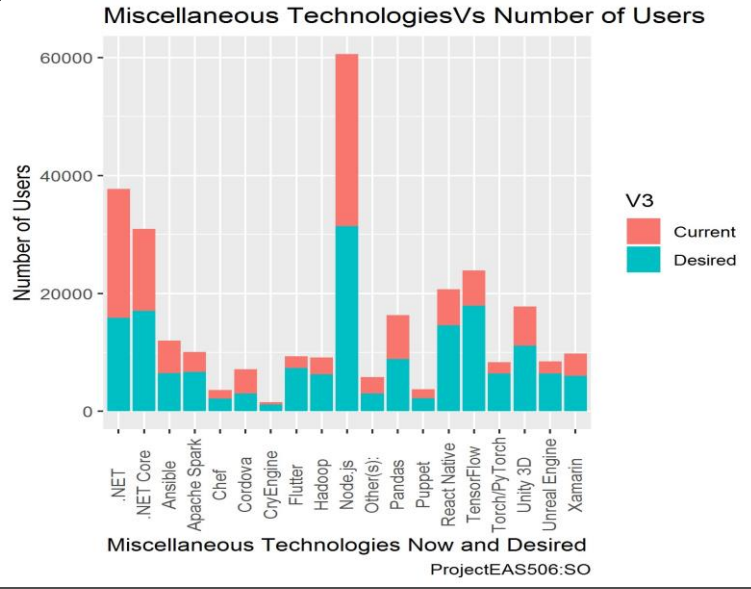
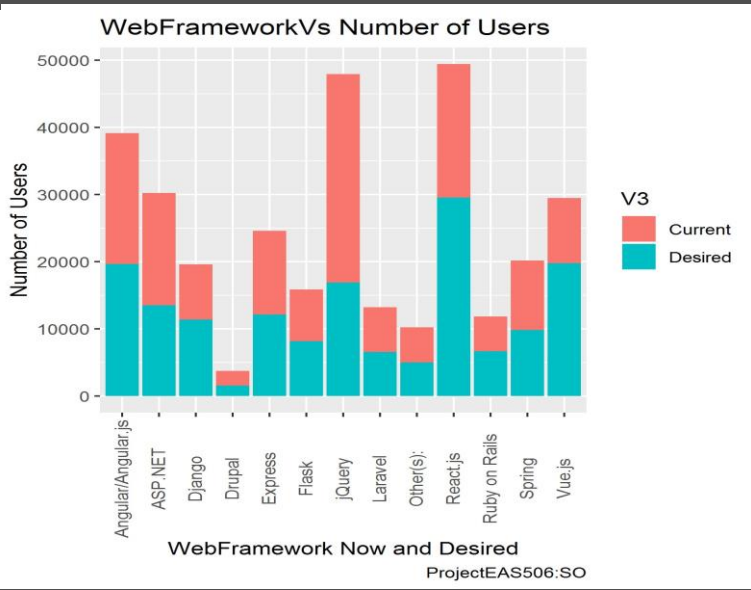
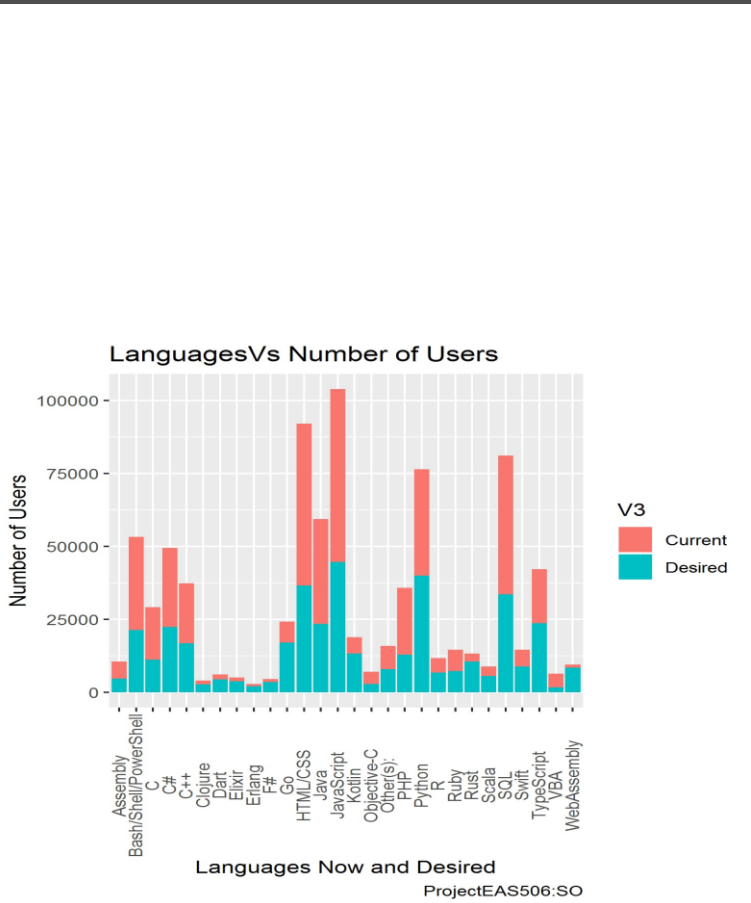
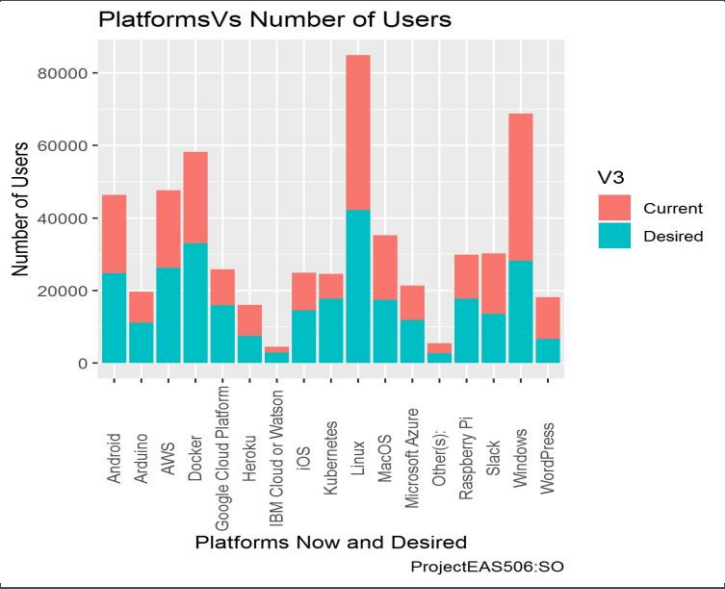
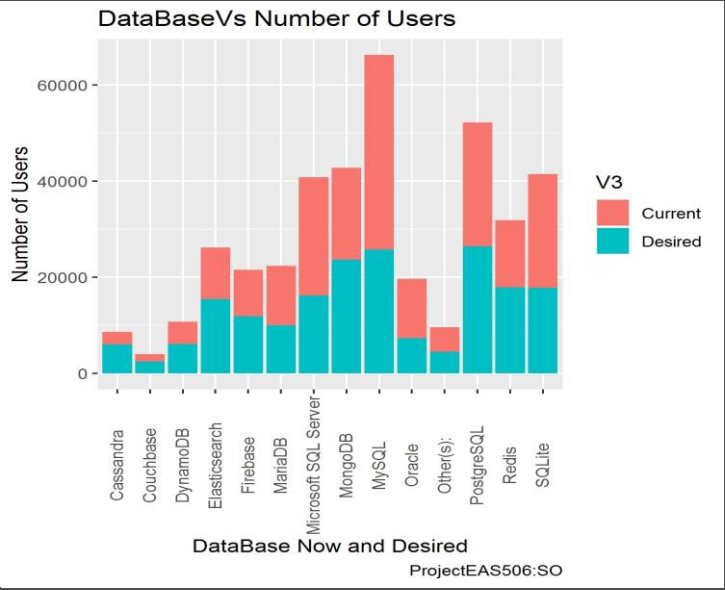
We could also analyze the future trends as developer answered what they want in future. Languages, Database, Platform, Web Frame, Dev Environment, etc.

