Department of Computer Science (New Campus)
University of Engineering & Technology, Lahore

DATA SCIENCE PROJECT REPORT

SUBMITTED BY:

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Introduction:

The Project is Analysis of ATM transaction of bank. In this project we are Provided with the Data-set containing Total Columns = 10 and Total Rows = 11,589. The Columns names are ATM Name, Transaction Date, No Of Withdrawals, No Of XYZ Card Withdrawals, No Of Other Card Withdrawals, Total amount, Withdrawn Amount,withdrawn XYZ Card, Amount withdrawn Other Card, Weekday and Working Day. As our data is discrete. Each row containing the value for columns accordingly. In Data Science we want to Explore our Data that What our Data will tells us this can be done by EDA and we apply Data Analysis technique to explore our data set.

Dataset:

Data-set containing Total Columns = 10 and Total Rows = 11,589. The Columns names are ATM Name, Transaction Date, No Of Withdrawals, No Of XYZ Card Withdrawals, No Of Other Card Withdrawals, Total amount, Withdrawn Amount,withdrawn XYZ Card, Amount withdrawn Other Card, Weekday and Working Day. In ATM Name we are provided with 5 ATM Name that are Big Street ATM, Mount Road ATM, Airport ATM, KK Nagar ATM and Christ College ATM.

LET'S EXPLORE THE DATASET2:

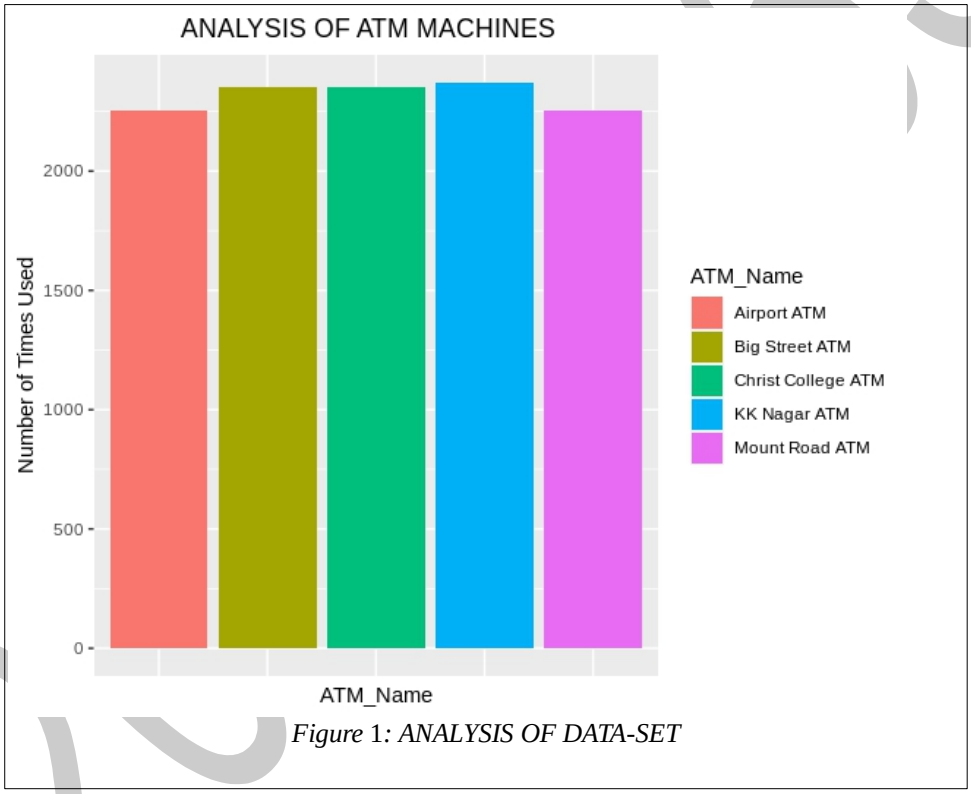

Figure 1: ANALYSIS OF DATA-SET

Details:

The Bar Graph shows That Data-set contain 2250 Airport ATM rows, 2250 Mount Road ATM rows ,2363 Big Street ATM rows, 2363 KK Nagar ATM rows and 2363 Christ College ATM number of rows. The Graph has ATM_name on x-axis and its frequency on y-axis. This Graph actually show how much data of different ATM are given in Data-set and how much their Quantities are as Airport ATM and Mount Road ATM contain 2250 rows of data where as KK Nagar ATM , Big Street ATM and Christ College ATM contain 2363 number of rows of Data. This graph is actually the analysis of our Data-set that how much rows we containing in our data and how much one ATM contain the number of rows of our data set.

Graph#1(part a):

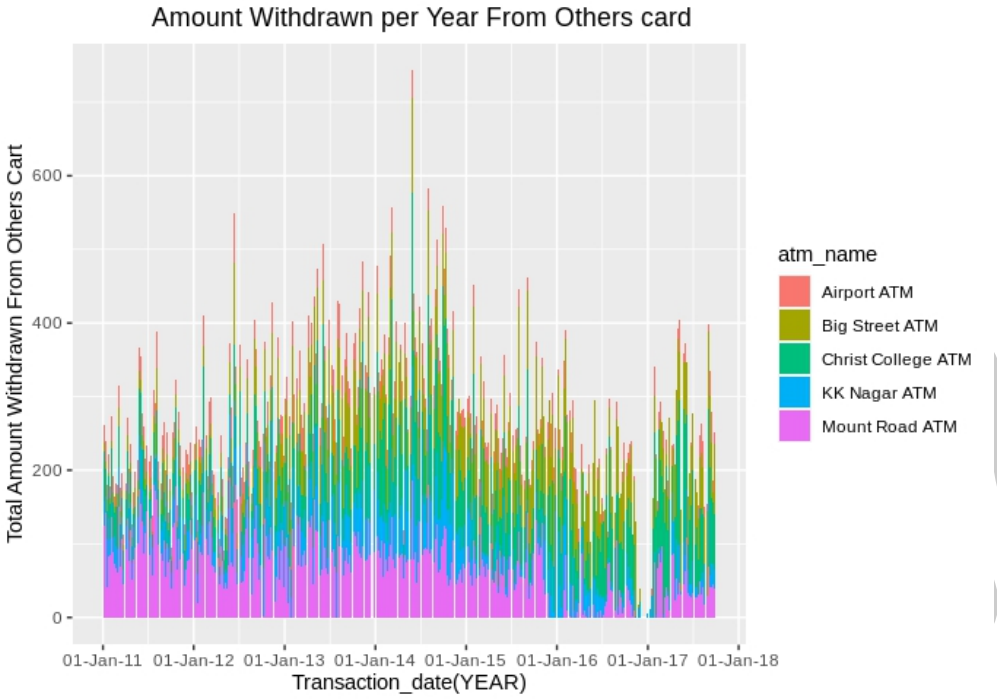

Figure 2: Analyze Total Amount withdrawn per Year by other cards

Explaination:

