

Home Assignment

Step 6

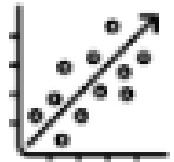
Presented by: Group B



Overview



Roadmap



Project Overview



Answers- Customers' Questions



ROAD MAP

WEEK 0-2

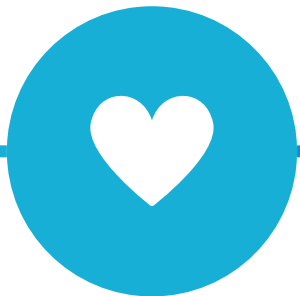
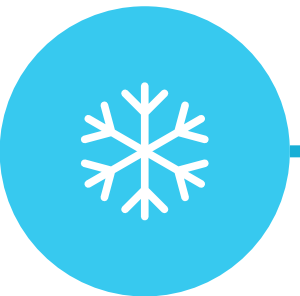
WEEK 2-4

WEEK 4-6

WEEK 6-8

WEEK 8-10

WEEK 10-12



Business
Understanding

Data
Understanding/Data
Preparation

Data
Preparation/Modeling

Model selection
and setup

Modeling/Evaluation

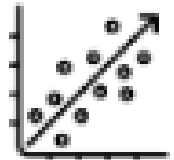
Evaluation/Deployment



Overview



Roadmap

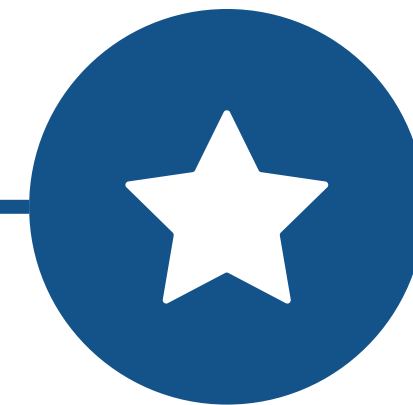
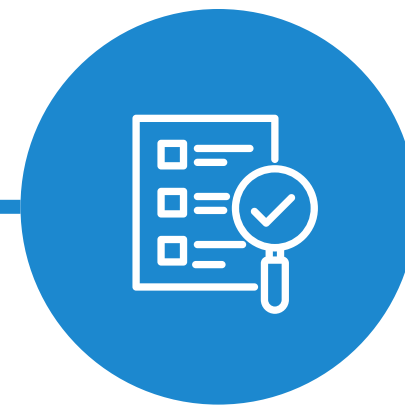
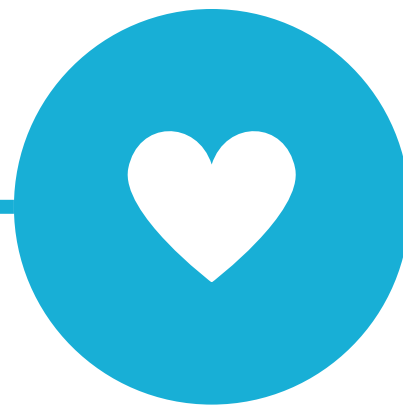
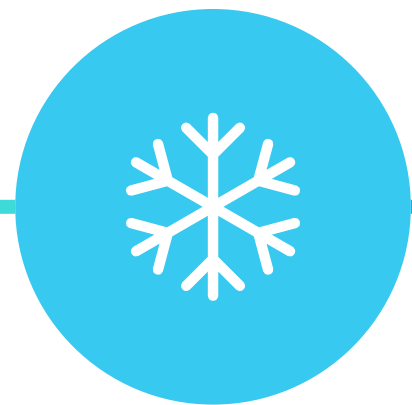


Project Overview



Answers- Customers' Questions



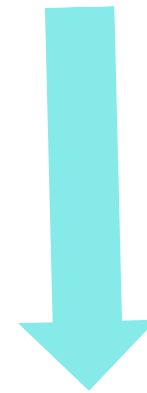


**Data
Understanding &
Preparation**

Data Understanding & Preparation

508,672 instances

151 features

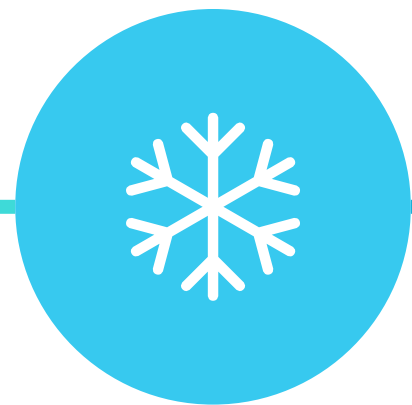


322,980 instances

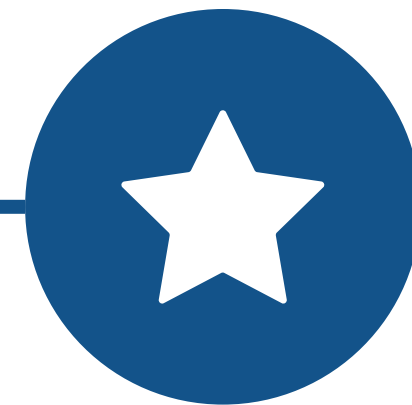
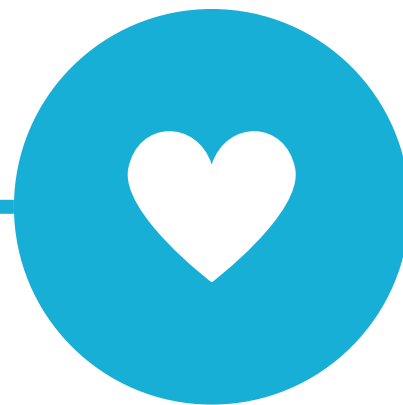
62 features