We are able to know what the developers are seeking to work with in the coming years. This information can help us figure out the upcoming trends in technologies as well.



Which domains are the developers interested in?

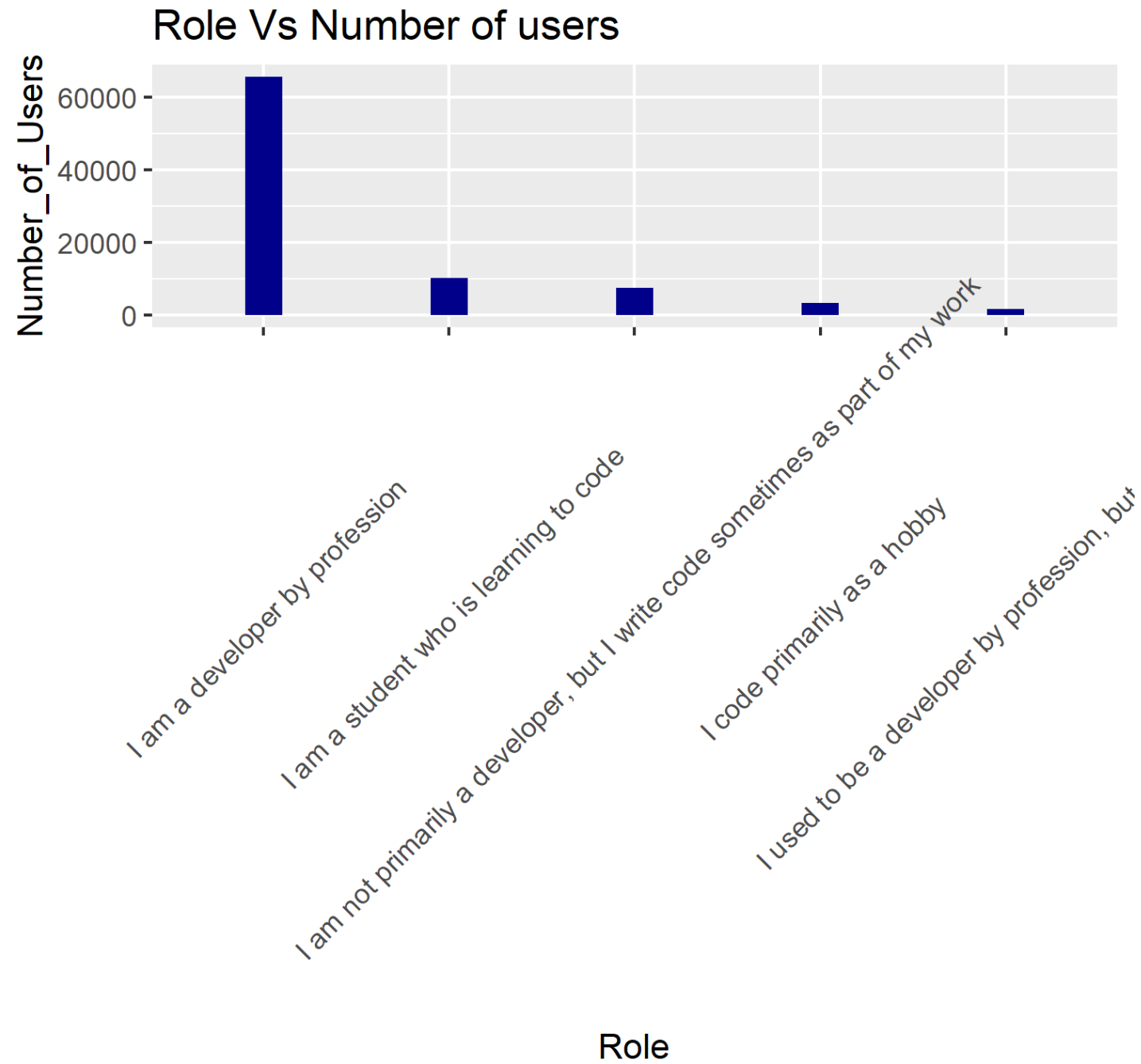
After cleaning and prepping the data, we plot the data to note what languages, Database, etc. are the developers seeking to work with in the coming years. We compared both current and future trends and some amazing insights came to light.



