

Introduction to Data Science

Semester Project



Submitted to:

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Reg. No:

2020-SE-16 (Section-B)

Section:

Software Engineering (SE)

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Univariate Analysis:

- Pie chart

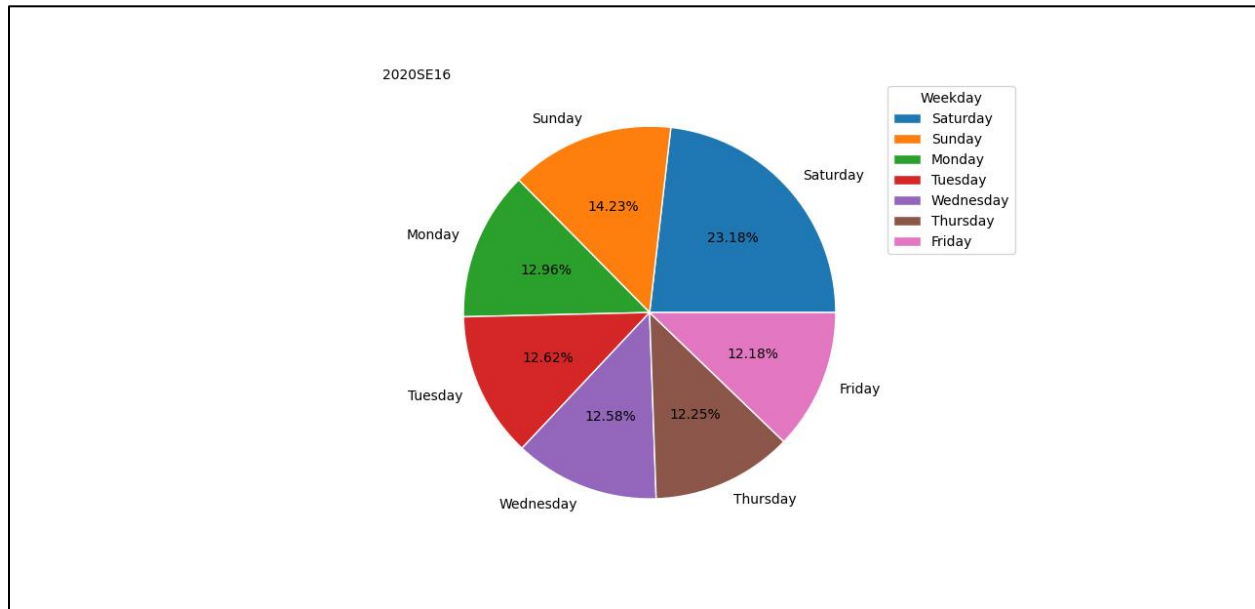


Figure 1 Customer Withdrawals over a week

The above pie chart shows withdrawals done by customers over a week from various ATMs between 2011 to 2017, over a period of 7 years. Week days are shown in the chart on which withdrawal transactions are occurred and they are: Saturday, Sunday, Monday, Tuesday, Wednesday, Thursday and Friday. While Saturday shows the most numbers of withdrawals taken, and Friday with the relatively lower.

When we study the chart, we see that the largest portion of withdrawals are done on holidays i.e. Saturday and Sunday. While almost 23 percent of total withdraws goes on Saturday, and on Sunday it is 14 percent. Together, they account for 37 percent of total withdrawals done over a week.

By contrast, on working days including from Monday to Friday, the percentages were almost same for all, that is 12 percent which shows that there was same amount of withdrawal requests made.