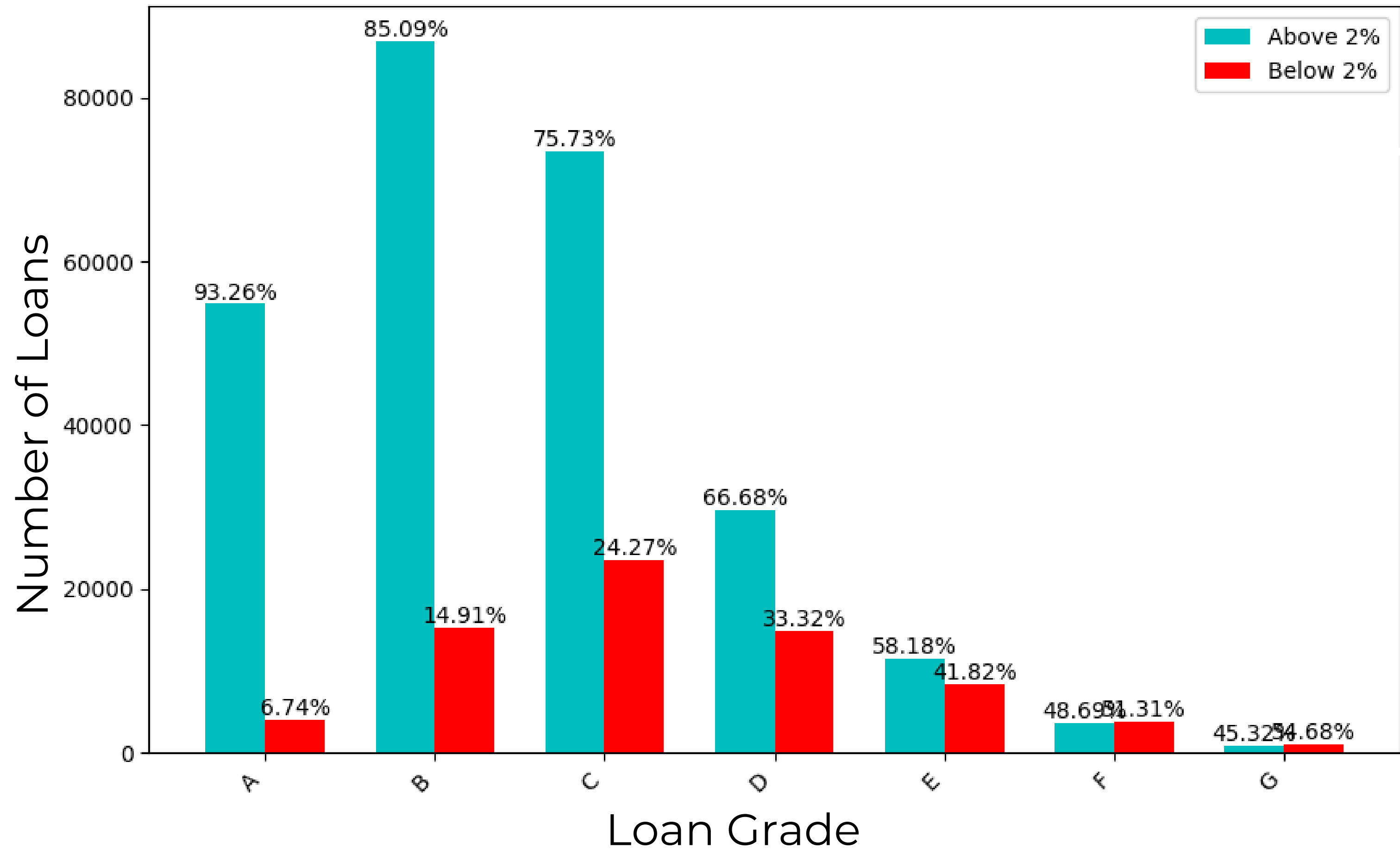
Data
Understanding &
Preparation



Modeling

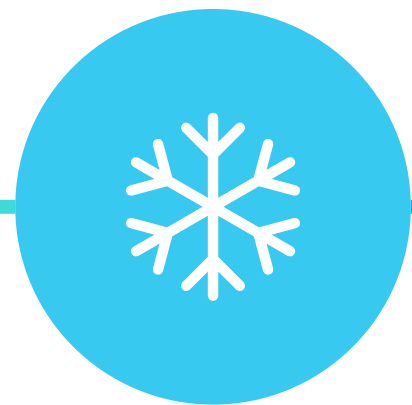


Modeling

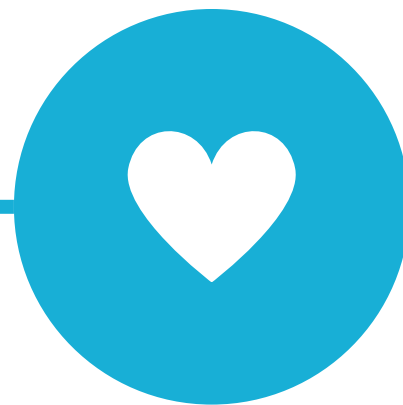




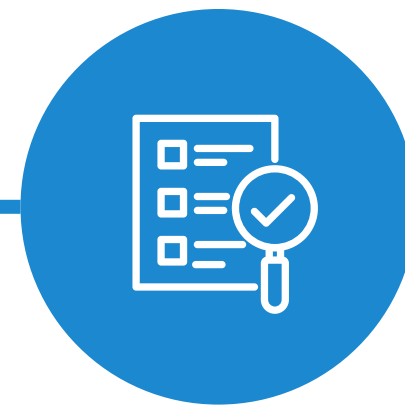
Data
Understanding &
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Modeling