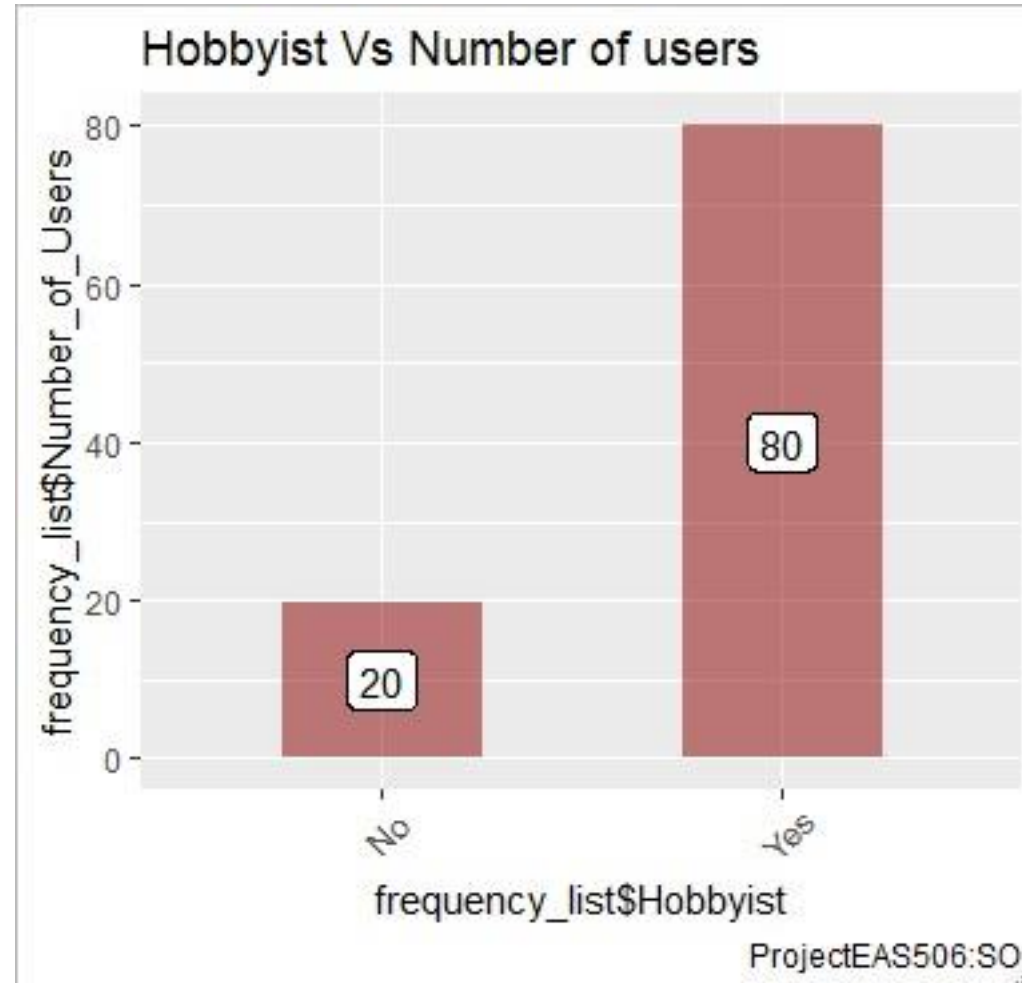
But hey! Why are you coding anyways?

Well, not everybody codes only to keep their jobs!

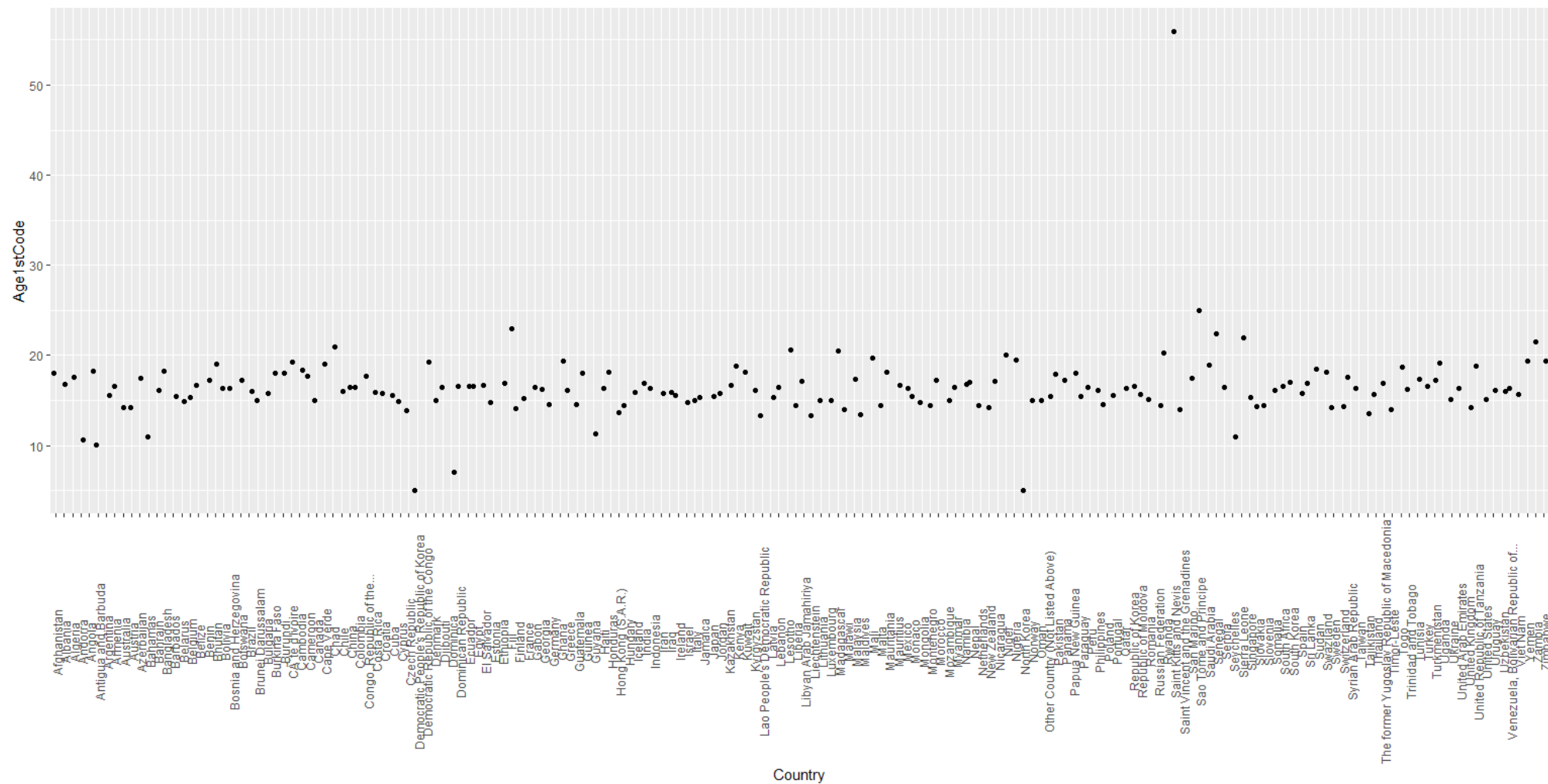
In the next slides, we find out that some people just love coding. They do it just as a hobby. While others are learning to code as students. Many are professional developers.



