CDR Analysis with Insights

1. Introduction

My project is Analysis Call Data Records. Our main aim is to visualize the data of call records. The call data is based on VOIP(voice over internet protocol).

I have created a website for visualization using dash and python programming. In the website you can see there are three tabs :

1) Call analytics tool
2) Device analytics tool
3)Service analytics tool.

So, In these three tabs I have visualized every user's call details, which devices they are used and what services they get.

2. Related work

I have referred to the dash documentation and its components for better understanding.I have seen multiple youtube videos of how they are doing, So I have learned from them also. Sometimes I get errors so I was searching my errors on stackoverflow website so it helped me a lot to solve my error.

3. Your Work

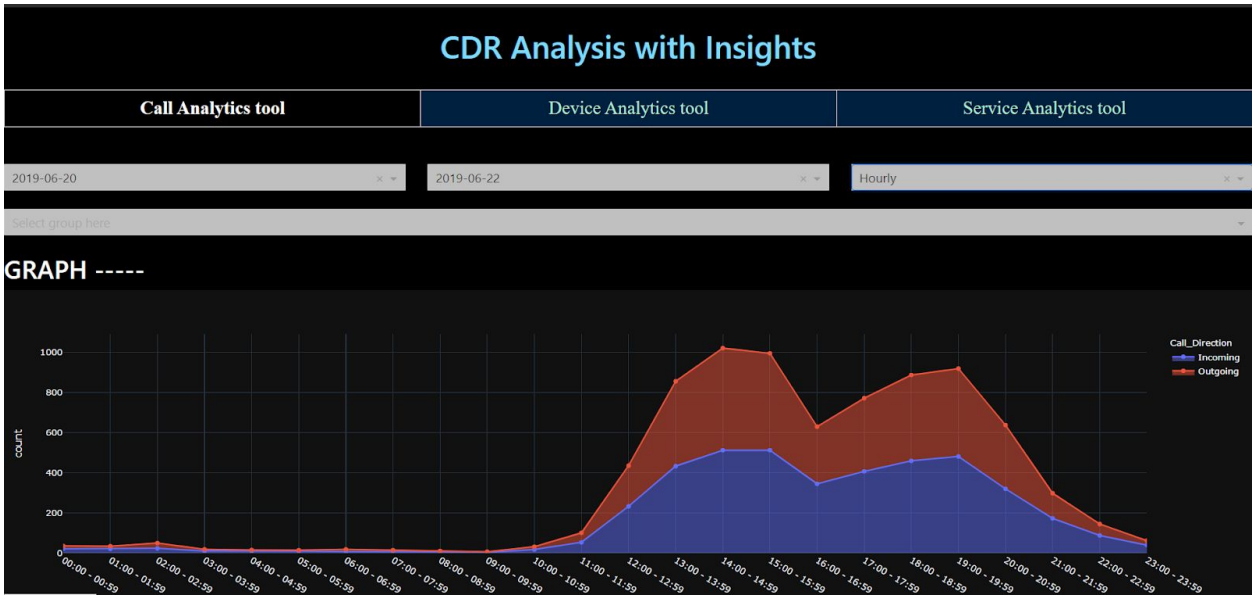
I have first cleaned the unwanted data before its use. Afterwards divide data in three parts call data, device data and service data. I have put dropdowns in the user interface part for the selection of data in each tab. Using that selected data visualization will happen.

4. Implementation

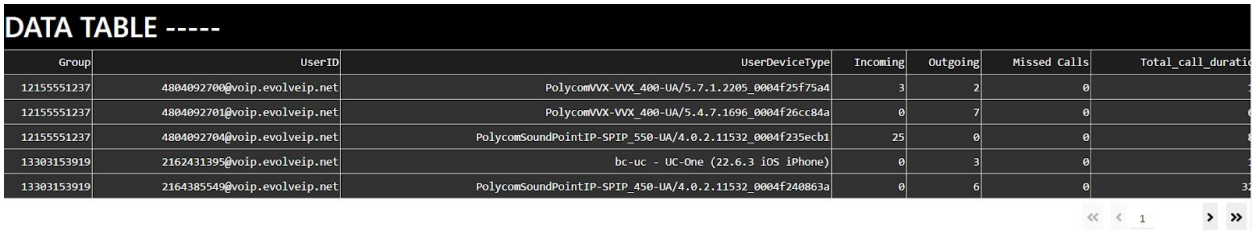
In the Implementation part I have made dropdowns for selection of data and charts, cards and table for visualization.