- **Density Plot**

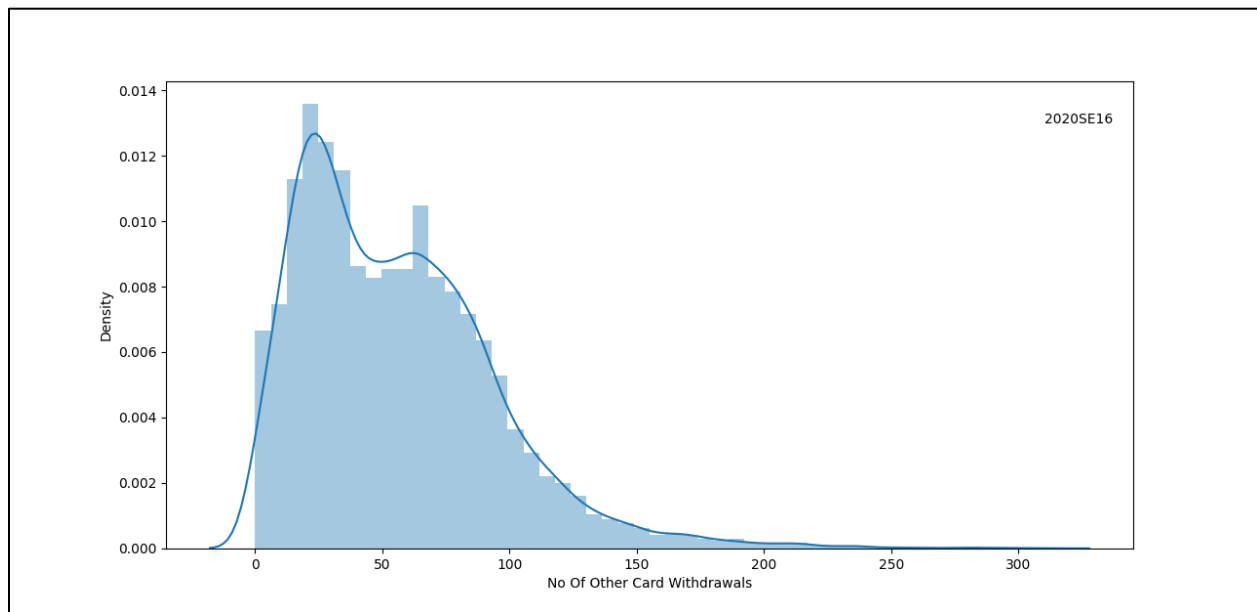


Figure 2 No of Other cards withdrawals density

The above density plot shows

Bivariate Analysis:

- **Line Plot**

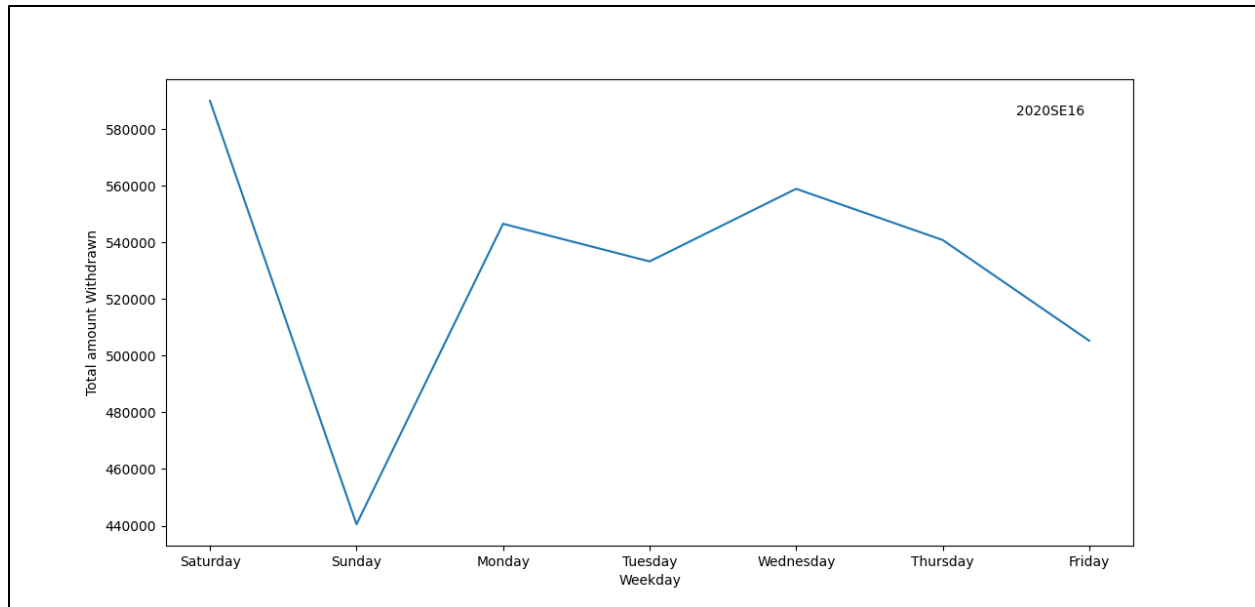


Figure 3 Total amount withdrawn over a week

The line chart illustrates the total amount withdrawn by a customer over a week between 2011 to 2017.

Looking from the overall chart, during the period of 7 years, the chart shows fluctuation. On Saturday it has the highest amount withdrawn, and afterwards there was decline observed on working days.

On Saturday, the amount withdrawn was at its peak as almost 600000. On contrary, there was a huge drop seen on Sunday as amount goes straight down to 440000, creates a difference of 160000. However, substantial increase was observed on Monday as amount withdrawn reaches to 550000. On Tuesday, the amount shows slight fall, but very next day it reaches the same level at 560000. Afterwards, for the next two days, the amount withdrawn was dropped. On Thursday amount remains almost same as Monday, whereas Friday ends up at 510000 as working days end up.

- **Grouped Bar Plot**

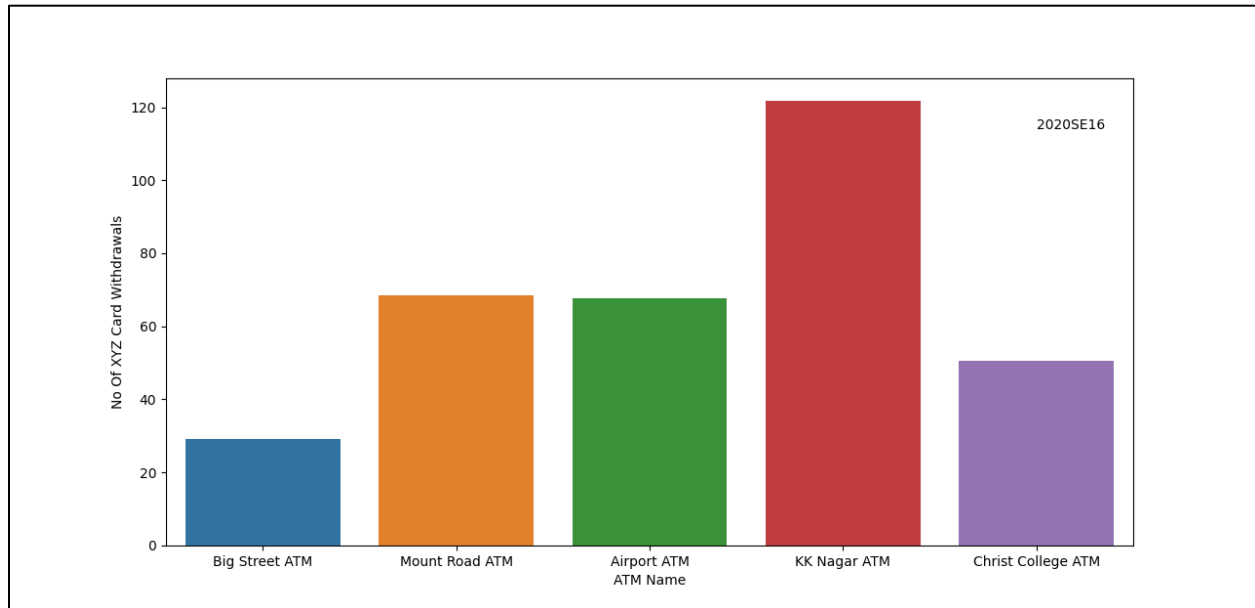


Figure 4 No of XYZ card withdrawals at ATMs

The bar chart illustrates the trend of number of XYZ card holder withdrawals at various ATMs. Units are measured as No of XYZ card withdrawals being requested and ATM names.