**There are those who choose to code for work
and then there are those who choose to code for fun**



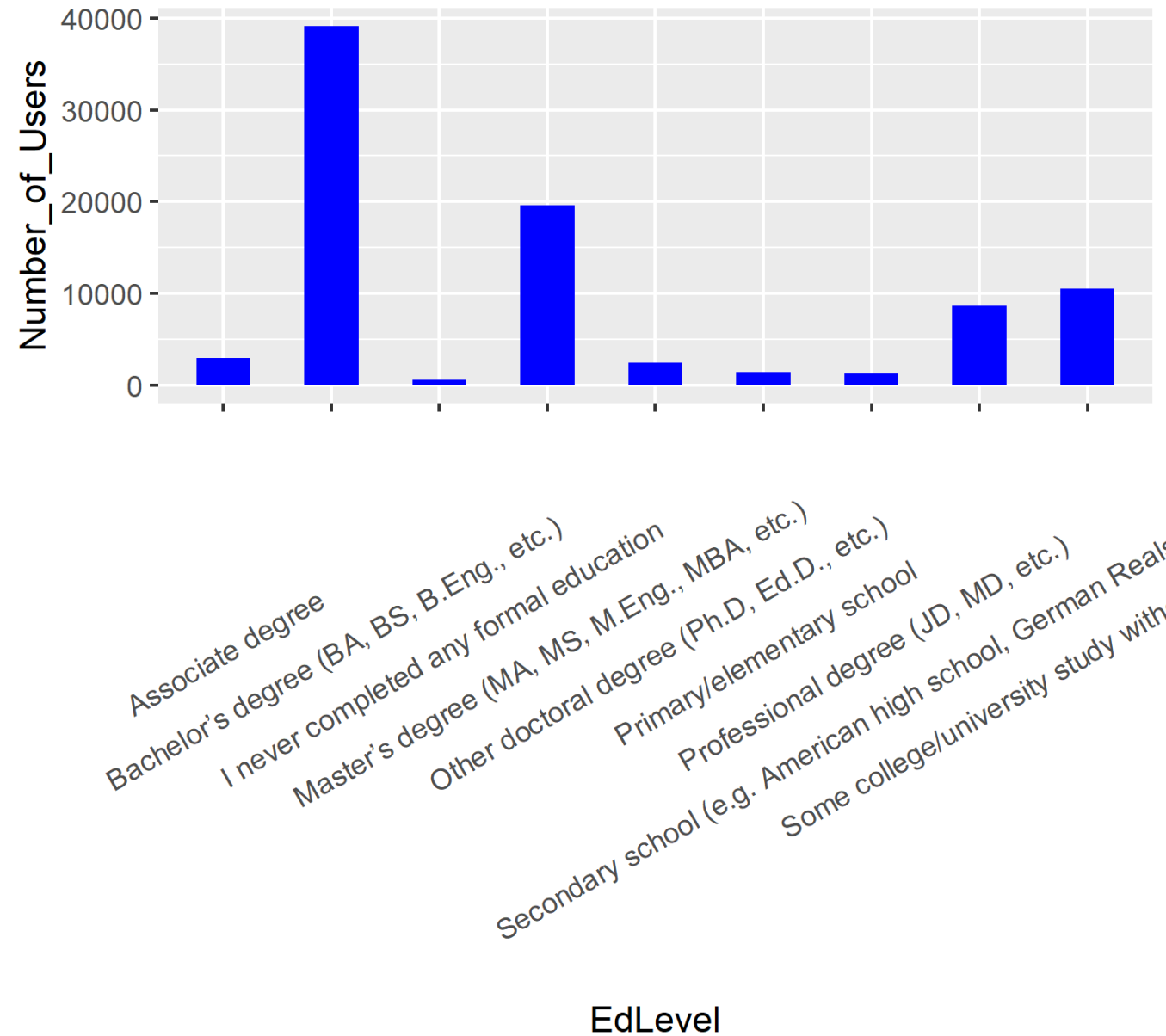
And at what age people start coding in each country can tell a lot about that country's coding population



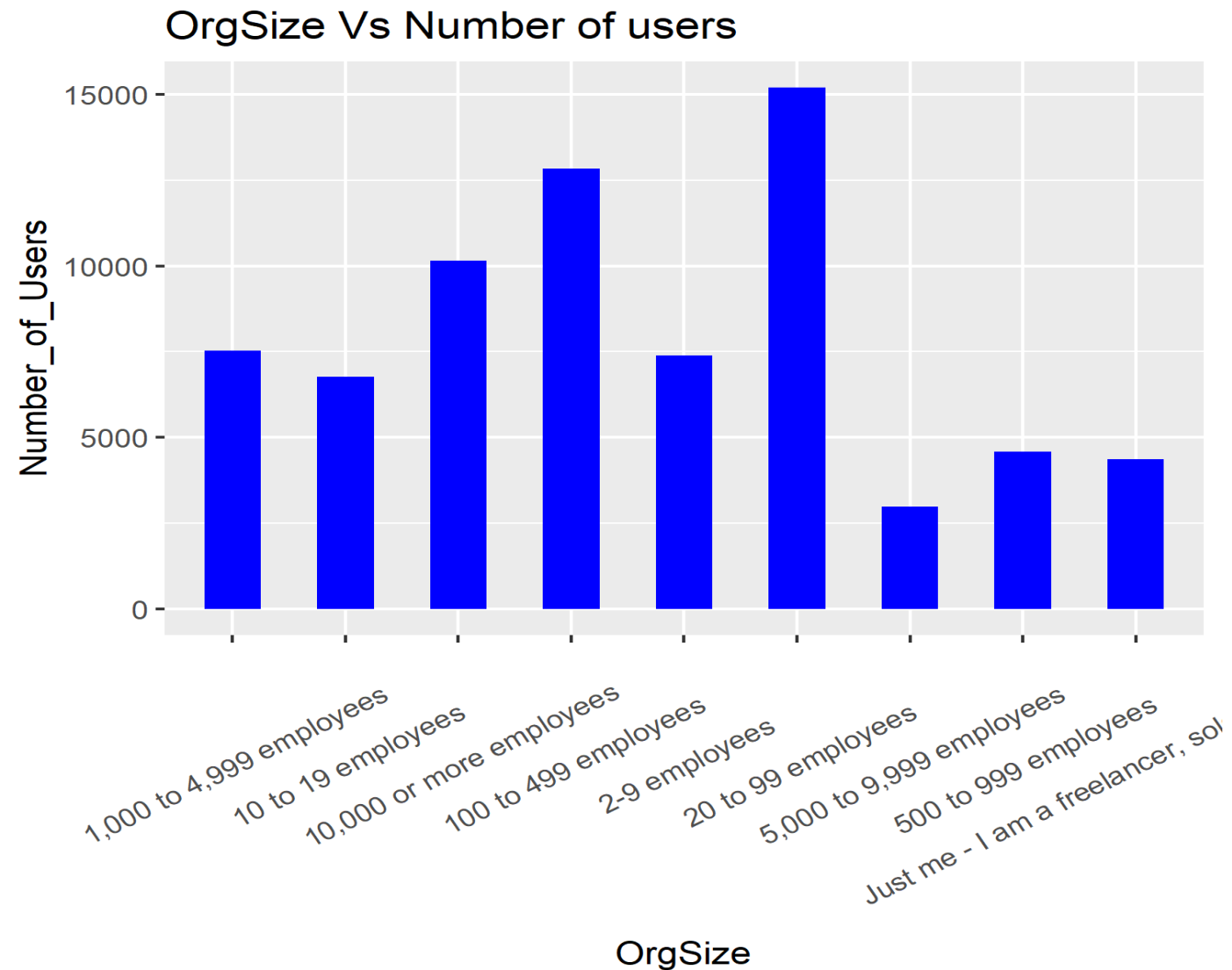
What further analysis could we do with our dataset?

Some of the questions gave us the liberty to process to get further insights about people at which education levels do the most programming. We observe that people at Bachelor's degree do the most coding!

That's right! It's not at Master's level! (Unless Master's students didn't get time to fill up the survey)



And now if we come to Organization. Which Organization size do coders prefer to work at.