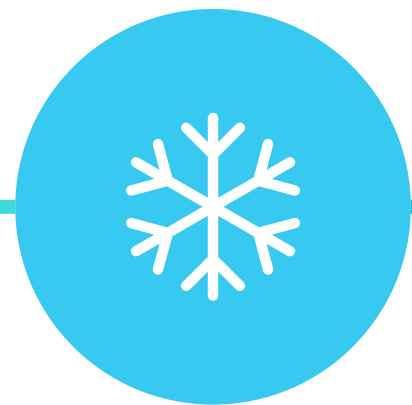


Evaluation

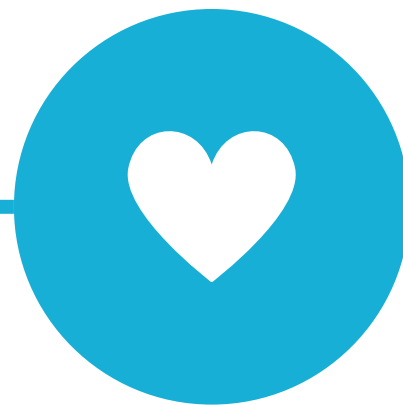




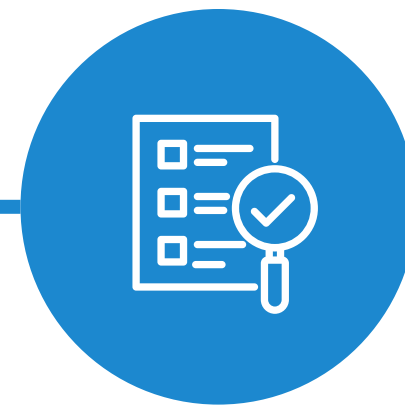
Data
Understanding &
Preparation



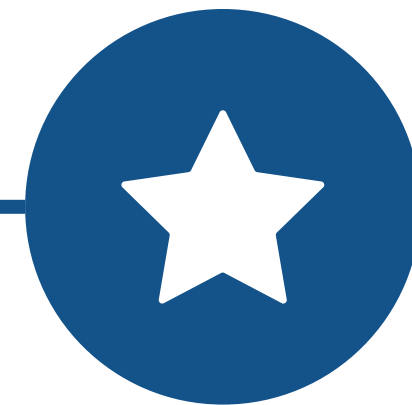
Modeling



Evaluation



Model Selection



Model Selection

Classification Model

**Classify Loans above &
below 2%**

Regression Model

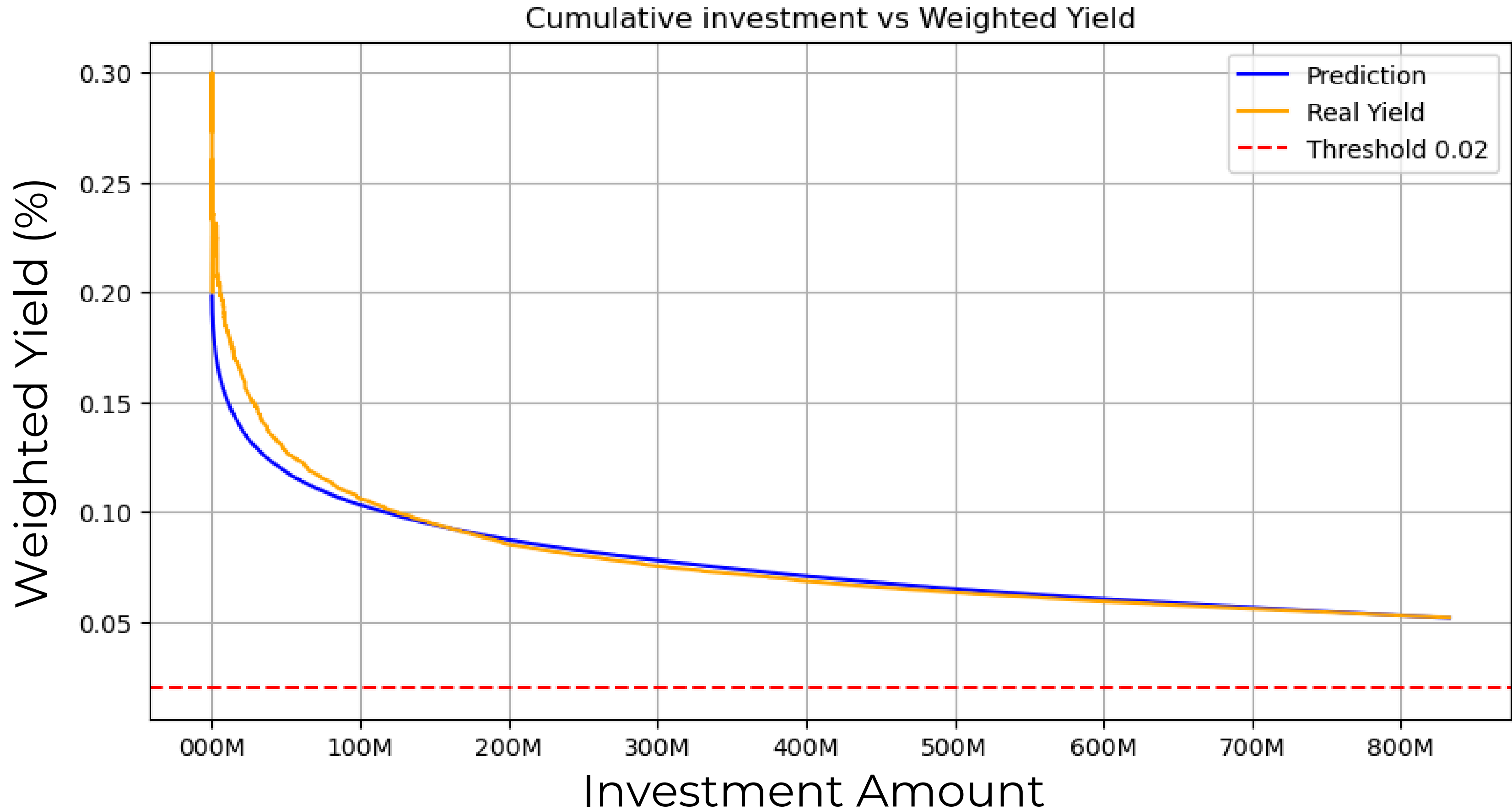
Loans above 2%

**Loans Expected
Return**

Model Reliability and Accuracy



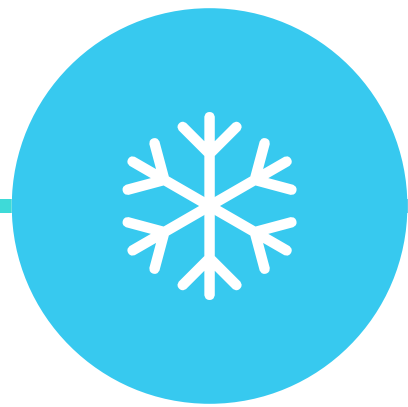
Model Reliability and Accuracy



