

Credit card Fraud

How to predict it ?

Meysour
Omezzine

IronHack
23 Mars 2023



Credit card Fraud

Wednesday, 10 November 2021



OCBC: SGD4947.85 was charged
at 10:16 on 10-Nov-21 to your
card (- [REDACTED]) at
[REDACTED]. If you did not do this,
call [+65 6535 2233](tel:+6565352233).

10:22 am

R



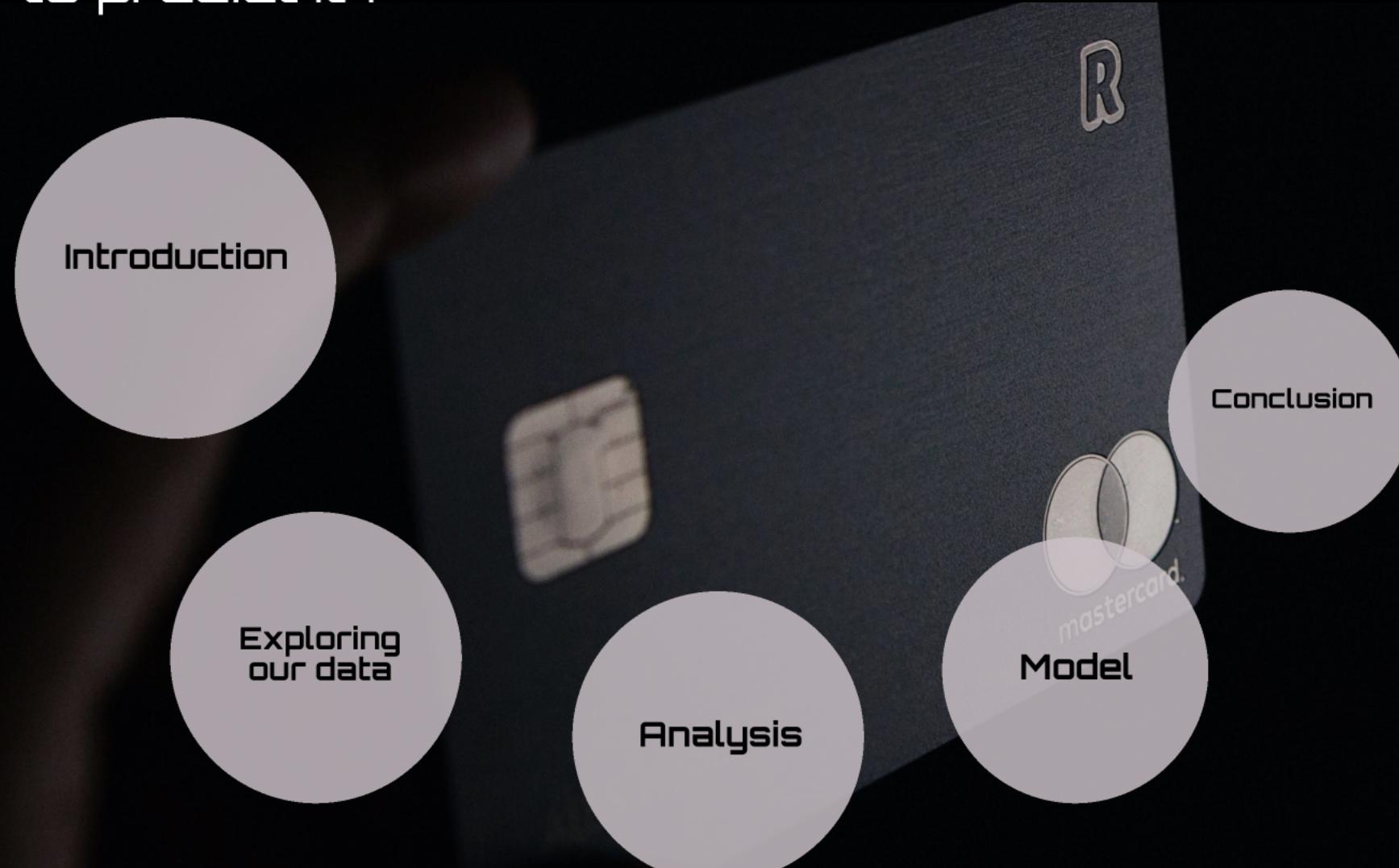
masterc

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Dataset

- Credit card transactions data
- 15 columns
- 19963 rows

Information about :

- Transaction card
- Transaction Date
- Transaction City
- MCC
- Merchant type
- Merchant State
- Errors on card