The above graph shows the Total Amount Withdrawn Per Year by other cards. The year started in 2011 and ends in 2017 with one Year of interval. The x-axis shows the intervals and the y-axis shows the Total Amount withdrawn by other cards. In 2011, some part of 2012 we got no much ups and downs customers withdrawans from other card are less but after 2012 mid to 2014 and some part of 2015 are very peak years in which customers highly withdrawas amount from bank but after 2015 there is a veriation like somehow customers withdrawan amount from bank. the **End of 2016** contain lower peak a very rare customers withdrawal from bank ATM.

Graph#1(part b):

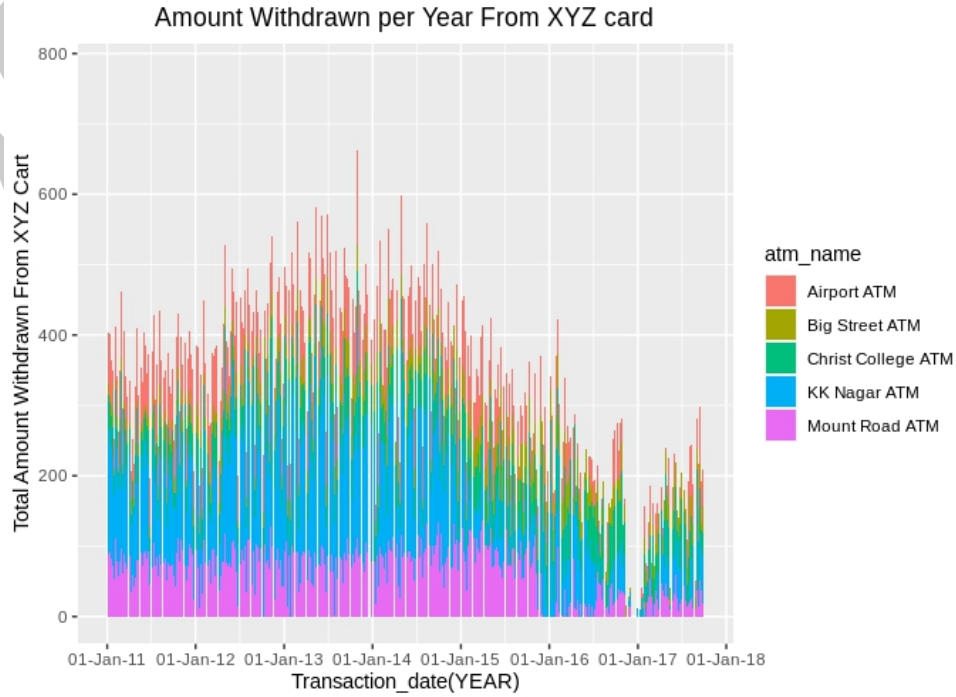

Figure 3: Analyze Total Amount withdrawn per Year by XYZ card

Explaination:

The above graph shows the Total Amount Withdrawn Per Year by XYZ cards. The year started in 2011 and ends in 2017 with one Year of interval. The x-axis shows the intervals and the y-axis shows the Total Amount withdrawn by XYZ cards. In 2011, some part of 2012 we got no much ups and downs customers withdrawans from XYZ card are less but after 2012 mid to 2014 and some part of 2015 are very peak years in which customers highly withdrawas amount from bank but after 2015 there is a downfall time and veriation like somehow customers withdrawan amount from bank. the **End of 2016** contain lower peak a very rare customers withdrawal from bank ATM.

Graph#1(part c):