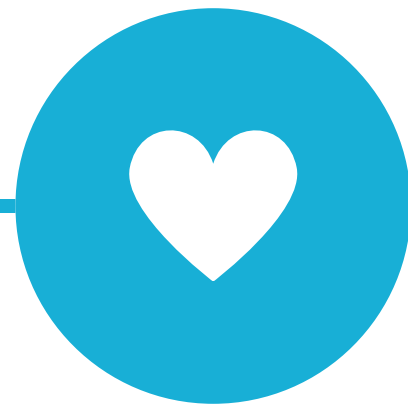


Data

**Understanding
& Preparation**



Modeling



Evaluation



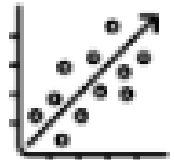
Model selection



Overview



Roadmap



Project Overview



Answers- Customers' Questions



Q1

Expected realized returns by different loan grades

$$\frac{p-f}{f} \cdot \frac{12}{m}$$

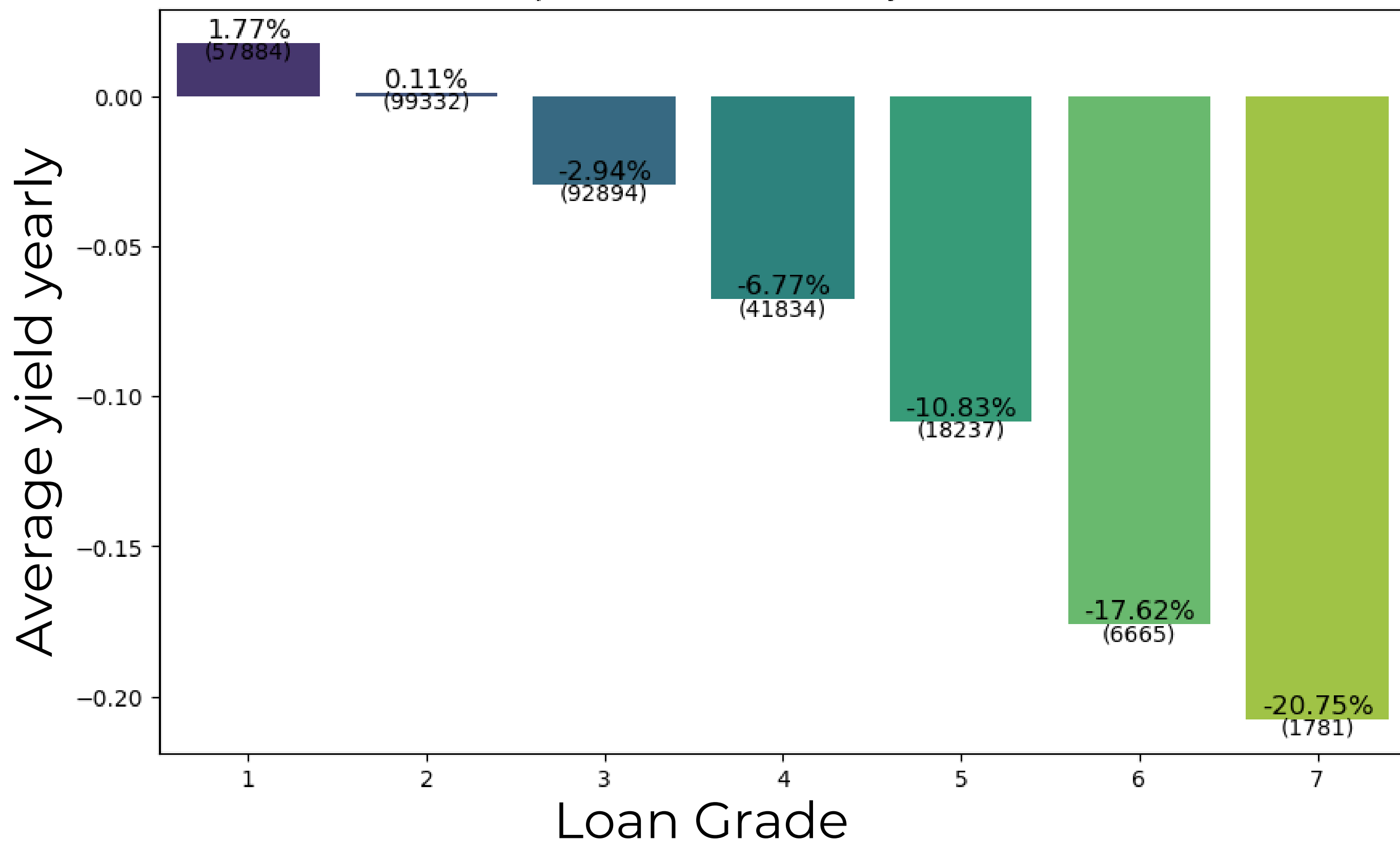
- Cash flow data is missing
 - **p**: full amount recovered from the loan
 - **f**: full amount invested in a loan
 - **m**: the actual duration of the loan