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Credit card fraud analysis

Total
Frauds
analysis

Frauds by
amount

Frauds by
state

Frauds by
date

2015

2016

2017

2018

Frauds
by
amount

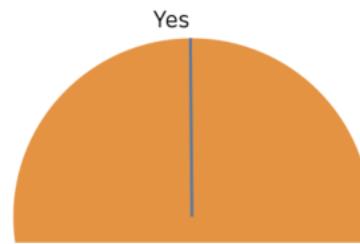
Frauds
by state



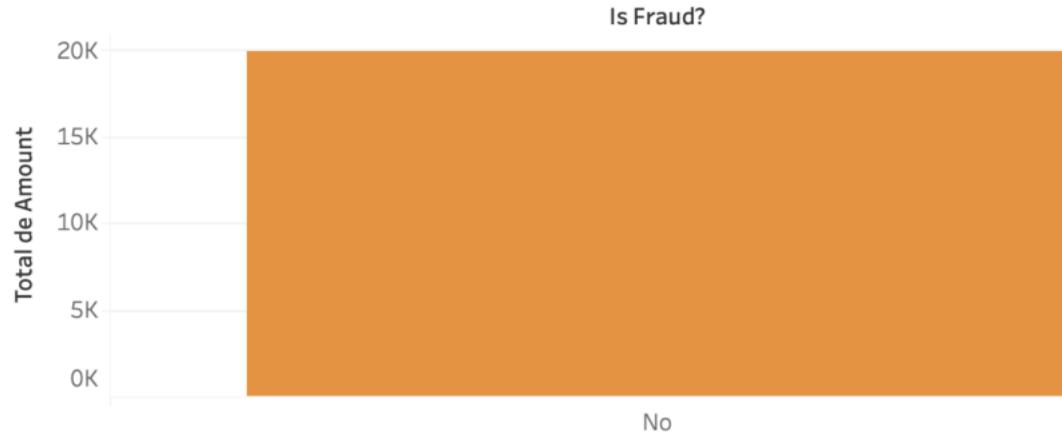
Frauds
by date

Fraudulent transactions Analysis

Data for fraud



Not fraud



Frauds by amount



Fraud



Credit card fraud analysis

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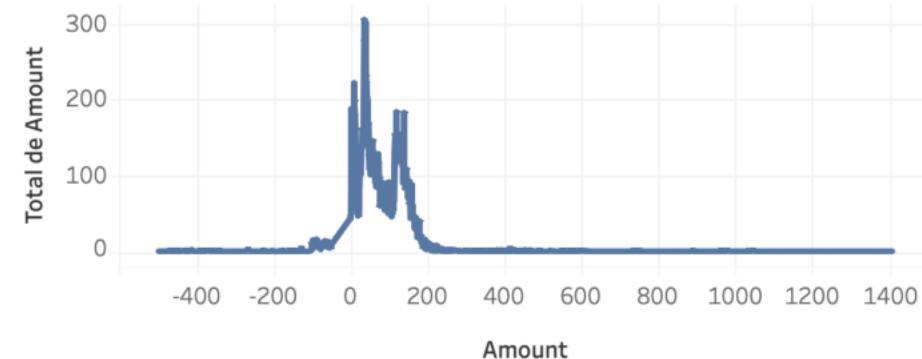
Frauds
by state