Overall, there is a fluctuating behavior, with KK Nagar ATM dominates with the most withdrawals, and Big Street ATM with the lowest of all.

In terms of withdrawals requested using XYZ card, Big Street ATM has the minimal withdrawals standing at almost 30 requests, means XYZ card holders were less at Big Street ATM. However, at Mount Road ATM and Airport ATM, the withdrawal requests were considerably higher and almost at equal in withdrawals being made at both at 70 requests. Similarly, KK Nagar ATM kept the massively huge number of XYZ card holders with highest withdrawals being transacted at 120 requests.

At the end, Christ College ATM stands at almost 55 to 60 withdrawals, being almost twice that of Big Street ATM.

Multivariate Analysis:

- **Bar Plot**

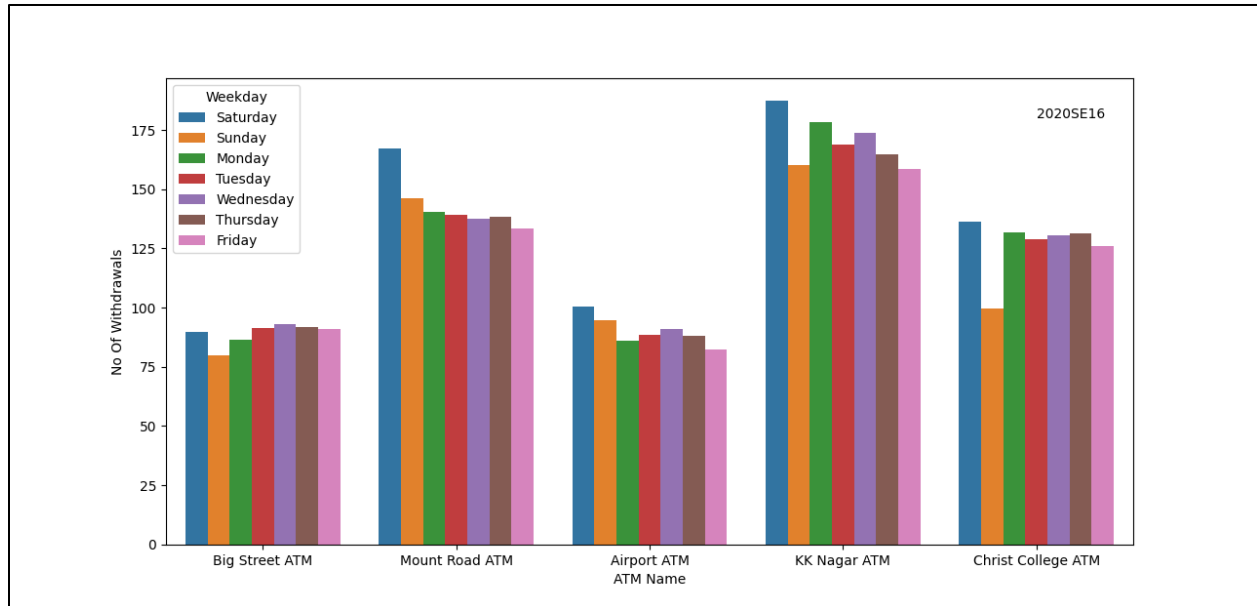


Figure 5 No. of withdrawals at ATM over a week

The above bar plot shows the number of withdrawal transactions being made over a week at several ATM machines located at various locations, between 2011 to 2017, over a period of 7 years. Units measured in No of withdrawals and ATM Names.

Looking from the overall perspective, the plot shows that some ATMs have more requests on holidays rather than working days.

At Big Street ATM and Airport ATM, there were almost 90 withdrawals on Saturday and Sunday, a few more than the requests on all working days including Monday to Friday that is almost 75 to 80. However, KK Nagar ATM and Mount Road ATM were more busiest than others, the withdrawal requests for Saturday were almost same for duo, at 180 requests for KK Nagar and 160 for Mount Road. At Mount Road ATM, on all working days, the amount of withdraws were at equal with no significant variation. On contrast, at KK Nagar ATM, there were fluctuating behavior on working days.