Q1

Expected realized return distribution

GreatYields
Walter's always right

By grades



Potential Pitfalls

- Loan Grade Transition -> accuracy of return distributions
- Consider Weighted expected returns
- Changing economic conditions -> loan performance
- historical returns -> less indicative of future returns

Q5

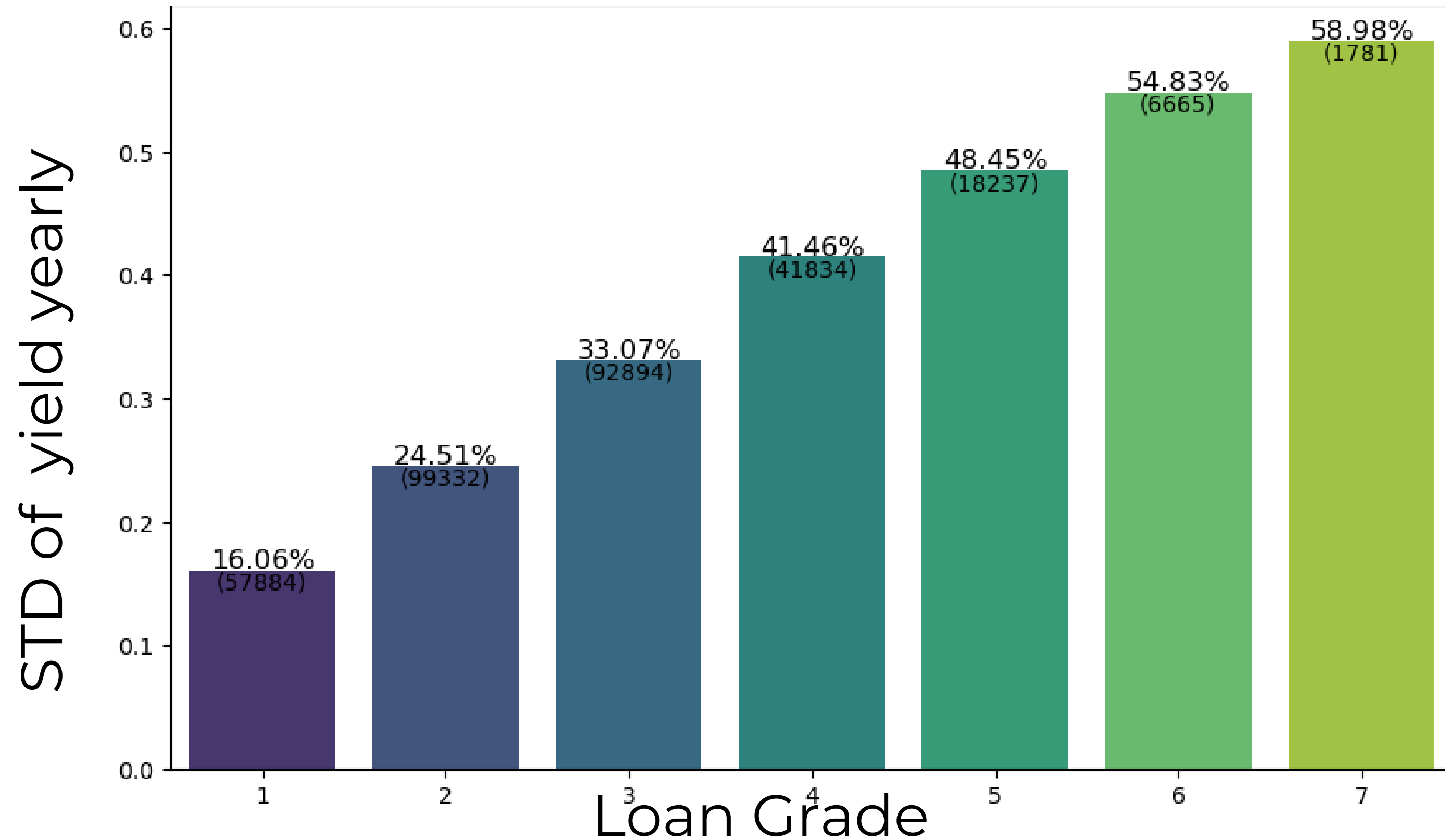
Risk Level by Volatility.