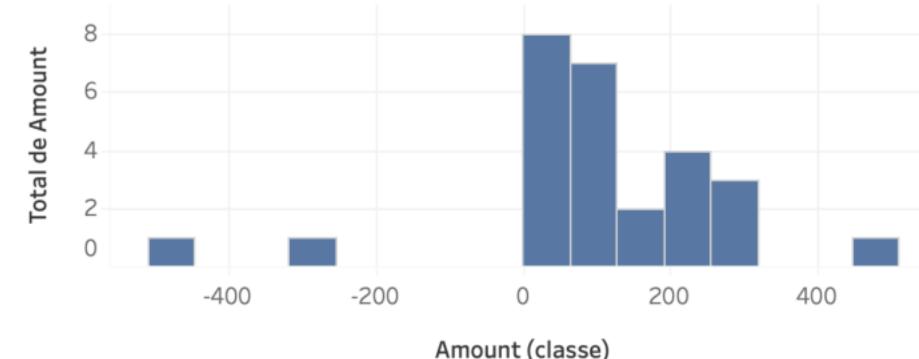
Frauds
by date

Amount and MCC Analysis

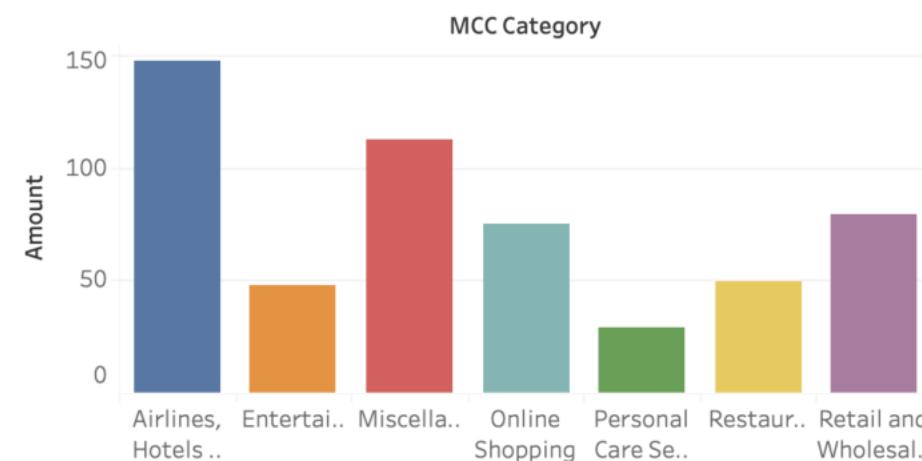
Amount Range overview



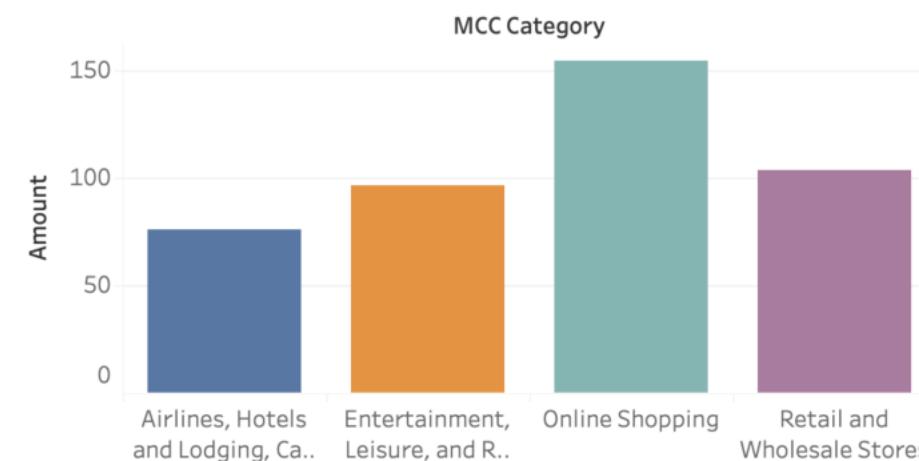
Amount Fraud



MCC Category Overview



MCC_Category: Fraud



Credit card fraud analysis

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Frauds
by
amount