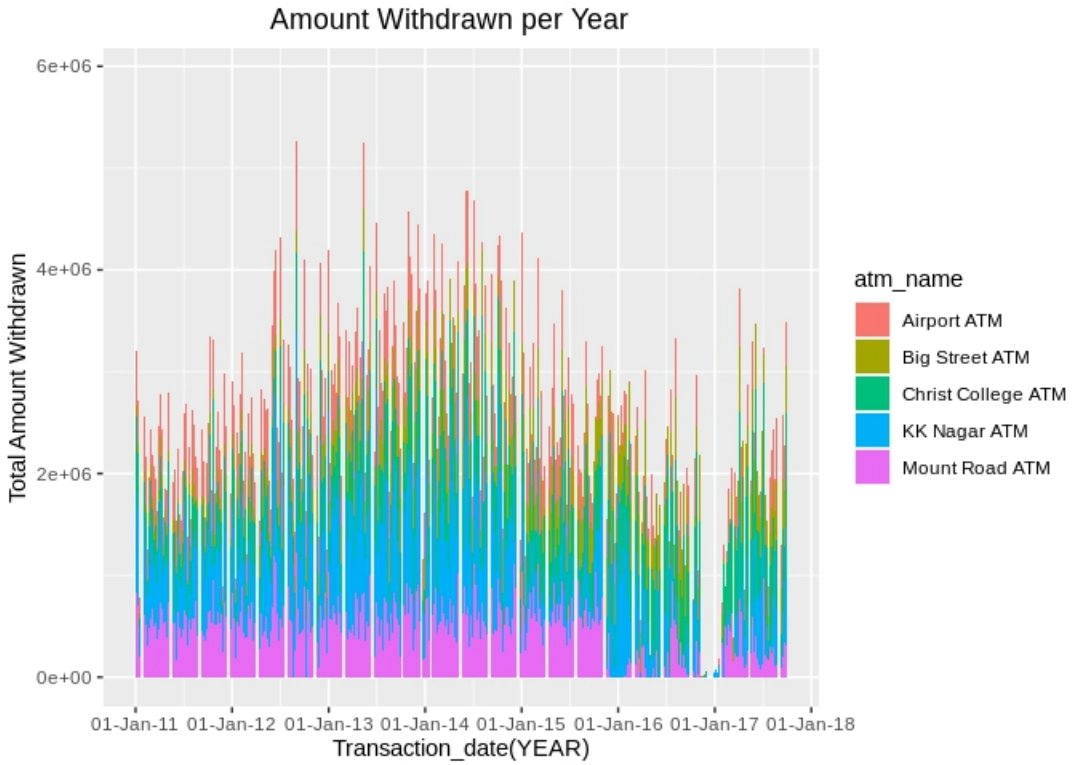

Figure 4: Analyze Total Amount withdrawn per Year

Explaination:

The above graph shows the Total Amount Withdrawn Per Year. The year started in 2011 and ends in 2017 with one Year of interval. The x-axis shows the intervals and the y-axis shows the Total Amount withdrawn. In 2011 and 2012 we got no much ups and downs but after that 2013 , 2014 and some part of 2015 are very peak years in which customers highly withdrawas amount from bank but after 2015 there is a veriation like somehow customers withdrawan amount from bank. the **End of 2016** contain lower peak a very rare customers withdrawal from bank ATM.

Conclusion of Graph1:

The above Histogram illustrates the Total Amount Withdrawn Per Year and their ups and downs in per year interval started from 2011 and end in 2017.The end of 2016 has lower peak. There are 3 parts of it in part(a) we have per year withdrawan amount by other cards. In part(b) we have per year withdrawan amount by XYZ cards and in part(c) we have total per year withdrawan amount. From part(a) and part(b) we got the result that from XYZ cart amount withdrawans are less veriated than other cards withdrawans where we found more ups and downs.

Graph#2(part a):

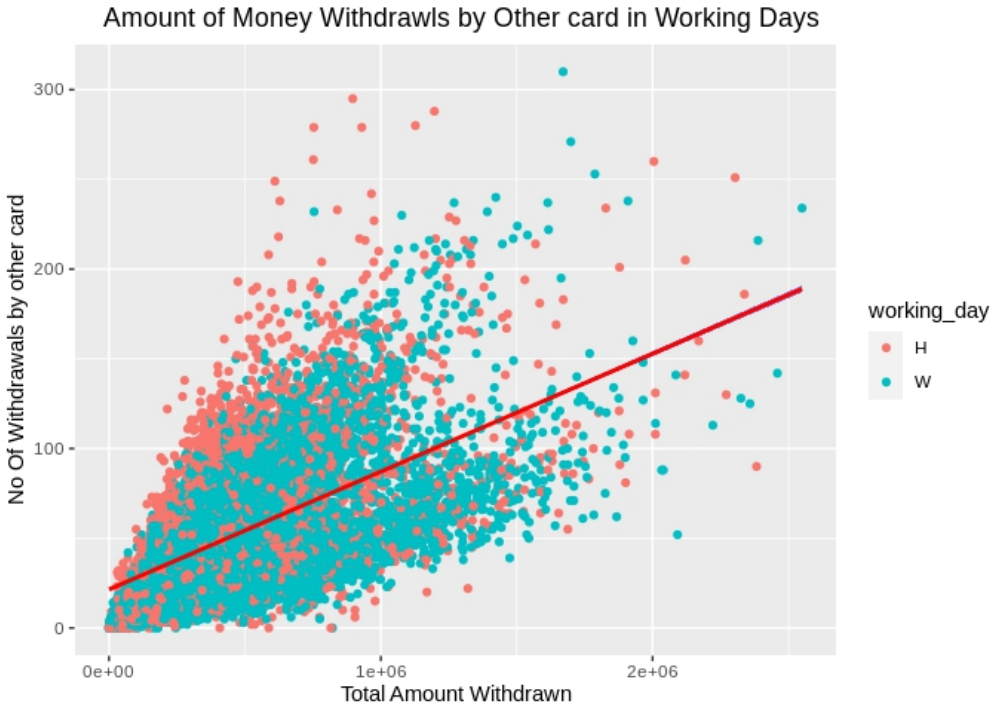

Figure 5: Analyze Money Withdrawn from Other card in Working days Withdrawals

Explaination:

The above graph shows the Total Amount Withdrawn over Number of withdrawls by other card in working days.The Graph contain Total Amount withdrawan on x-axis and Number of Withdrawals by other card.The above graph analyze the Total amount withdrawan to Number of withdrawals by other Card in working days.this graph shows that Maximum Amount has been drawn in Working Day and also Number of Withdrawals by other cards are Maximum in Working Day.Most of the Withdrawals by other card are done in working days. As you can see most trafic are above the line but large amount withdrawn is under the line.

Graph#2(part b):