- Standard Deviation of loan grades
- Weighted standard deviation Of loan grades
reflect investment size

Q5

Standard Deviation distribution

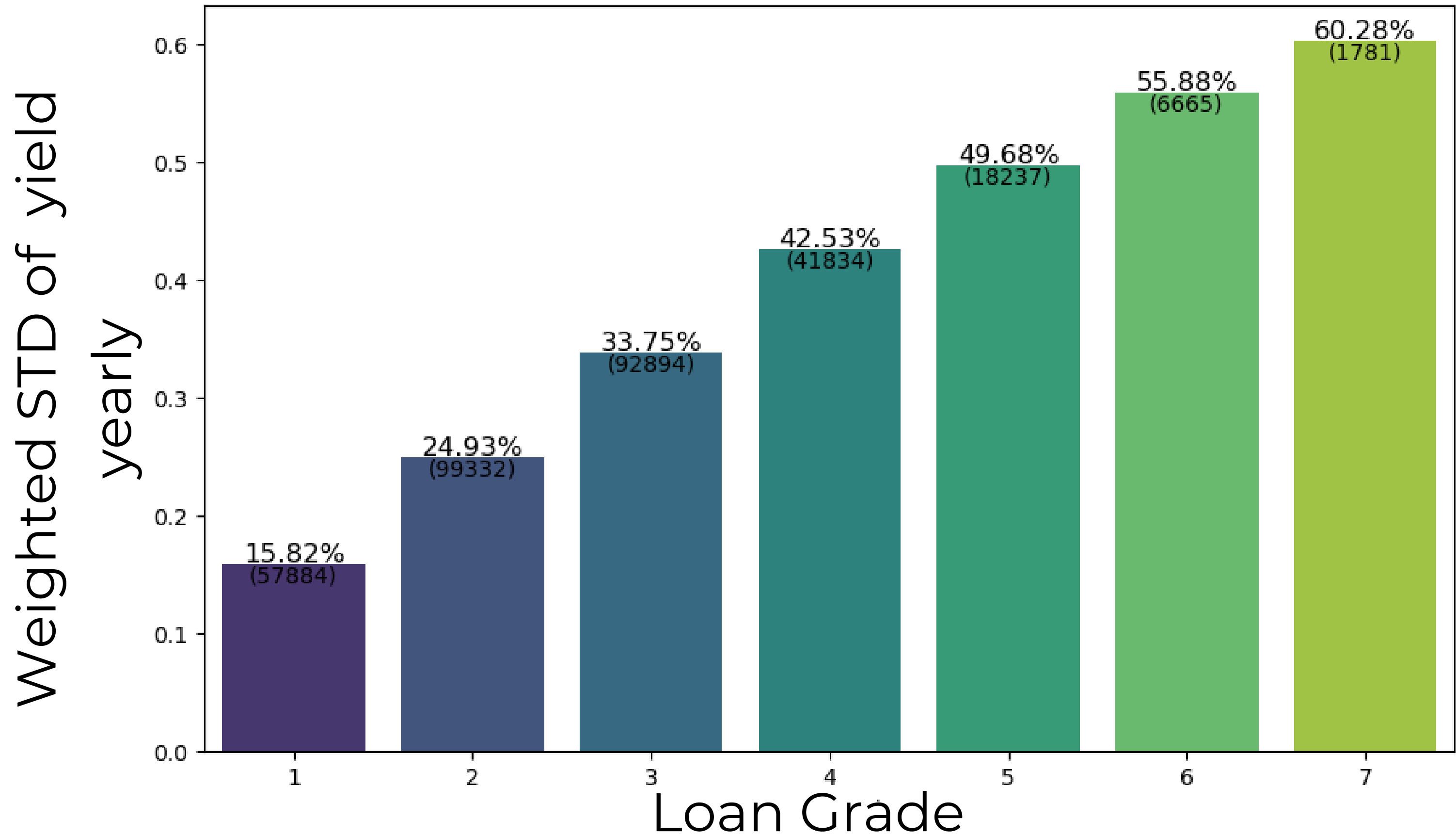
By grades



Q5

Weighted Standard Deviation distribution

By grades



Investment Amount	Predicted Return (%)	Expected Return (%)	Number of Loans	SD of Expected Return (%)
\$100,000,000.00	10.35%	10.60%	7826	0.107%
\$200,000,000.00	8.76%	8.53%	15902	0.102%
\$300,000,000.00	7.82%	7.54%	23437	0.096%
\$400,000,000.00	7.10%	6.86%	31055	0.094%
\$500,000,000.00	6.52%	6.34%	37985	0.090%
\$600,000,000.00	6.07%	5.92%	44600	0.088%
\$700,000,000.00	5.68%	5.60%	51151	0.085%
\$800,000,000.00	5.32%	5.29%	57473	0.083%
\$832,678,750.00	5.20%	5.19%	59378	0.083%

Potential Pitfalls

- Inaccurate loan data -> skew risk calculations
- Assumptions in weighting -> distort overall risk measure
- Risk concentration -> inaccurate risk assessments