Tab 1 "Call Analytics tool" contains.

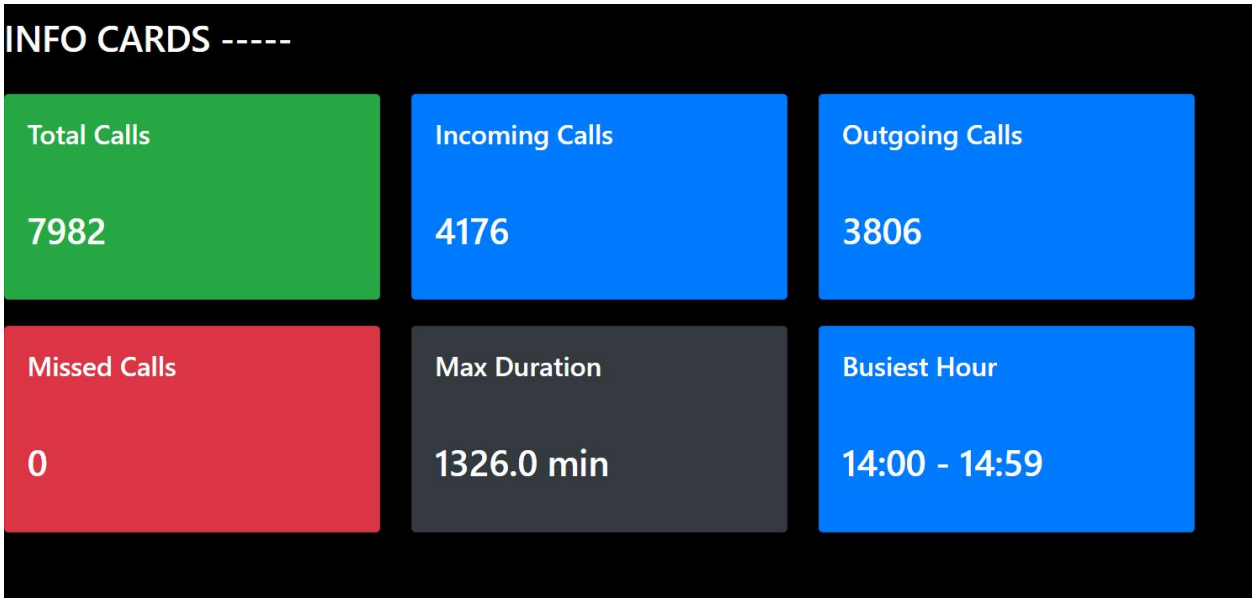
1) **Start date**: select starting date
2) **End date:** select ending date
3) **Report Type:** select type of report
4) **Groups:** select multiple groups