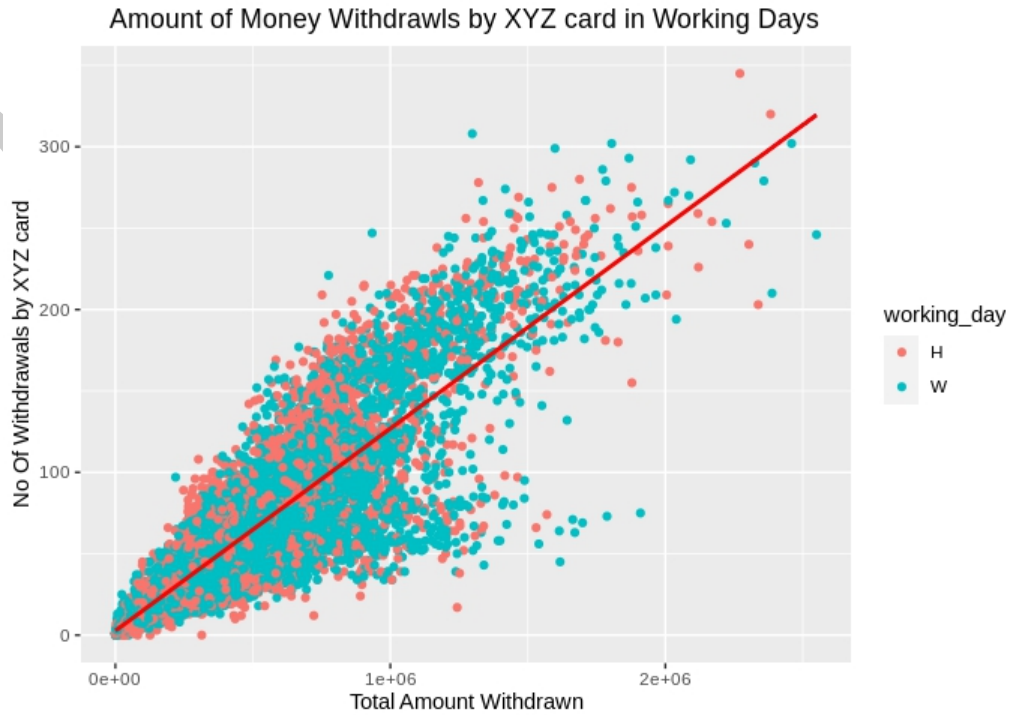

Figure 6: Analyze Money Withdrawn from XYZ card in Working days Withdrawals

Explaination:

The above graph shows the Total Amount Withdrawn over Number of withdrawls by XYZ card in working days.The Graph contain Total Amount withdrawan on x-axis and Number of Withdrawals by XYZ card.The above graph analyze the Total amount withdrawan to Number of withdrawals by XYZ Card in working days.This graph shows that Maximum Amount has been drawn in Working Day but Number of Withdrawals by XYZ cards are Maximum in Holiday. Most of the Withdrawals by XYZ card are done in working days.As you can see most trafic are above the line but large amount withdrawn is under the line.

Graph#2(part c):

Figure 7: Analyze Money Withdrawn in Working days Withdrawals

Explaination:

The above graph shows the Total Amount Withdrawn over Number of withdrawls in working days.The Graph contain Total Amount withdrawan on x-axis and Number of Withdrawals.The above graph analyze the Total amount withdrawan to Number of withdrawals in working days.This graph shows that Maximum Amount has been drawn in Working Day but Number of Withdrawals are Maximum in Holiday. Most of the Withdrawals by are done in working days.As you can see most trafic are above the line but large amount withdrawn is under the line.

Conclusion of Graph2:

The above Scatter Graph illustrates the Total Amount Withdrawn in working Days Withdrawals. In Graphs we have amount withdawnon x-axis and number of withdrawals on y-axis. There are 3 parts of it in part(a) we have analysis of withdrawan amount by other cards in Working days Withdeawals. In part(b) we have analysis of withdrawan amount by XYZ cards in Working days Withdeawals and part(c) we have analysis of withdrawan amount in Working days Withdeawals. From part(a) and part(b) we got the result that maximum withdawals are from other cart and from Regression line in graph shows that from other cards number of withdrawals are less but comparing with withdrawals Amount Withdrawn is higher than amount Withdrawn from XYZ card.

Graph#3(part a):

Figure 8: Analyze the Amount Withdrawn by other cards in week days

Explaination:

The above graph shows the Total Amount Withdrawn by other cards in Weekdays.The x-axis shows Total Amount withdawn by other card and the y-axis shows Nmae of ATM. From this graph we can analyze the amount withdawn from other than XYZ card in weekdays from all banks. As you can see Customers withdawn Maximum amount Christ College ATM and from Airport ATM they withdawn Minimum amount. Also you can see From Mount Road ATM and KK Nagar ATM Customers Withdrawan almost equal amount.you can also see Customers withdawn mostly amount on Sundays.

Graph#3(part b):

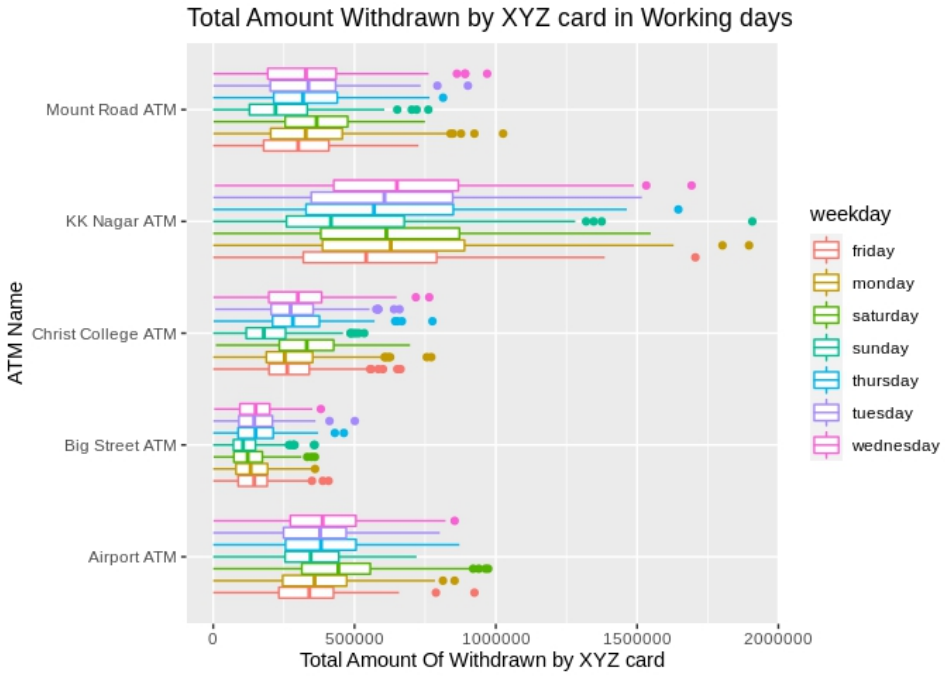

Figure 9: Analyze the Amount Withdrawn by XYZ cards in week days

Explaination:

The above graph shows the Total Amount Withdrawn by XYZ cards in Weekdays.The x-axis shows Total Amount withdawn by XYZ card and the y-axis shows Nmae of ATM. From this graph we can analyze the amount withdawn from XYZ card in weekdays from all banks. As you can see Customers withdawn Maximum amount KK Nagar ATM and from Big Street ATM they withdawn Minimum amount.you can also see Customers withdawn mostly amount on Sundays.After KK Nagar ATM Customers withdawn maximum amount from Airport after that Mount road ATM then Christ College ATM and lastly from Big Street ATM.