Q4

Average Returns

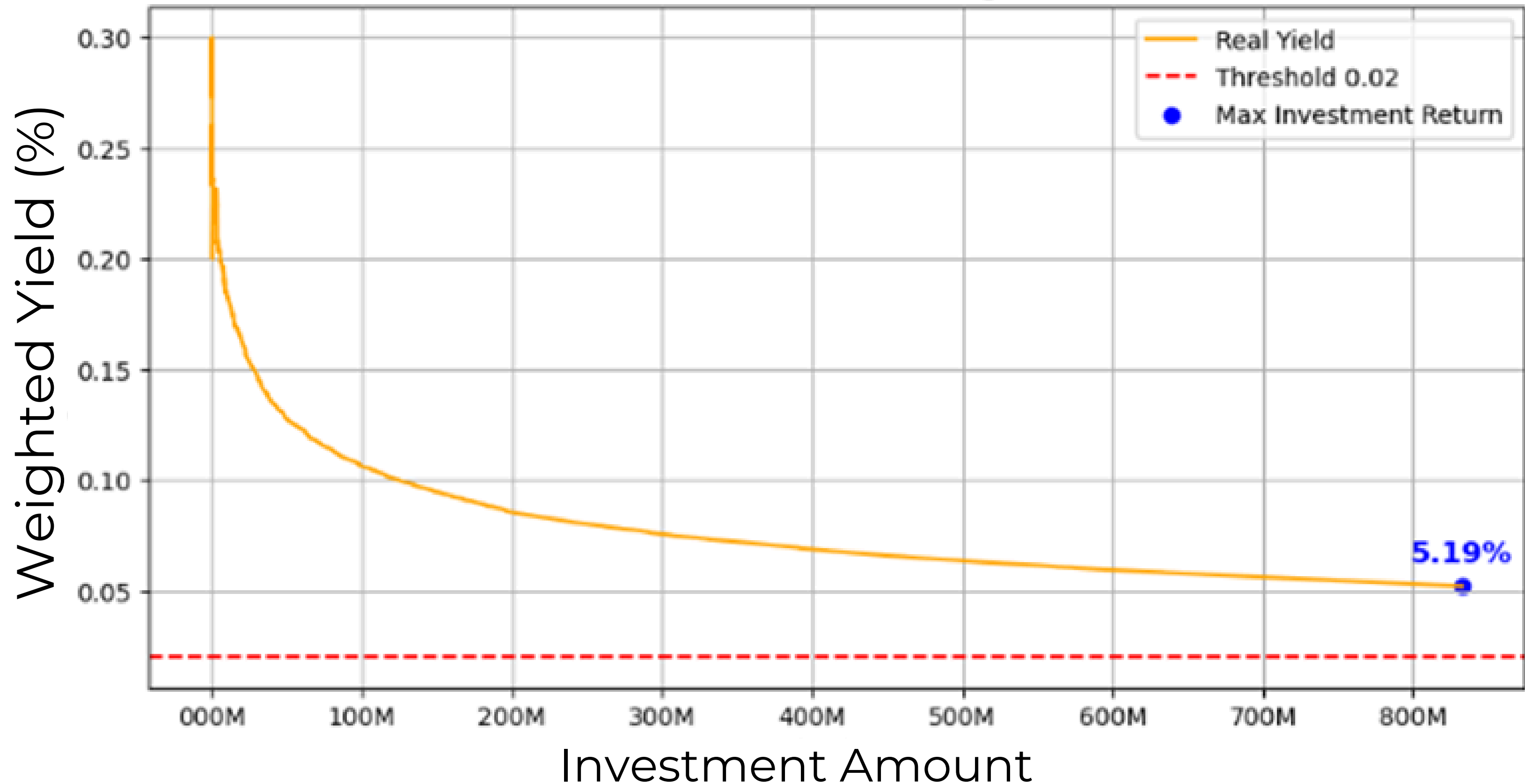
Investing in PeerLanding loans

- Weighted annual returns
- Importance of investment size
- Optimal Investment Choices

Q4

Average Returns

Investing in PeerLanding loans



Q4

Average Returns
Investing in PeerLanding loans

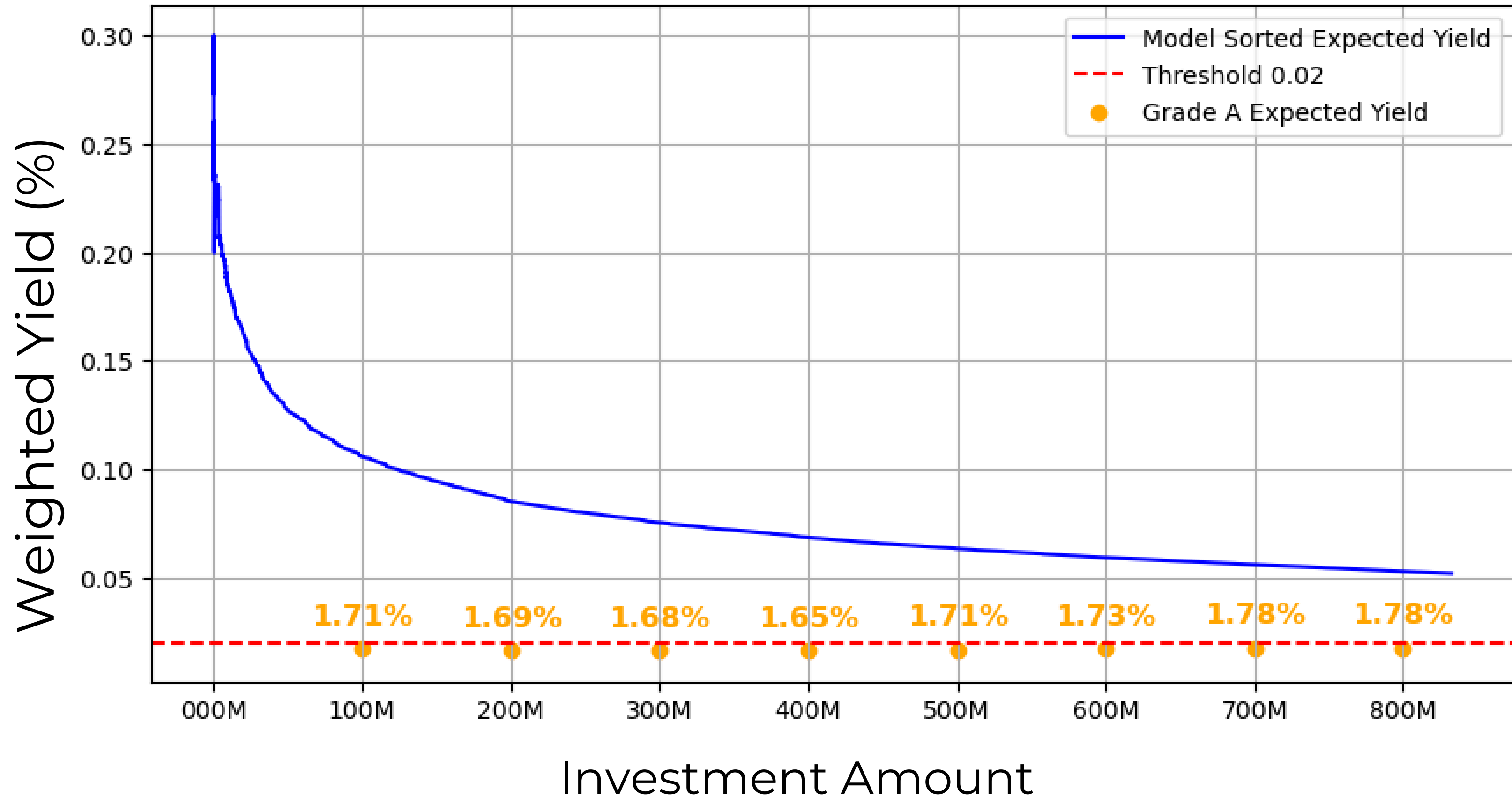
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Q3 Expected Performance VS Grade-A Baseline

