

Project Proposal

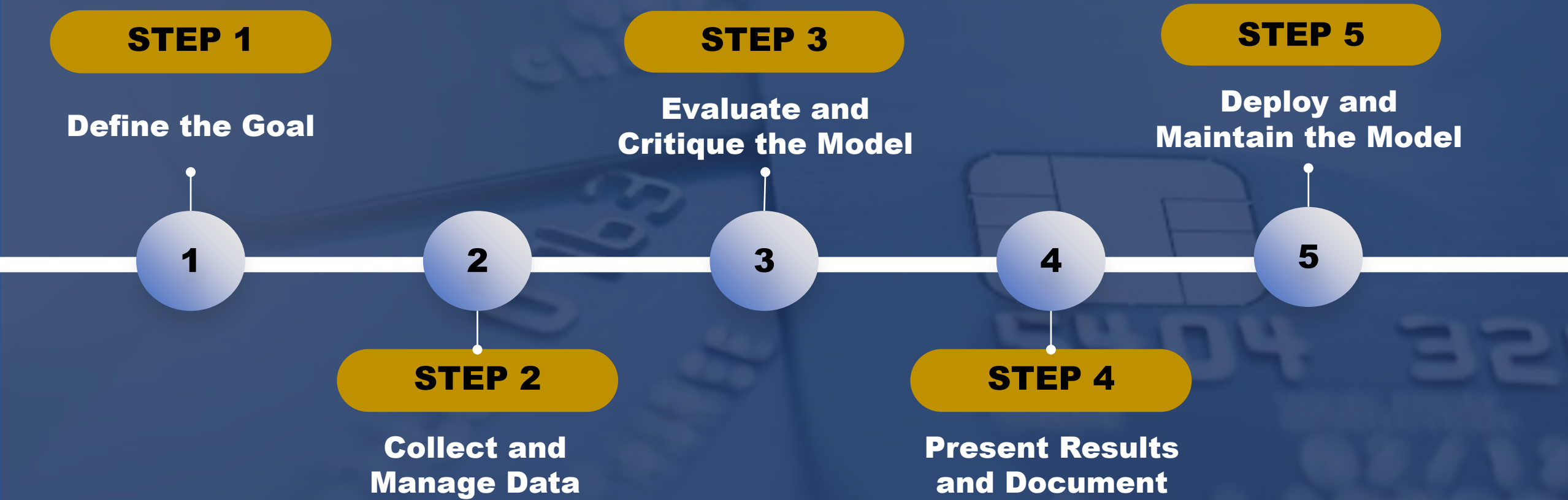


Credit One Banking Services

Understanding the Credit Limits
and Lending of our Customers



Process



Step One – Define the Goal

One Project, Two Goals

1

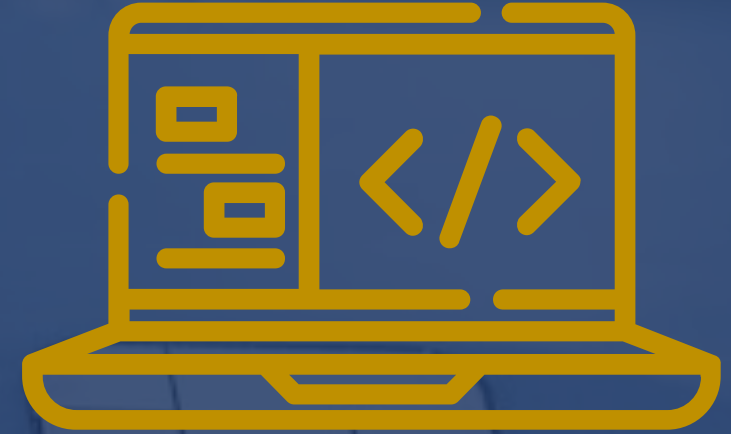
Determine which potential customers are most likely to default

2

Determine how much credit balance to give customers

Step 2 – Collect and Manage Data

**All data comes from Credit
One's external SQL server**



Data Summary

30201

customers

6 months

Billing and payment data

**Age, Marital Status,
Gender, Education**

Demographic Data

**Limit Balance,
Default**

Target Variables

Management

The data warehouse is kept in secure servers on our team's private computers.



Data Issues

- There were a few rows whose values were what we wanted to name the columns, while the columns were merely X#. This was easily fixed.
- We assigned numbers to non-numeric values for easier parsing

	MyUnknownColumn	X1	X2	X3	X4	X5	X6	X7	X8	X9	X10	X11
0	ID	LIMIT_BAL	SEX	EDUCATION	MARRIAGE	AGE	PAY_0	PAY_2	PAY_3	PAY_4	PAY_5	PAY_6
1	1	20000	female	university	1	24	2	2	-1	-1	-2	-2
2	2	120000	female	university	2	26	-1	2	0	0	0	2
3	3	90000	female	university	2	34	0	0	0	0	0	0
4	4	50000	female	university	1	37	0	0	0	0	0	0

	ID	Limit_bal	Gender	Education	Marriage	Age	Pay_1	Pay_2	Pay_3	Pay_4	Pay_5	Pay_6
1	1	20000	1	3	1	24	2	2	-1	-1	-2	-2
2	2	120000	1	3	2	26	-1	2	0	0	0	2
3	3	90000	1	3	2	34	0	0	0	0	0	0
4	4	50000	1	3	1	37	0	0	0	0	0	0
5	5	50000	2	3	1	57	-1	0	-1	0	0	0

Additional Useful Data

Credit Score

Income

Many credit card companies use credit score and income information to determine who to approve for credit cards and how high to set an individual's credit limit.