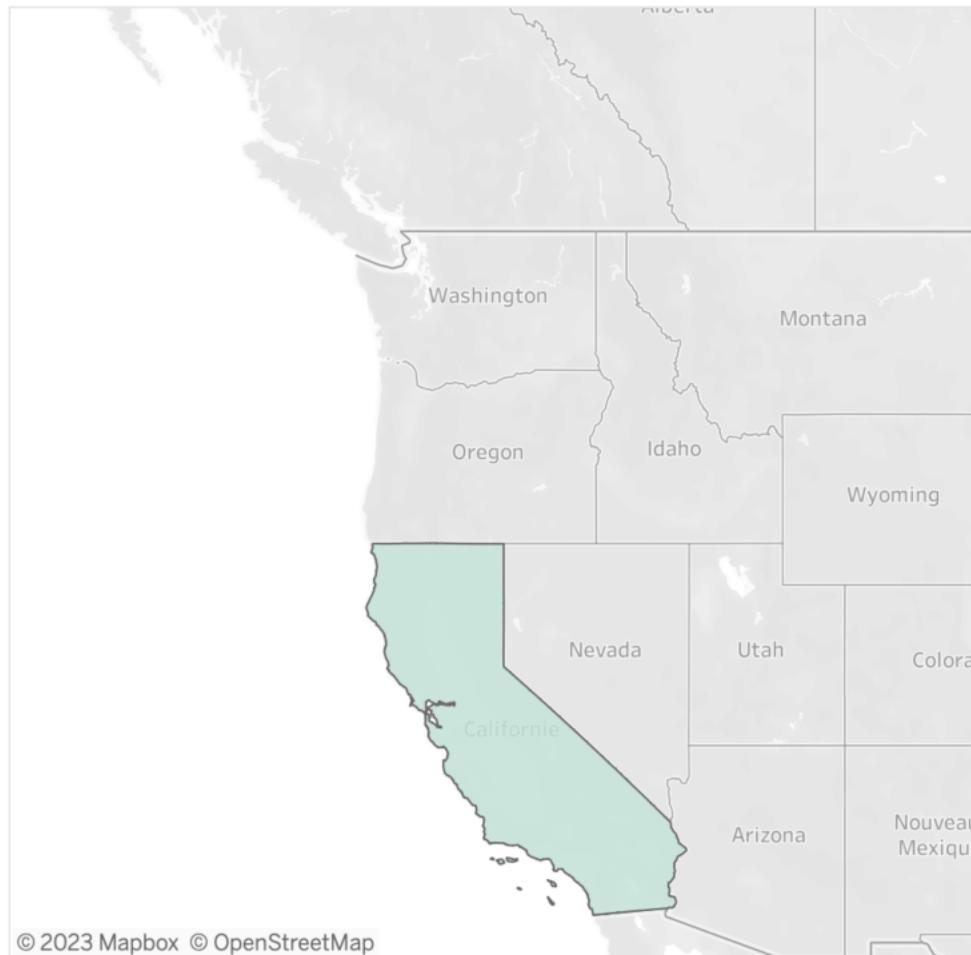
Frauds
by state



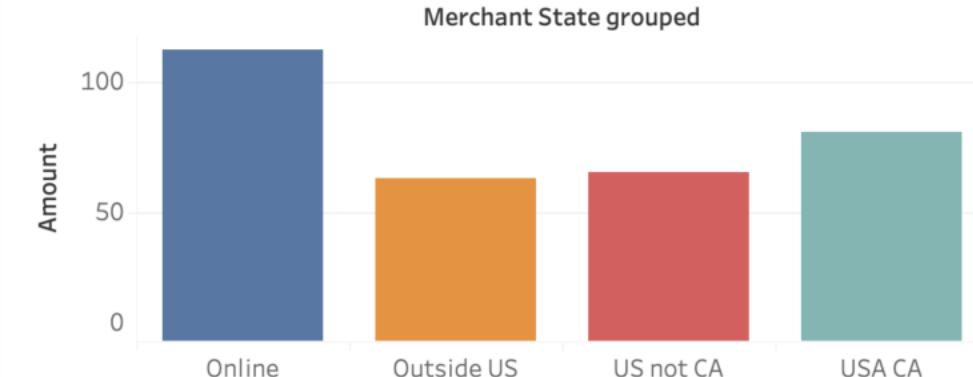
Frauds
by date

State and Merchant type analysis

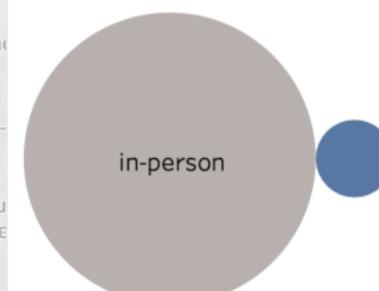
State Fraud



State Overview



Merchant Type Overview



**How is this
Relevant?**

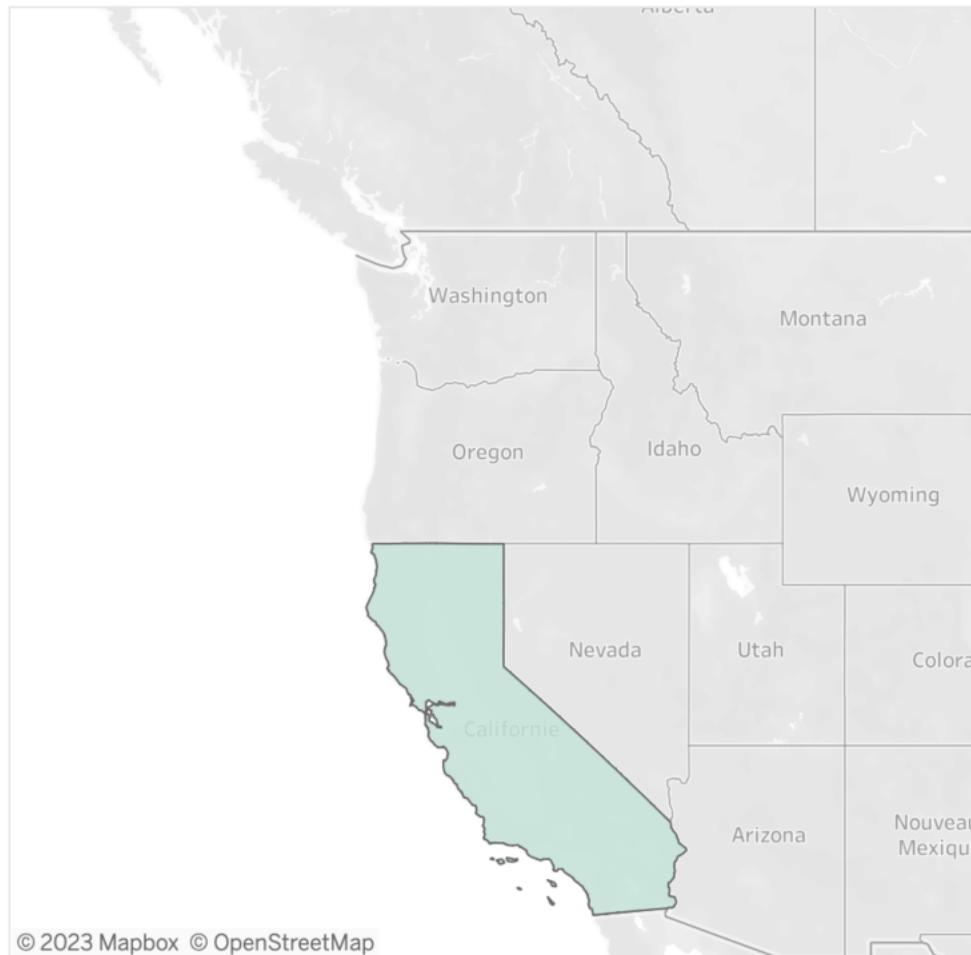
The raise of technology:



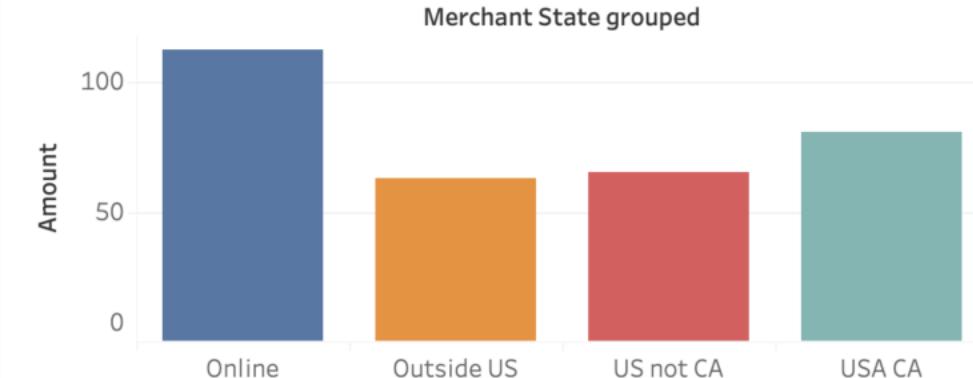
- With the increase in online transactions, there has been a corresponding increase in credit card transactions.
- Contactless payment methods, which are becoming more common in retail outlets, also typically involve the use of credit cards. This includes "tap and go" payments as well as payment services like Apple Pay, which are often linked to users' credit cards.
- Due to the prevalence of credit card transactions, there is a need for models like KNN to help detect fraudulent activity and protect consumers from financial harm.

State and Merchant type analysis

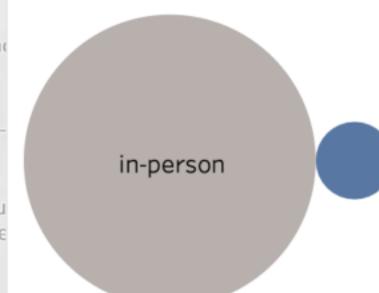
State Fraud



State Overview



Merchant Type Overview



**How is this
Relevant?**

Credit card fraud analysis

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Frauds by
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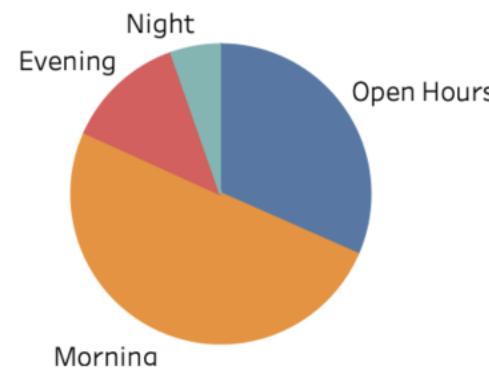
Frauds
by state