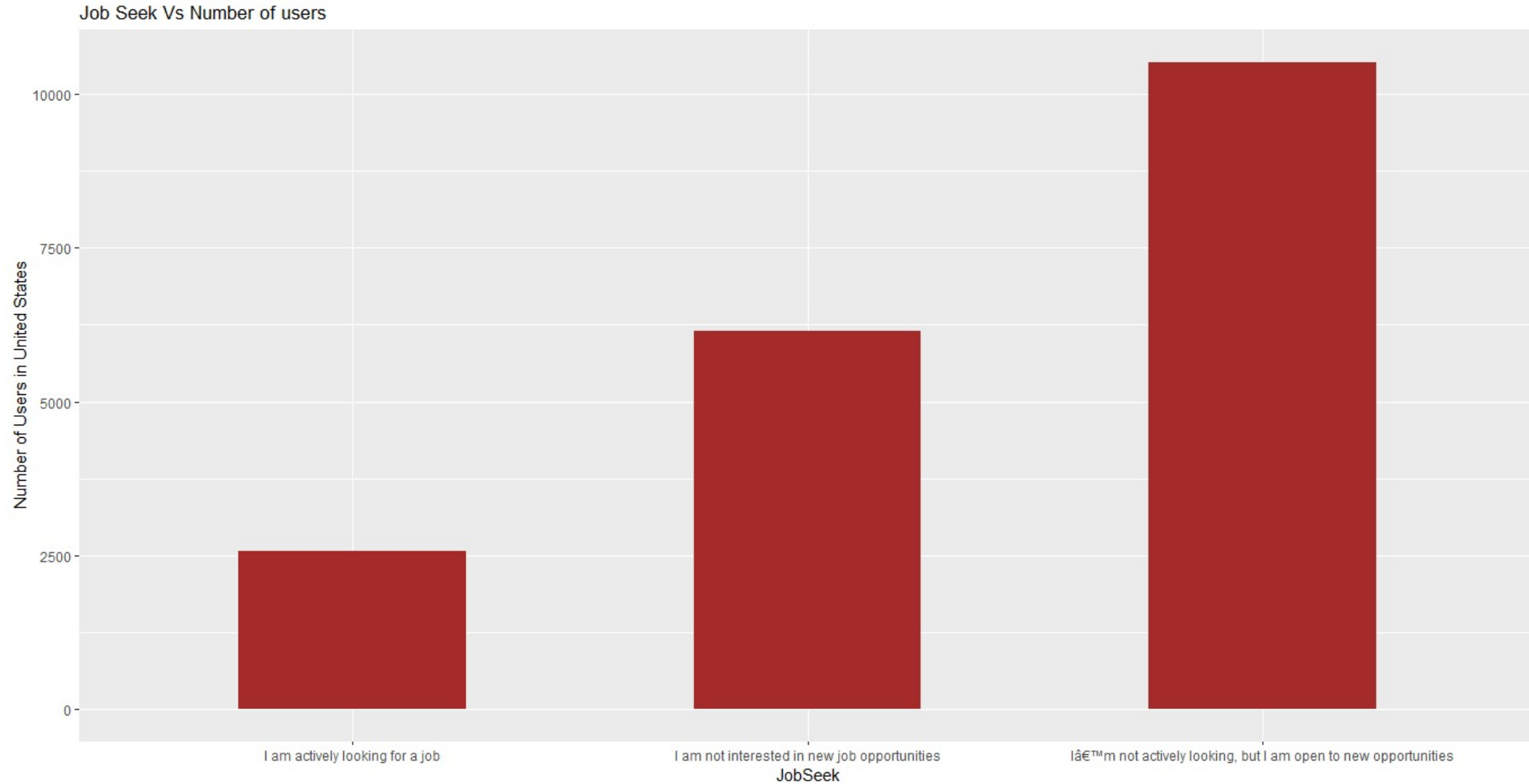


Programming for Career!

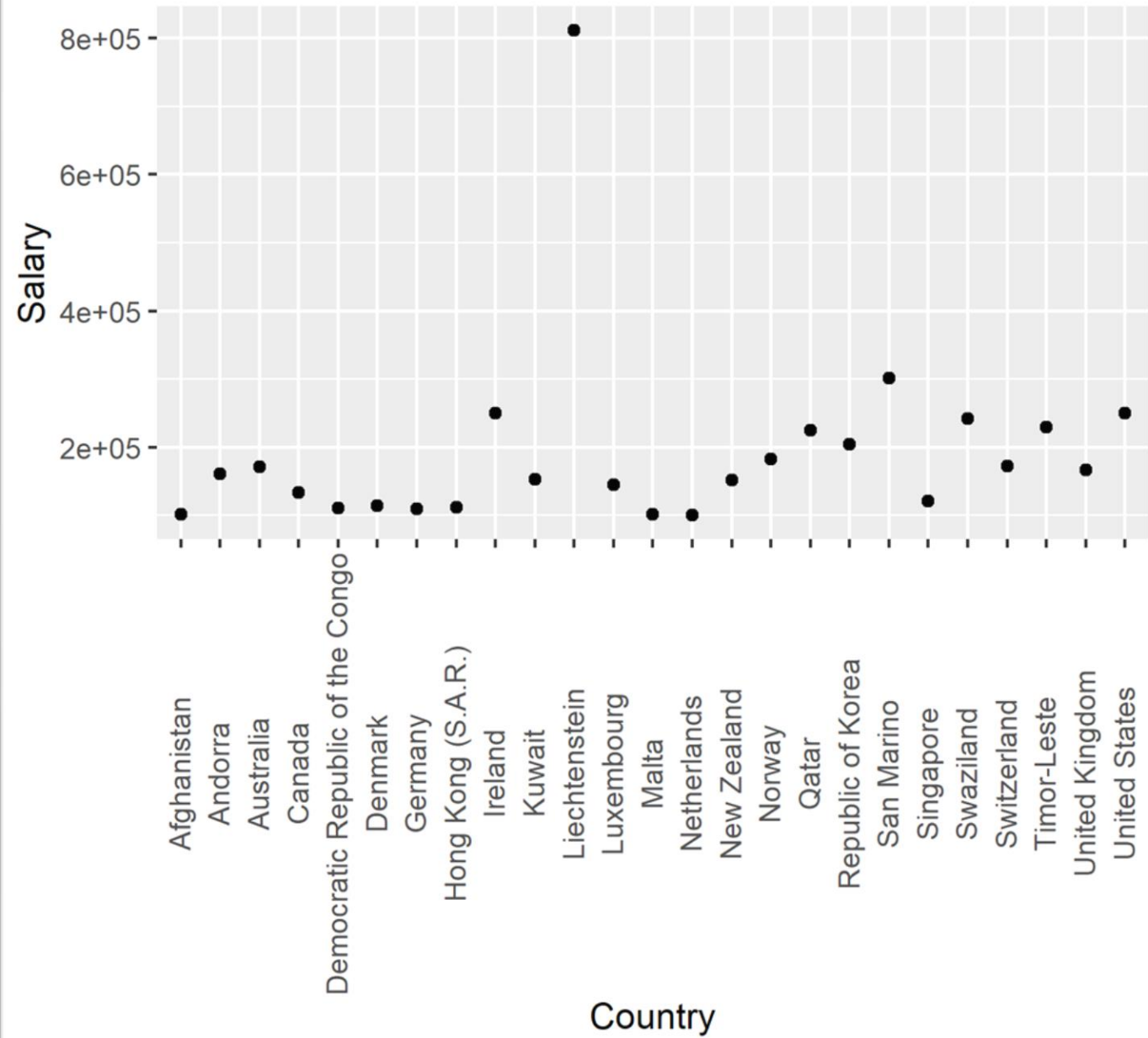
We talked about Organization so now its come to million \$ Question. Job Perspectives and Satisfaction Utilizing the data that we gain from the responses for some specific questions tell us about their level of job satisfaction. How many years of coding help you reach career satisfaction.