Graph#3(part c):

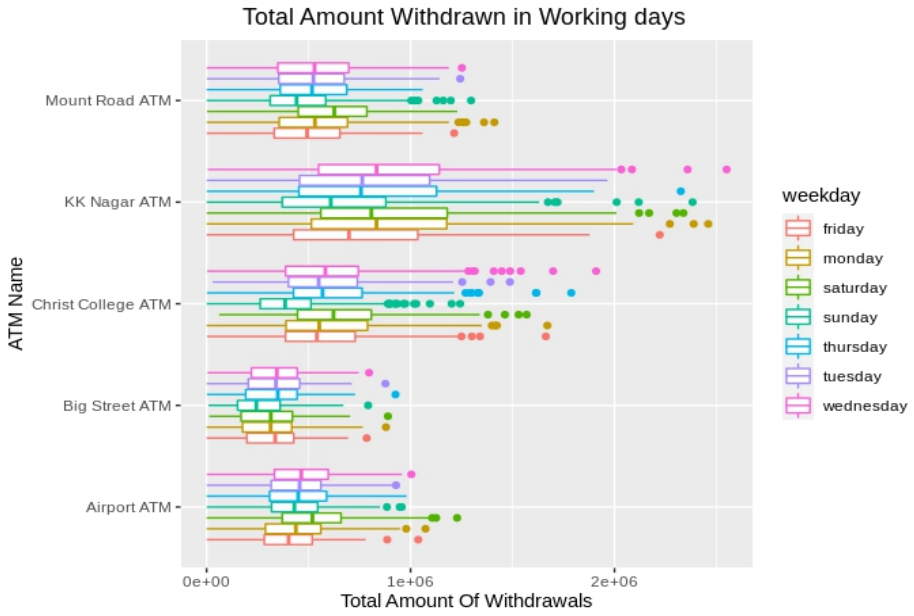

Figure 10: Analyze the Amount Withdrawn in week days

Explaination:

The above graph shows the Total Amount Withdrawn in Weekdays.The x-axis shows Total Amount withdawn and the y-axis shows Nmae of ATM. From this graph we can analyze the amount withdawn in weekdays from all banks. As you can see Customers withdawn Maximum amount KK Nagar ATM and from Big Street ATM they withdawn Minimum amount.you can also see Customers withdawn mostly amount on Sundays. After KK Nagar ATM Customers withdawn maximum amount from Christ College ATM that Mount Road ATM then Airport and lastly from Big Street ATM.

Conclusion of Graph3:

The above BoxPlot Graph illustrates the Total Amount Withdrawn in Weekdays. In Graphs we have amount withdawnon x-axis and ATM Name on y-axis. There are 3 parts of it in part(a) we have analysis of withdrawan amount by other cards in Weekdays from all ATM. In part(b) we have analysis of withdrawan amount by XYZ cards in Weekdays from all ATM and part(c) we have analysis of withdrawan amount in Weekdays. From part(a) and part(b) we can See from other cards maximum withdawn are from Christ College ATM and from XYZ maximum withdawnare from KK Nagar ATM. Where as we can see maximum amount withdawn are done on Sunday. Also, we can See from other cards minimum withdawn are from Airport ATM and from XYZ minimum withdawn are from Big Street ATM.

Graph#4(part a):

Figure 11: Number of Withdrawals by other cards in Working days

Explaination:

The above graph shows the Number of Withdrawals by others cards in Working days.The x-axis shows working days and the y-axis shows that Number of Withdrawalsby other cards. From this graph we can analyze the number of withdrawals by other cards in working days from all banks. As you can see maximum number of Withdrawals by other cards in Working days are done from Christ College ATM while in Holidays Maximum number of Withdrawals are done from Mount Road ATM. We can also see the average of all ATM's as in Holidays maximum average is of Mount Road ATM and in working days maximum avergae is of Christ College ATM.

Graph#4(part b):

Figure 12: Number of Withdrawals by XYZ cards in Working days

Explaination:

The above graph shows the Number of Withdrawals by XYZ cards in Working days.The x-axis shows working days and the y-axis shows that Number of Withdrawals by XYZ cards. From this graph we can analyze the number of withdrawals by XYZ cards in working days from all banks. As you can see maximum number of Withdrawals by XYZ cards in Working days are done from KK Nagar ATM and also in Holidays Maximum number of Withdrawals from XYZ card are done from KK Nagar ATM. We can also see the average of all ATM's as in Holidays maximum average is of KK Nagar ATM and in working days maximum avergae is of KK Nagar ATM.

Graph#4(part c):