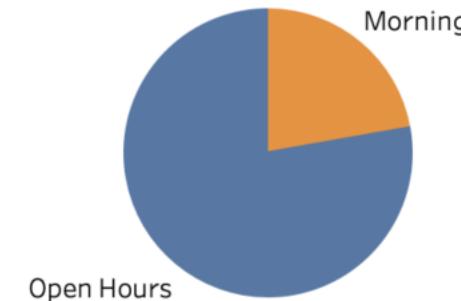
Frauds
by date

Date of transactions analysis

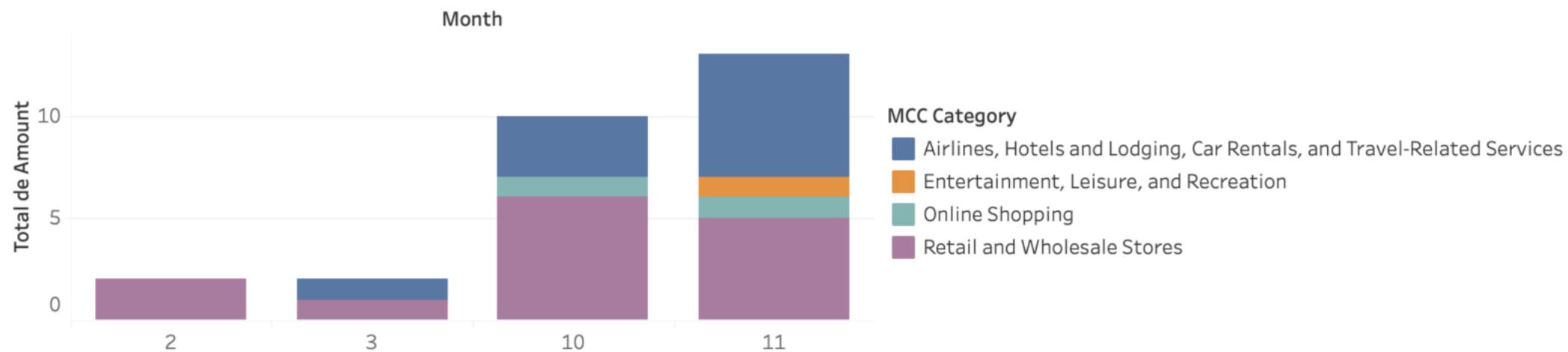
Time Period Overview



Time Period Fraud



Month Fraud



Credit card fraud analysis

Total
Frauds
analysis

Frauds
by date

Frauds
by state

Frauds
by
amount

Total
frauds

Frauds by
amount

Frauds by
state

Frauds by
date

2015

2016

2017

2018



Frauds
by state

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Machine learning model

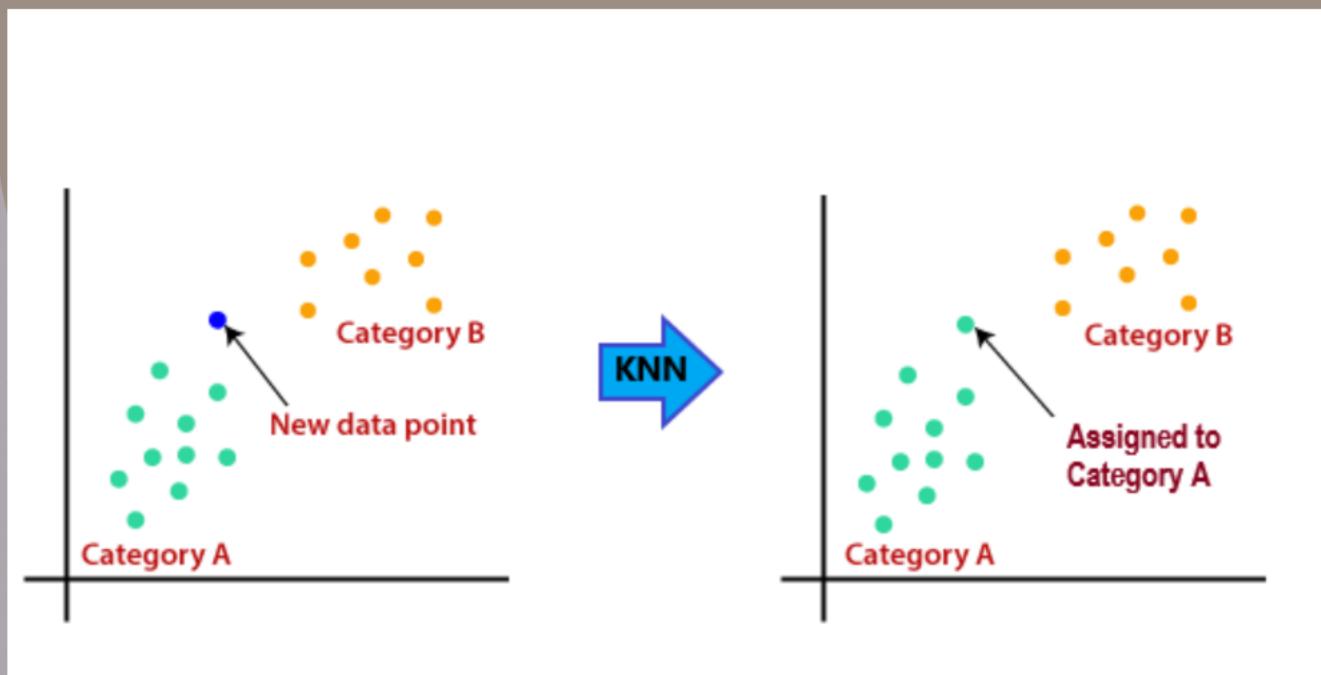
Objectives :

- To accurately detect fraudulent credit card transactions in real-time.
- To reduce financial losses for both credit card issuers and cardholders by preventing fraudulent transactions.
- To minimize false positives, which can cause unnecessary inconvenience and frustration for legitimate cardholders.
- To improve customer satisfaction by providing a secure and trustworthy credit card experience.