Also, if the developers are looking for other career opportunities or not and approximately how much salary is paid to them in different countries.

Job Seekers in USA

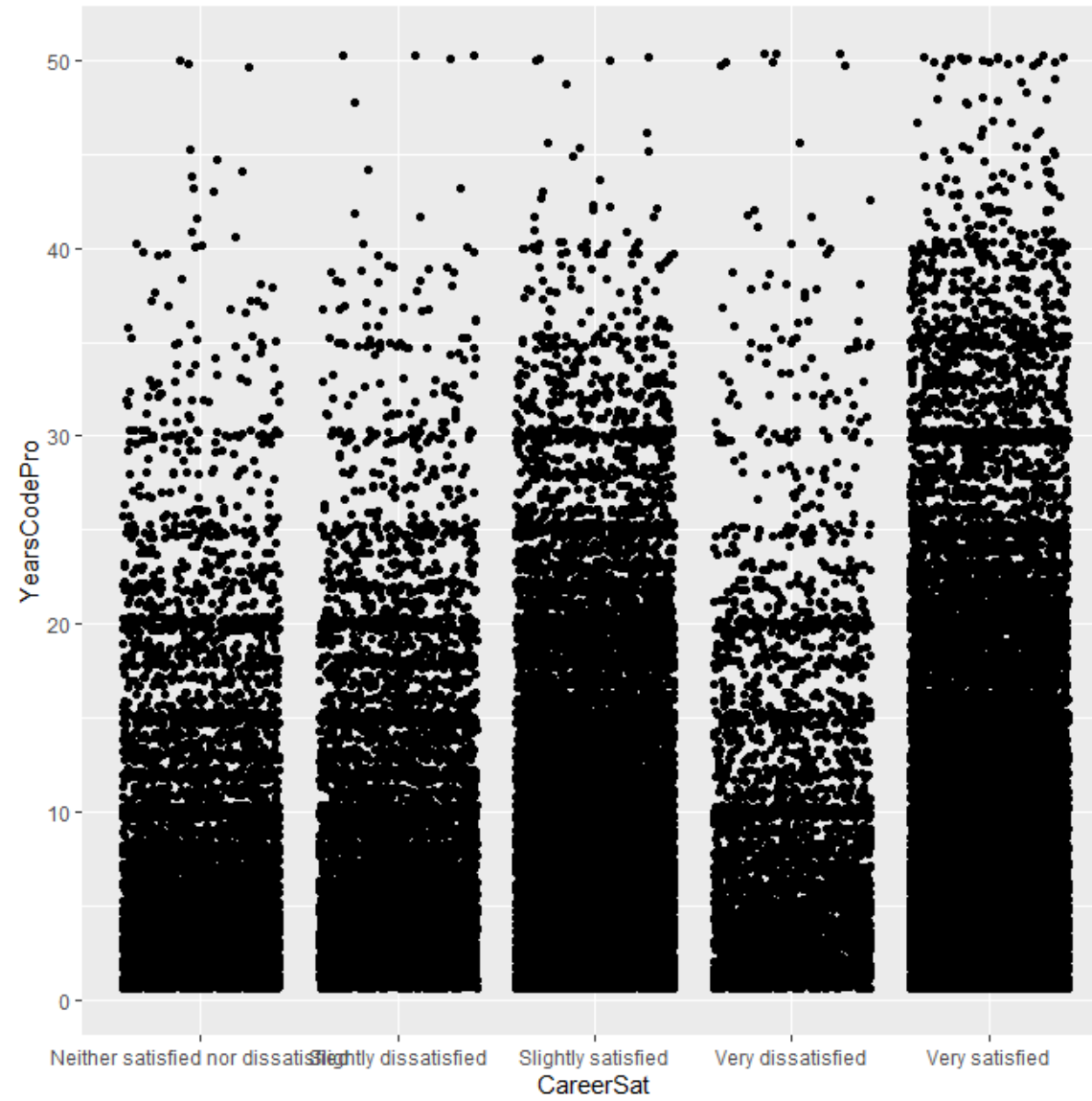


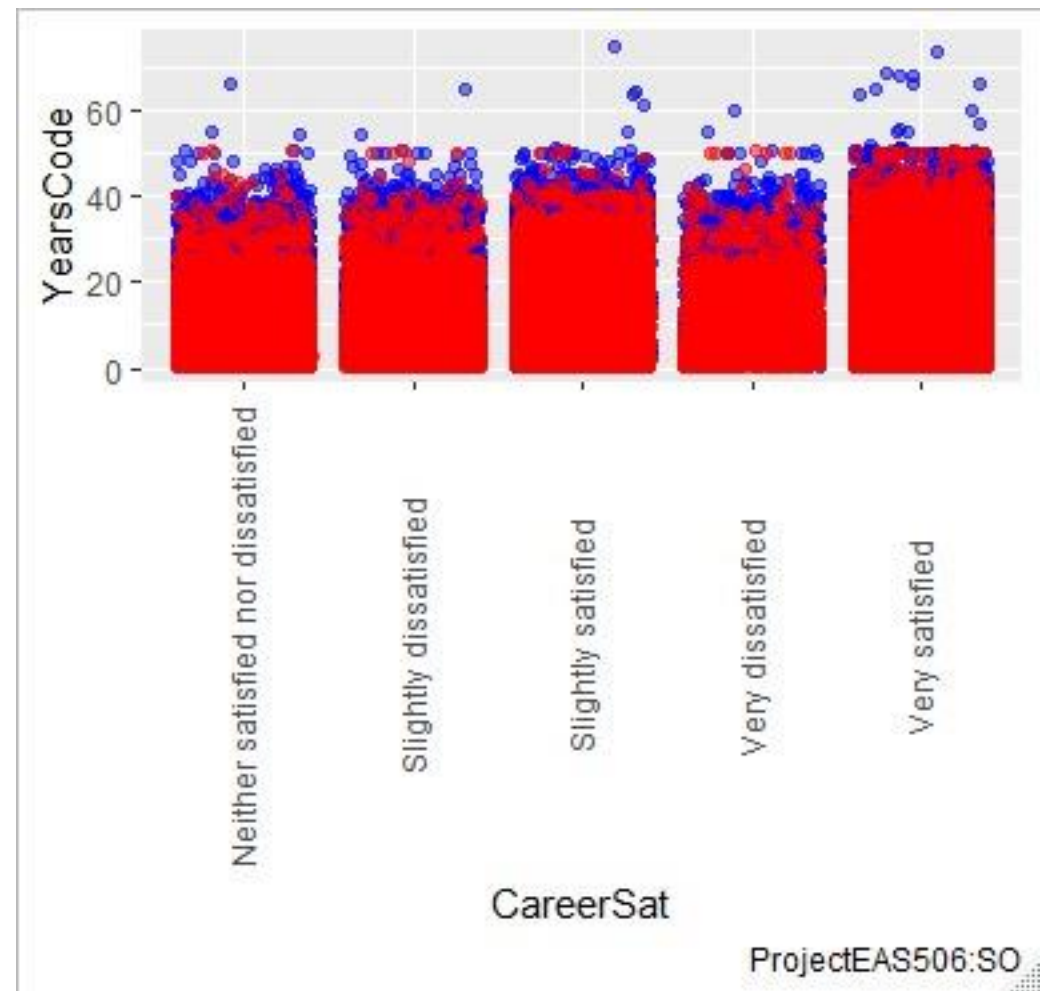
Country Vs Salary



Career Satisfaction!

Big Organizations work better when their employees are well satisfied with their jobs. It is an important aspect to analyze the satisfaction levels of employees. In the next slide, we visualize how many developers find their career to be satisfactory.