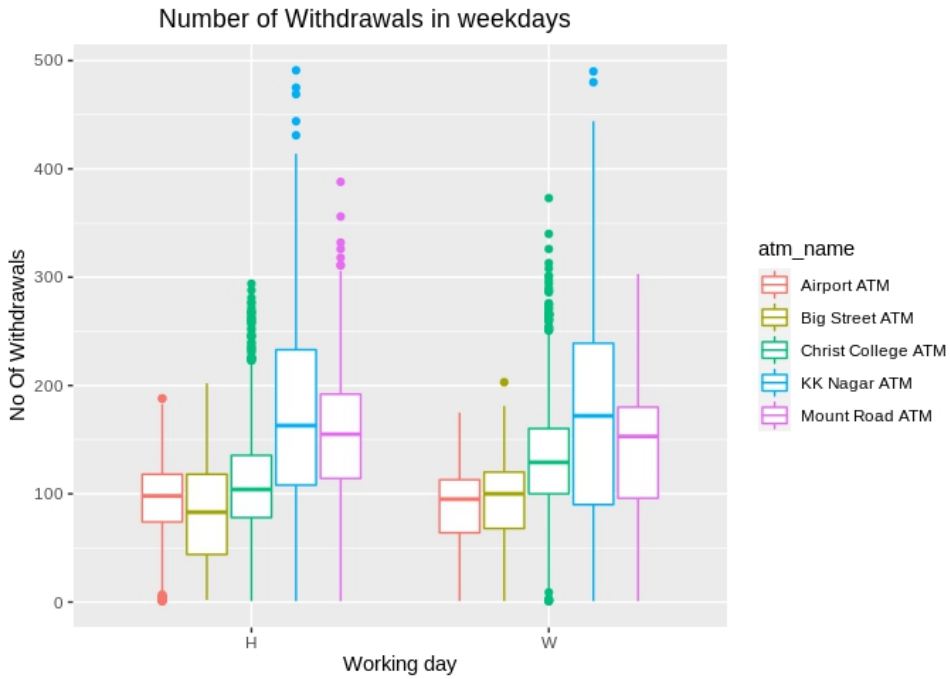

Figure 13: Number of Withdrawals in Working days

Explaination:

The above graph shows the Number of Withdrawals in Working days.The x-axis shows working days and the y-axis shows that Number of Withdrawals. From this graph we can analyze the number of withdrawals in working days from all banks. As you can see maximum number of Withdrawals cards in Working days are done from KK Nagar ATM and also in Holidays Maximum number of Withdrawals are done from KK Nagar ATM. We can also see the average of all ATM's as in Holidays maximum average is of KK Nagar ATM and in working days maximum avergae is of KK Nagar ATM.

Conclusion of Graph4:

The above BoxPlot Graph illustrates the Number of Withdrawals in Working days. In Graphs we have Number of Withdrawalson y-axis and Working day on y-axis. There are 3 parts of it in part(a) we have analysis Number of Withdrawals by other cards in Working days from all ATM's. In part(b) we have analysis Number of Withdrawals by XYZ cards in working days from all ATM and in part(c) we have analysis of Total Number of Withdrawals in Working days. From part(a) and part(b) we can See from other cards maximum number of Withdrawals in working days are from Christ College ATM and from XYZ maximum Withdrawals from KK Nagar ATM also maximum number of Withdrawals in Holidays are from Mount Road ATM and from XYZ maximum Withdrawals are from KK Nagar ATM.

Graph#5(part a):

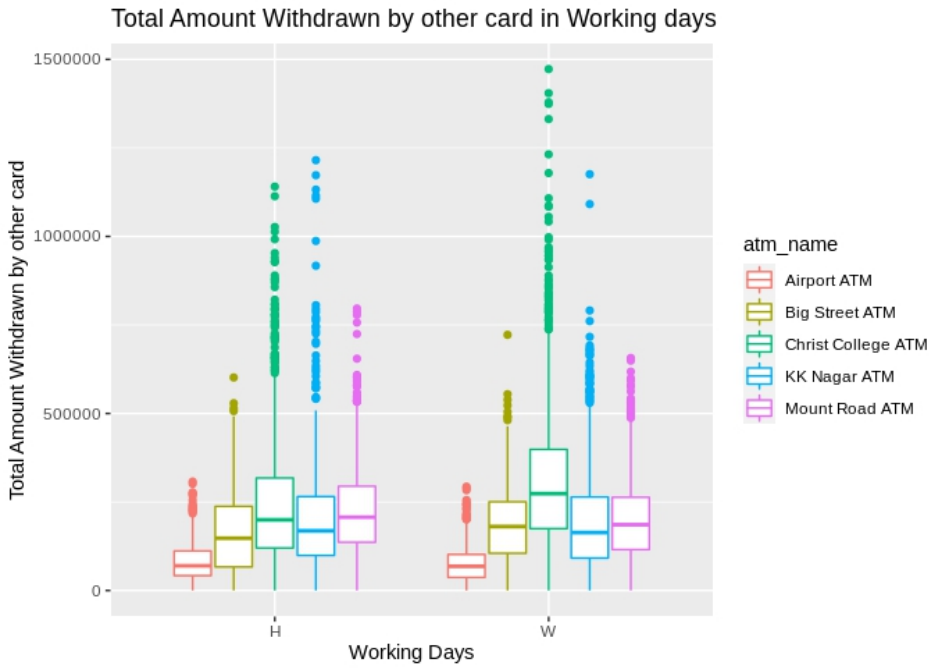

Figure 14: Amount of Withdrawn by other cards in Working days

Explaination:

The above graph shows the Amount of money withdawn from other card in Working days. The x-axis shows working days and the y-axis shows that Amount of Money Withdawan by others card. From this graph we can analyze the Amount of money withdawn in working days from all banks. As you can see maximum amount of withdawn from other cards in Holidays are done from KK Nagar ATM and in Working days Maximum Amount withdawns are done from Christ College ATM. We can also see the average of all ATM's as in Holidays maximum average is of Mount Road ATM and in working days maximum avergae is of Christ College ATM.

Graph#5(part b):