Our
model

Our
results

- A KNN model is a computer program that looks at data it already knows about, and based on that, makes a guess about new data.
- It does this by finding the K closest things to the new data and using what those things are labeled as to make a guess about the new data.



Machine learning model

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Our
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Our
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2 options :



1. The first option minimizes risk for the credit card holder
2. Second option minimizes cost for credit card giver.

Machine learning model

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Our
model

Our
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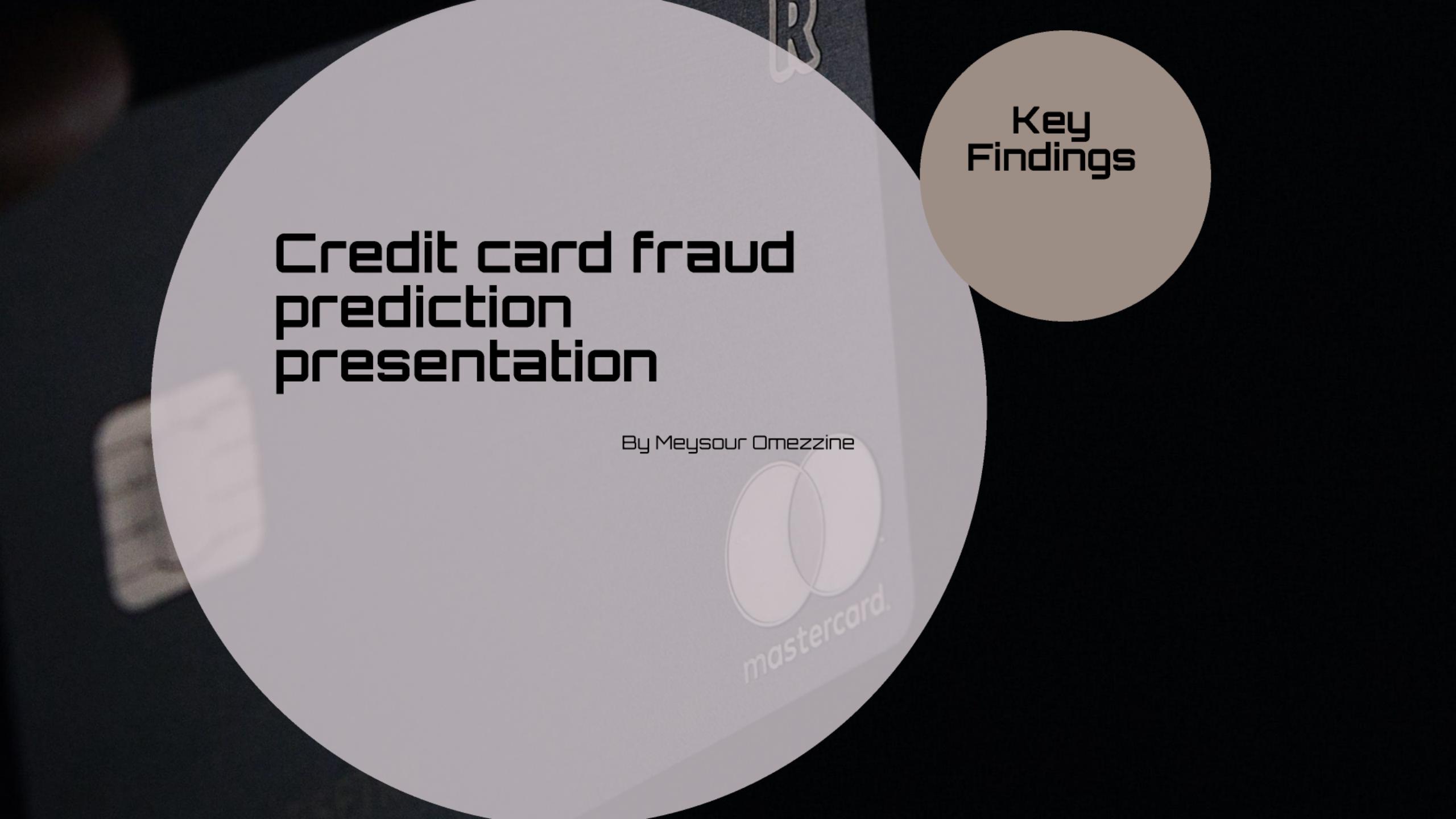
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The background of the slide features a photograph of a person's hand holding a credit card. The card is mostly white with some dark text and a logo. The background is dark and out of focus.