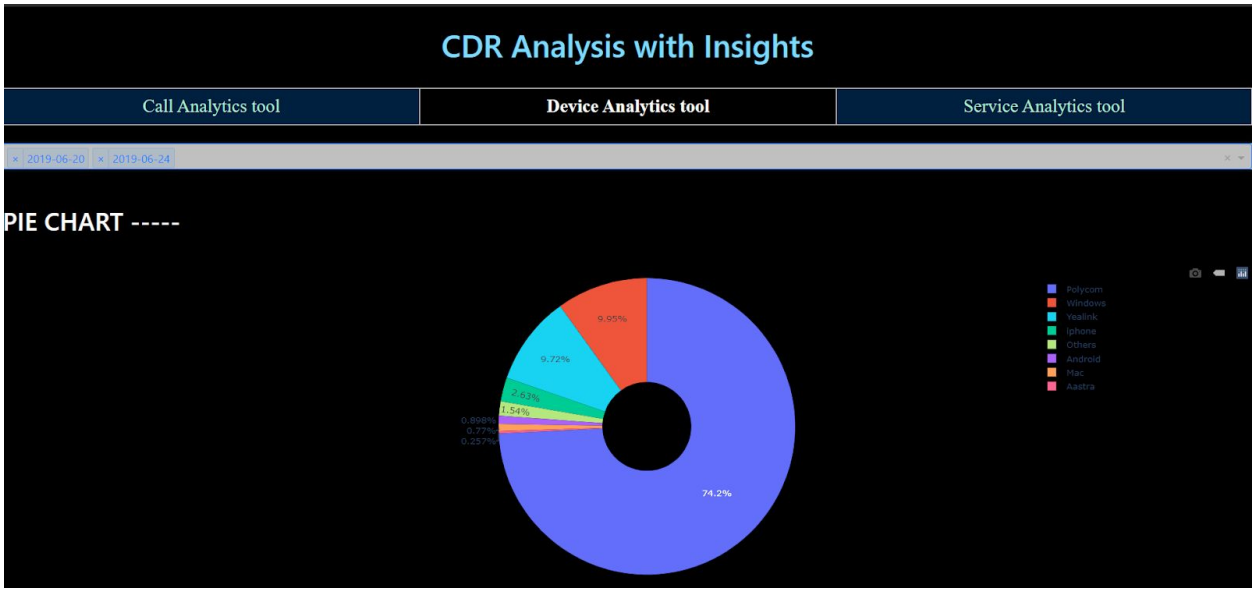
I have also put an info cards and data table for effective data representation in the Call Analytics tool.



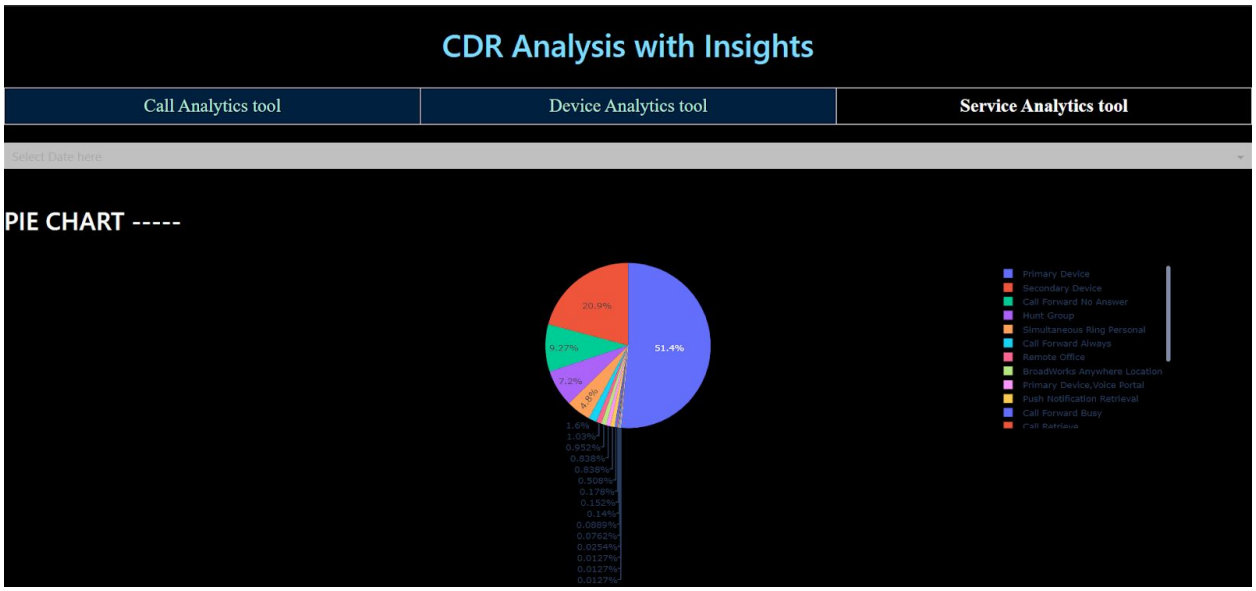
Group	UserID	UserDeviceType	Incoming	Outgoing	Missed Calls	Total_call_durati
12155551237	4804092700@voip.evolveip.net	PolycomVVX-VVX_400-UA/5.7.1.2205_0004f25f75a4	3	2	0	1
12155551237	4804092701@voip.evolveip.net	PolycomVVX-VVX_400-UA/5.4.7.1696_0004f26cc84a	0	7	0	0
12155551237	4804092704@voip.evolveip.net	PolycomSoundPointIP-SPIP_550-UA/4.0.2.11532_0004f235ecb1	25	0	0	8
13303153919	2162431395@voip.evolveip.net	bc-uc - UC-One (22.6.3 iOS iPhone)	0	3	0	1
13303153919	2164385549@voip.evolveip.net	PolycomSoundPointIP-SPIP_450-UA/4.0.2.11532_0004f240863a	0	6	0	3