Similarly, at Christ College ATM, Sunday being a holiday has the lowest withdrawal requests while Saturday and other working days were almost remains the same.

Overall, the plot shows that on various ATM machines, the peak requests were made on holidays rather than working days.

- **Line Plot**

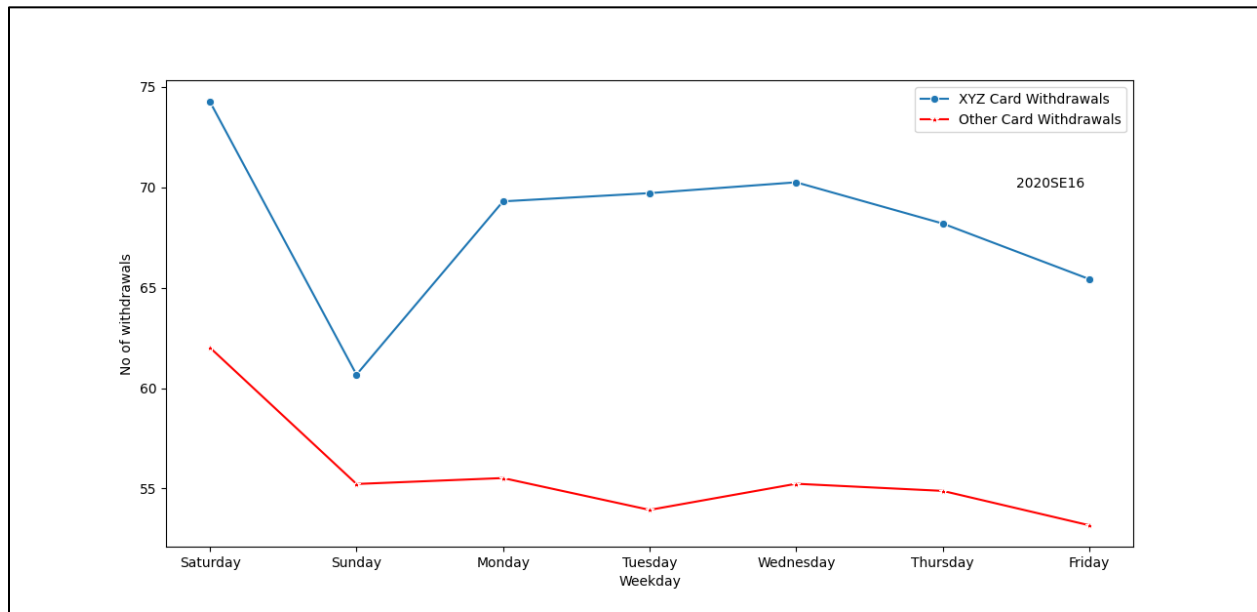


Figure 6 No of XYZ card withdrawals vs. Other cards

The above line plot compares the number of withdrawal requests made using XYZ card versus Other cards over a week at various ATMs, from 2011 to 2017, over a period of 7 years. From the overall perspective, the plot shows a fluctuating behavior, but holidays dominate as compared to weekdays in terms of withdrawals being made.

On holidays i.e. Saturday and Sunday, the withdrawals were at peak as compared to other days for both card customers but requests using XYZ card is higher at almost 75 as compared to Other card customers that is 62. However, on Sunday, XYZ card withdrawal requests were at lowest as compared to working days on 62 approximately.

On working days, the trend for both customers shows fluctuation. XYZ card withdrawals from Monday to Wednesday remains almost constant to 70, then onwards from Wednesday, there is a decline observed on Thursday being 68 requests and Friday the number drops to almost 65. Other cards withdrawals were increased by few on Monday at 56, but there was dip on Tuesday as it was 52. Then afterwards, from Wednesday to Friday the number of withdrawals were reduced to almost 50.