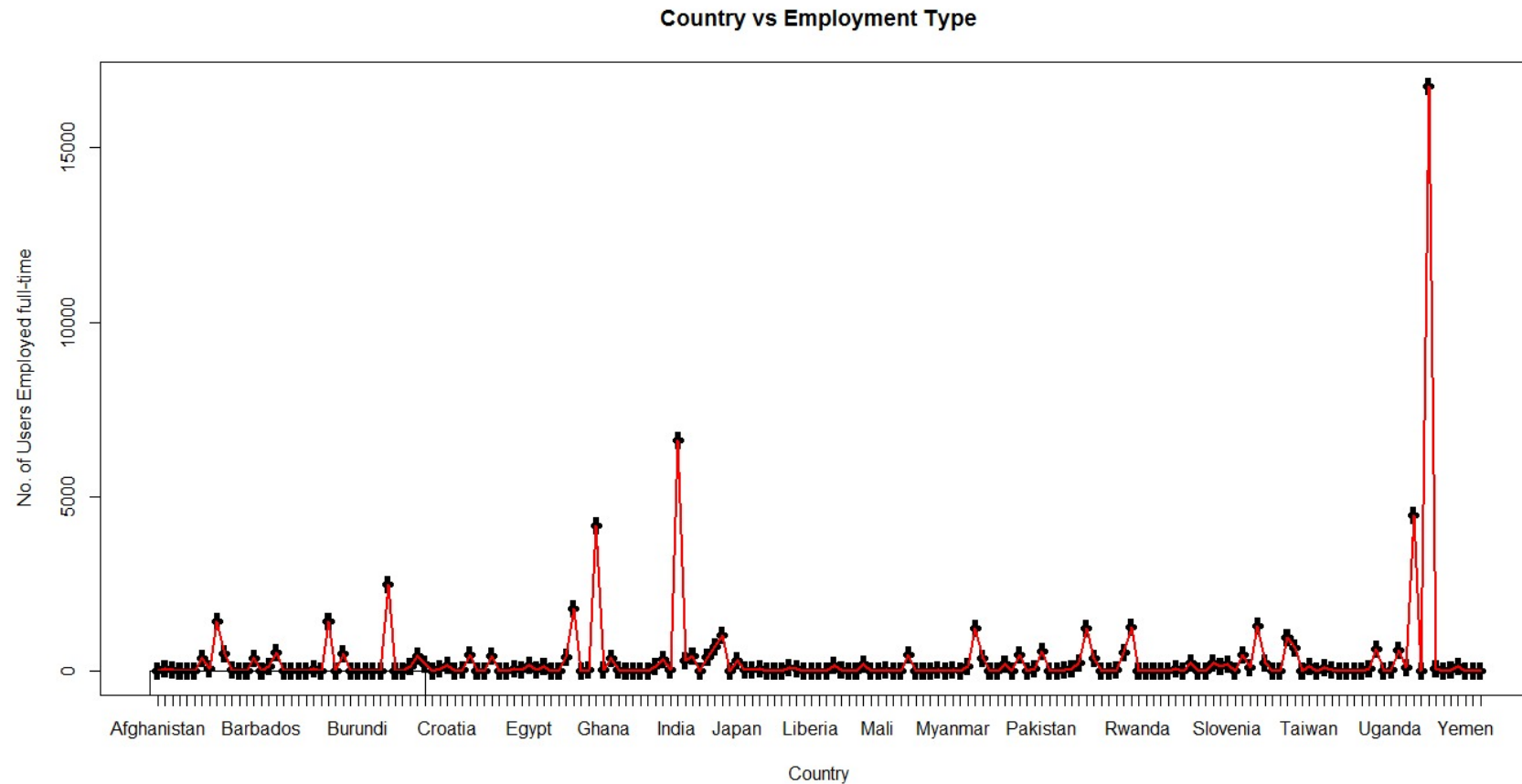


Types of Employments

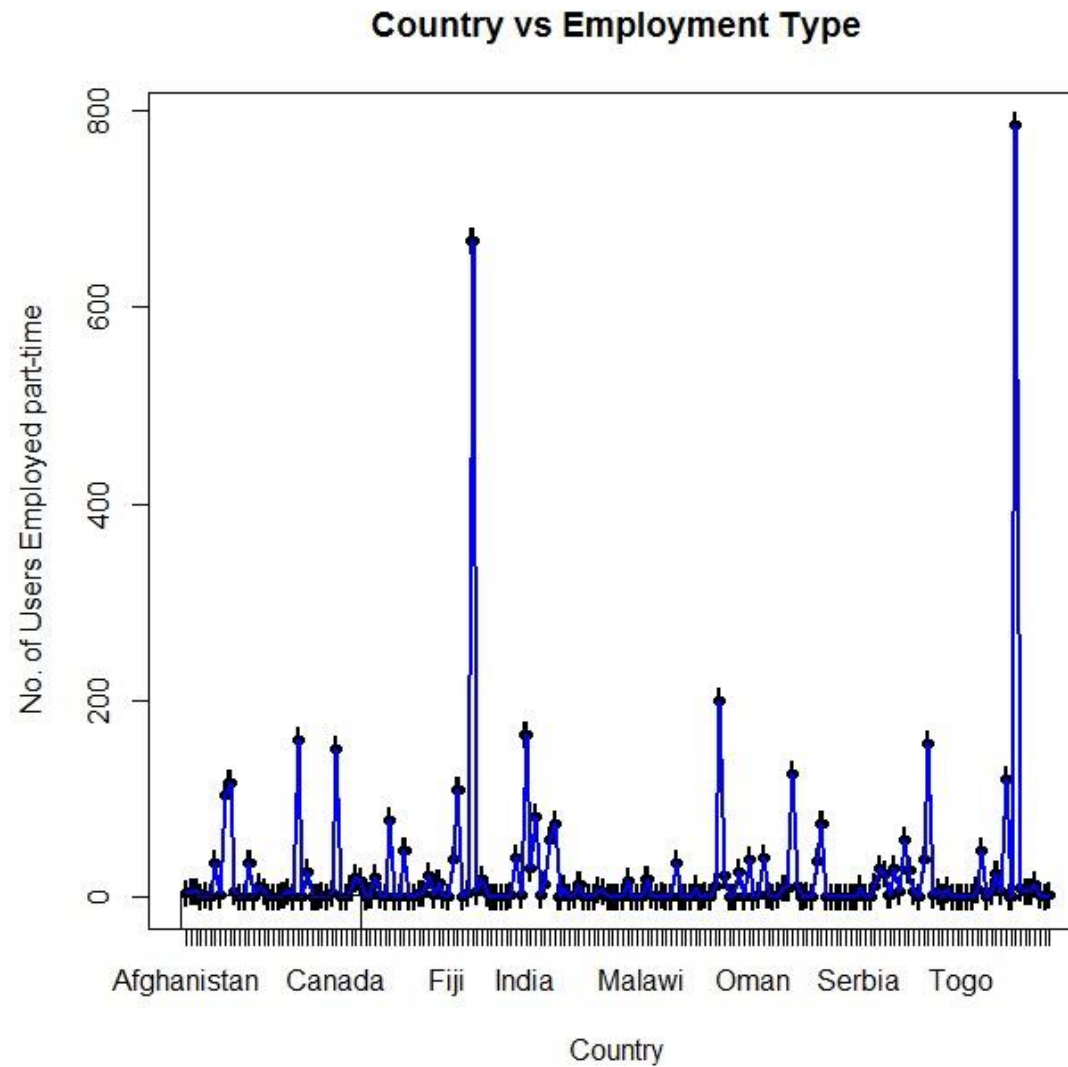
From the dataset, we analyzed the numbers of full time, part time and retired developers participated in this survey across different countries in the world.

Lets see Employment level of countries

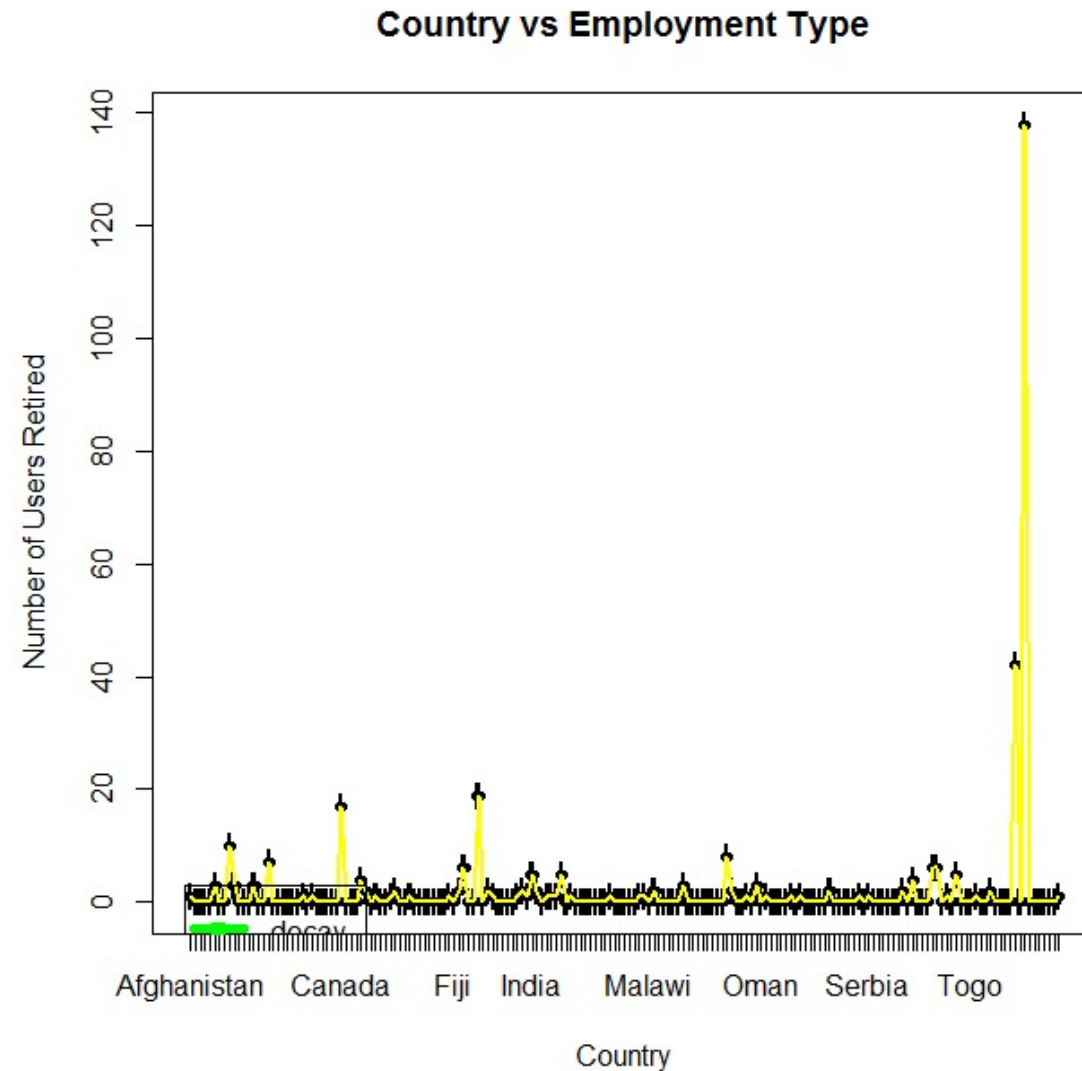
Full Time Employment: The United States is home to the highest number of developer population



Part Time Employment: Highest numbers of Part-time developers live in Germany



Retired Developers: The highest number of retired developers are observed to be from United States.



Conclusions

We could draw some important conclusions after visually analyzing the survey data:

- Most loved and used language is found to be JavaScript.
- Visual Basic for Applications is the most dreaded language.
- Developers using programming languages such as Php, Visual Basic for Applications are paid less and have fading career opportunities.
- Countries USA, Germany and India have the highest percentage of developer population.
- USA has highest employment rate for developers.

Advantages of a rich dataset

Data Mining over a useful dataset can give us very important insights and conclusions.

This StackOverflow data, with further cleansing, can be used for even more analysis. But every good thing comes to an end!

Thank you for staying through!