The available data is from customers who have used Credit One for at least 6 months. We will not have this data for new customers. If we want to use this model to evaluate new customers, then we will have to make a model without the payment or billing information.

Step Three – Evaluate and Critique the Model

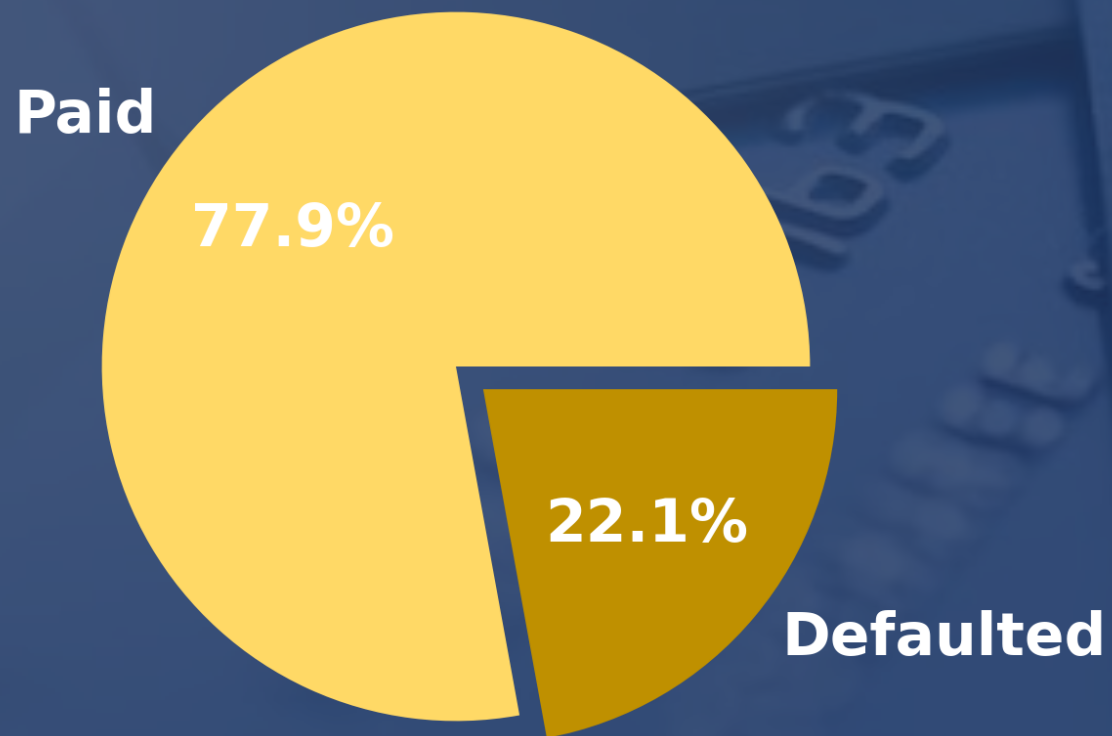
Initial Observations

- **The Limit Balance has a positive correlation with education, age, bill amount and pay amount, and a negative correlation with pay and default**

Defaulting has a positive correlation with pay and a negative correlation with limit balance



Defaults by Percentage



**More than 1 in 5
creditors defaulted
on their cards within
the last 6 months**

Step Four – Present Results and Document

- **The most important aspect of the model is how it will reduce Credit One's spending on loans that are likely to default.**
- **When presenting, we should emphasize the reduction of their losses and include any other findings that will help their business.**
- **Finally, we will need to document the model for the team that will be running and maintaining it.**

Step Five – Deploy and Maintain the Model

- **Going forward, we can use the algorithm to vet new prospective Credit One members and review current ones**
- **As new data is gathered, the model we create may prove to be inaccurate or need updating.**



STEP 1

Define the Goal

- Misinterpreting the goal can lead to a model that is not useful.
- Communication with management and careful monitoring of the model can prevent this problem.

1

STEP 3

Evaluate and Critique the Model

- We may have to try many iterations of the model to get the most accurate result.
- Proper preparation and analysis before modeling can mitigate this

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STEP 5

Deploy and Maintain the Model

- As new data emerges, the model may prove to be less accurate than originally thought.
- We may need to revisit this problem when new data arises

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STEP 2

Collect and Manage Data

- Some of the data may not be useful for new customers.
- There may be additional data that is helpful.
- If we cannot get more data, then we will have to make the most of the data we have.

2

STEP 4

Present Results and Document

- We may not be able to create an accurate model with the data
- While we may not always be able to accurately predict the target value, there may still be some useful information in the data.

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Noting potential pitfalls that may occur along the way