**Key
Findings**

Credit card fraud prediction presentation

By Meysour Omezzine



Key Findings :



Financial Institutions use Machine Learning Models to detect fraudulent transactions



In our Data set, Online shopping MCC category has the most fraudulent transactions.



State and merchant type are strong indicators of fraudulent transactions.



Neighbors model achieved a recall rate of 1.0 and an accuracy rate of 97%.

Thank
You

THANK YOU !



**Thank
You**

Any questions?

Key Findings :



Financial Institutions use Machine Learning Models to detect fraudulent transactions



In our Data set, Online shopping MCC category has the most fraudulent transactions.

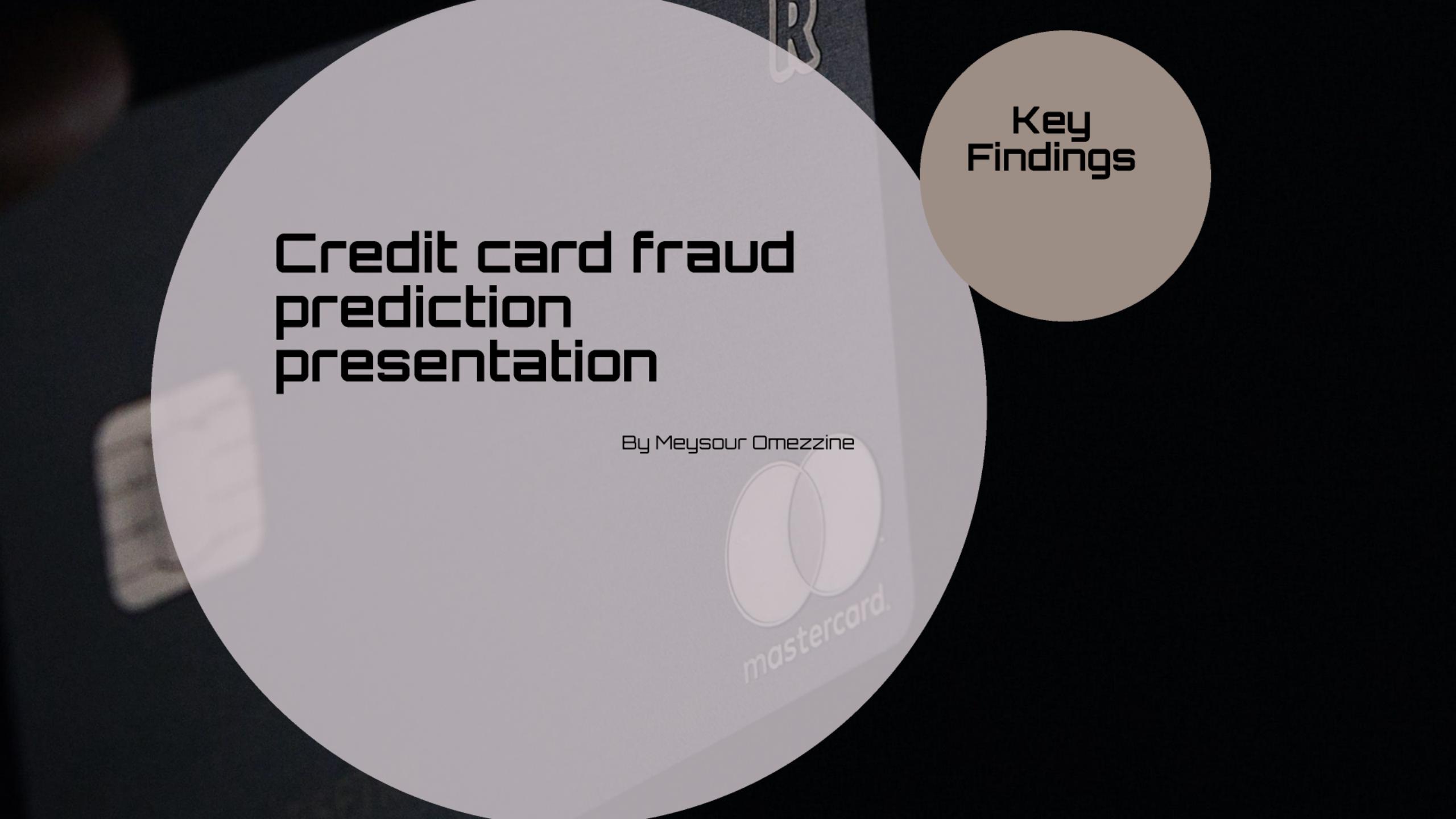


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Thank
You

The background of the slide features a large, semi-transparent circular overlay. Inside this circle, a hand is visible holding a credit card. The card has a dark blue color with a faint 'R' logo at the top. The word 'mastercard.' is printed vertically along the bottom edge of the card.

**Key
Findings**

Credit card fraud prediction presentation

By Meysour Omezzine

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