Tab 2 "Device Analytics tool" contains one dropdown for multiple date selection and pie chart for data visualization.



Tab 3 "Service Analytics tool" contains one dropdown for multiple date selection and pie chart for data visualization.



5. Results

In tab 1 "Call Analytics tool" Start date and End date dropdowns make a range for visualization, between start and end date all datas is visualized. Report type dropdown select the type of graph I want to see, it will be hourly, day wise or weekday. And the groups dropdown will select the multiple group for analysis.

In tab 2 "Device Analytics tool" date selection dropdown can select multiple dates and based on selected dates a pie chart will display. Pie chart contain how many devices are there in data, It is separated by its percentage and its count.

In tab 3 "Service Analytics tool" date selection dropdown can select multiple dates and based on selected dates a pie chart will display. In this tab pie chart will contain service data like what type of service user gets, it will also be shown in percentage and its count.

6. Software Improvements

In the future Improvements we can add more features for effective data representation. Like we can add more graphs and take more input from the user. And also we can add some CSS parts for more attractiveness.

7. Conclusion and Future Work

This project will help you with visualizing the call data records effectively. If you want to see how many users are active and how many were not, you can analyse from it and make any changes in your future strategy.

8. Acknowledgements

During this Internship I learned how projects worked in industries, How much effort is required to complete the project and how difficult to handle some type of error. I have learned many things in my colleges but how can I apply in a real world project I understand in this internship.

I would like to thank Mr.Yogendra Singh and Dr.Sylvester Fernandes, whose intellectual guidance and support during this project. I have completed this internship under Forsk Coding School, Jaipur.

9. References

[1] https://stackoverflow.com/questions
[2] https://dash.plotly.com/
[3] https://dash-bootstrap-components.opensource.faculty.ai/docs/quickstart/
[4] https://www.youtube.com/channel/UCqBFsuAz41sqWcFjZkqmJqQ
[5] https://www.w3schools.com/html/default.asp
[6] https://www.w3schools.com/css/default.asp

10. My Biography

Name: Param Choksi
Degree: Computer Science & Engineering
College: SVMIT, GTU
Place: Bharuch, Gujarat, India
Hobbies: Playing Badminton, Watching Cartoons
Area of interest: I love to learn new things everyday. I have an interest in Data Science, I was exploring it for the last 6 months and eagerly excited to do more projects.
Skills:

- Programming: Python, C, C++, JAVA
- Tools: Jupyter Notebook, Spyder,
- Database: MySQL, MongoDB
- Problem Solving
- Story telling

Resume: https://github.com/paramchoksi/resume
LinkedIn: https://www.linkedin.com/in/param-choksi-9b95b214a/

11. Project Details

Project Code: https://github.com/paramchoksi/CDR_data_Analytics
Project Video:
https://drive.google.com/file/d/1suyVNIRw1JcJaE9D5EFizSs1Mv0GW9zE/view?usp=sharing