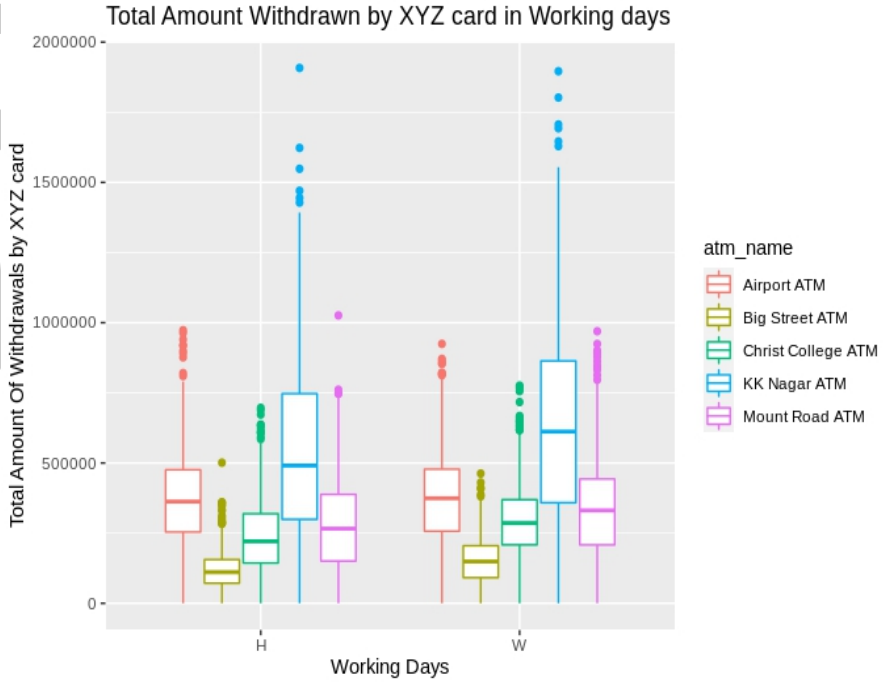

Figure 15: Amount of Withdrawn by other cards in Working days

Explaination:

The above graph shows the Amount of money withdawn from XYZ card in Working days. The x-axis shows working days and the y-axis shows that Amount of Money Withdawan from XYZ card. From this graph we can analyze amount of money withdawn by XYZ card in working days from all banks. As you can see maximum amount of withdawn from XYZ cards in Holidays are done from KK Nagar ATM and also in Working days Maximum Amount withdawns are done from KK Nagar ATM. We can also see the average of all ATM's as in Holidays maximum average is of KK Nagar ATM and also in working days maximum avergae is of KK Nagar ATM.

Graph#5(part c):

Figure 16: Total Amount Withdrawn in Working days

Explaination:

The above graph shows the Amount of money withdawn in Working days. The x-axis shows working days and the y-axis shows that Amount of money withdawn. From this graph we can analyze the Amount of money withdawn in working days from all banks. As you can see maximum Amount of money withdawn in Working days are done from KK Nagar ATM and also in Holidays Maximum number of Withdrawals are done from KK Nagar ATM. We can also see the average of all ATM's as in Holidays maximum average is of KK Nagar ATM and in working days maximum avergae is of KK Nagar ATM.

Conclusion of Graph5:

The above BoxPlot Graph illustrates the Total Amount of Money withdawn in Working days. In Graphs we have amount of money Withdrawns y-axis and Working days on x-axis. There are 3 parts of it in part(a) we have analysis amount of money Withdrawns by other cards in Working days from all ATM's. In part(b) we have analysis amount of money Withdrawns by by XYZ cards in working days from all ATM and in part(c) we have analysis of amount of money Withdrawns in Working days. From part(a) and part(b) we can See from other cards maximum Amount of money withdawn in working days are from Christ College ATM and from XYZ maximum withdawn is from KK Nagar ATM also maximum amount of money withdawn in Holidays are from Mount Road ATM and from XYZ maximum Withdrawals are from KK Nagar ATM.

For QUIZ:

Graph#1:

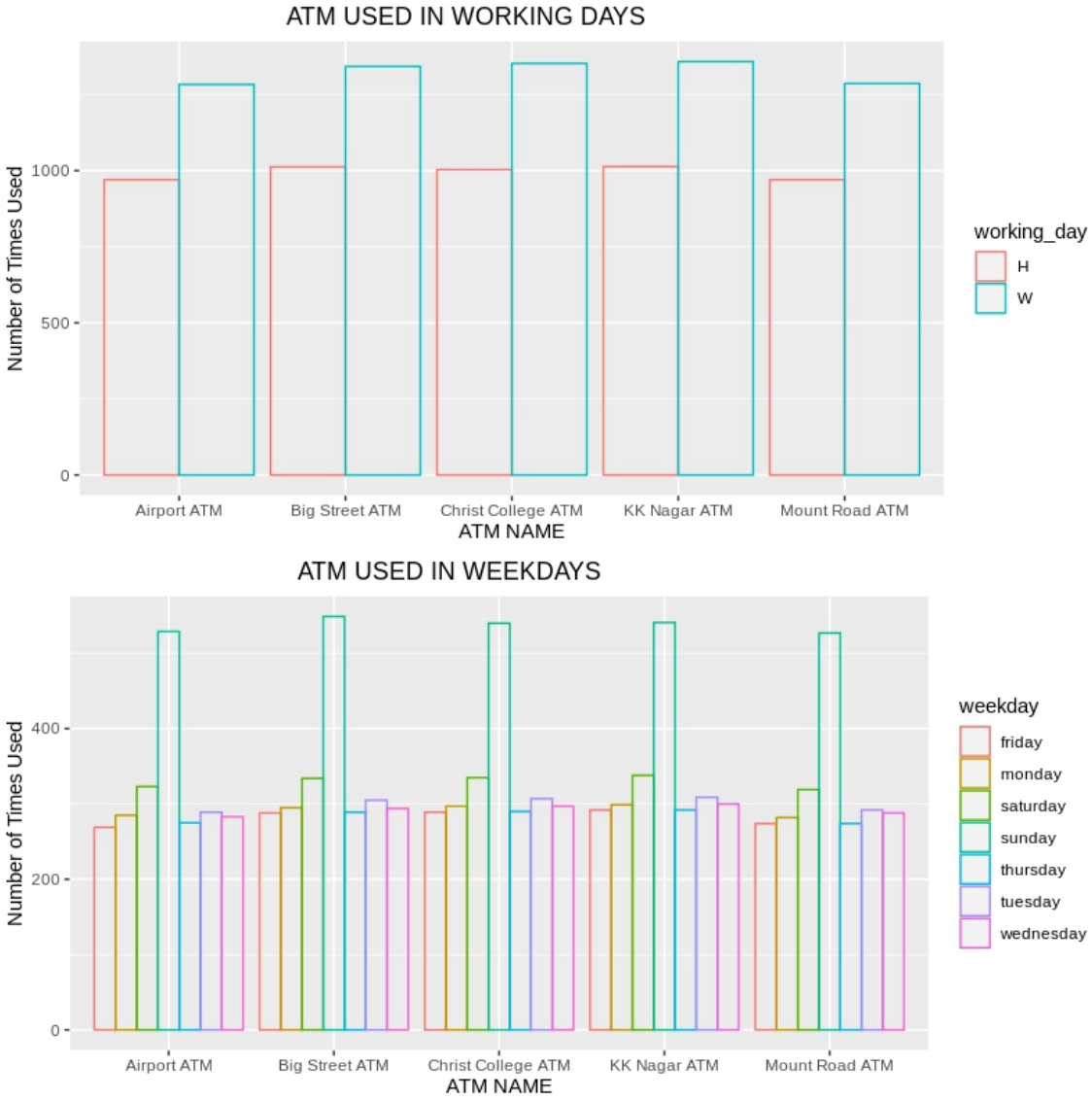

Figure 17: Analysis of ATM Usage by WEEKDAYS or WORKING DAYS

Explaination:

The above graphs shows the Number of Times ATMs used in Working days or Weekdays. The x-axis shows ATM Name and the y-axis shows Number of Times ATM Used. From this graph we can analyze how much time a ATM is used in working days or Weekdays. As you can see Big Street ATM is maximum Number of Times is used after that KK Nagar and Christ College ATM are mostly used. Mount Road ATM and Airport ATM are less used than all others. Also we can see that Maximum number of times ATM are used on SUNDAY and after that Saturday. from above Graph we can analyze that ATM are mostly used on Working Days and mostly on Sunday.

Graph#2:

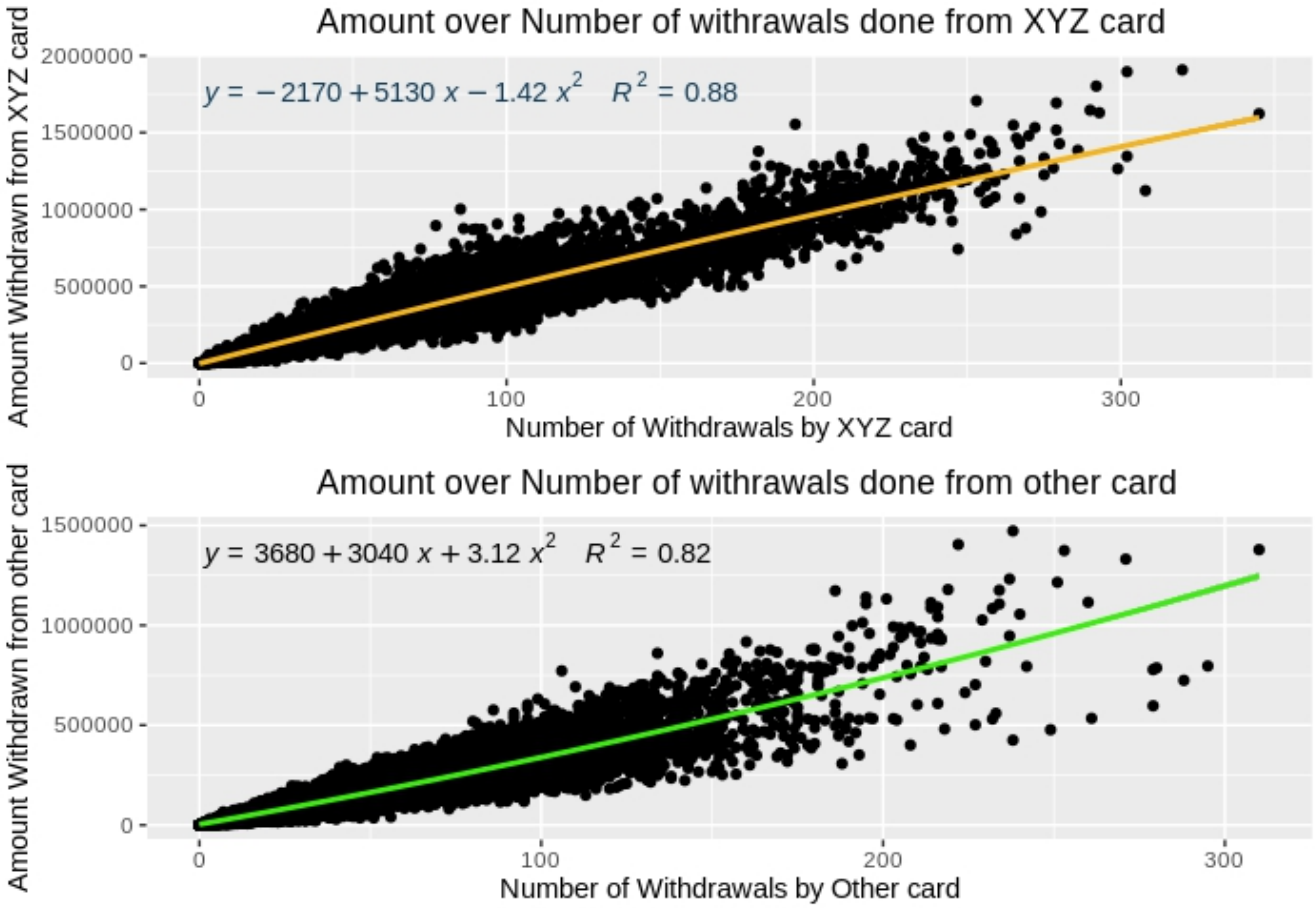

Figure 18: Number of Withdrawals of Cards over Amount Withdrawn

Explaination:

The above graph shows the Number of Withdrawals over amount withdawn. The X-axis shows Number of Withdrawals from Cards(XYZ or Other) and on Y-axis we have Amount withdarawn from Cards(XYZ or Other). From Graph we can Analyze that data of Number of Withdrawals by XYZ card over Amount withdawn from XYZ card is better than data of Number of Withdrawals by Other cards over Amount withdawn from Other cards as R^2 value of XYZ card is larger than Other Card. Regression Equation tells us XYZ card data is better because it is less scatter where as Other cards data is More Scatter as we move towards more Withdrawals.

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END OF DATA SCIENCE PROJECT

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