- loans prioritization vs random
- Weighted annual returns
- Outperforms grade-based model
- lowering the risk

Q3

Expected Performance VS Grade-A Baseline



Q3

Expected Performance VS. Baseline

Investment Amount	Model Expected Return (%)	Model SD (%)	Grade A Expected Return (%)	Grade A SD (%)
\$100,000,000.00	10.60%	0.107%	1.68%	0.163%
\$200,000,000.00	8.53%	0.102%	1.78%	0.158%
\$300,000,000.00	7.54%	0.096%	1.81%	0.157%
\$400,000,000.00	6.86%	0.094%	1.82%	0.157%
\$500,000,000.00	6.34%	0.090%	1.76%	0.159%
\$600,000,000.00	5.92%	0.088%	1.72%	0.160%
\$700,000,000.00	5.68%	0.085%	1.74%	0.161%
\$800,000,000.00	5.29%	0.083%	1.77%	0.161%
\$832,678,750.00	5.19%	0.083%	1.79%	0.161%

Q2 **Informative for investment selection?**

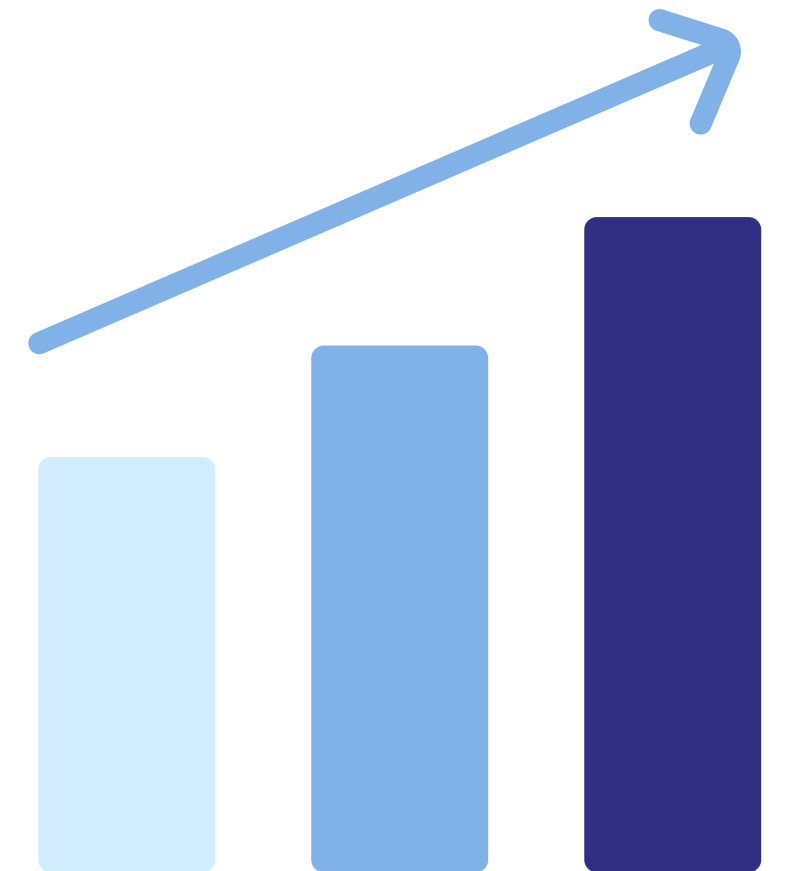
- Outperforms grade-based model
- Surpasses 2% benchmark
- Enhanced investment portfolio returns
- Data-driven loan selection advantage

Potential Pitfalls

- Data sourced in 2019
- Assumptions and model limitations
- Prone to overfitting with the data

Further Recommendations:

- Diversification of investments
- Continuous monitoring and re-evaluation-
changing market
- Leveraging advanced analytics



Thank you :)



Group B