Default-Prediction Model

Model: Logistic Regression (Classification)

Output

- Default/Not Default

Input Variables

- Financial Profile
  - Income
  - Income-to-Debt Ratio
  - Credit Score
- Downpayment
- Plan Cost
- Plan Duration

Addressing Power Pulse Gym's Churn Problem Through Data Science

Aashai Avadhani, Adela Cho, Mike Meissner, Jaelynn Kim, Roselyn Rozario

Tactical Titans Consulting Company

PowerPulse Retention Problem

Aashai Avadhani
Client Liaison

PowerPulse Churn Problem

- PowerPulse is losing around **40 customers quarterly** which translates to a **$33,720 quarterly loss in revenue**.

- **Retention** is a key priority for subscription based business models and preventing churn **increases brand loyalty.**

- Tactical Titans can **collaborate** with PowerPulse product marketing managers to create a **data based decision model** to prevent churn.

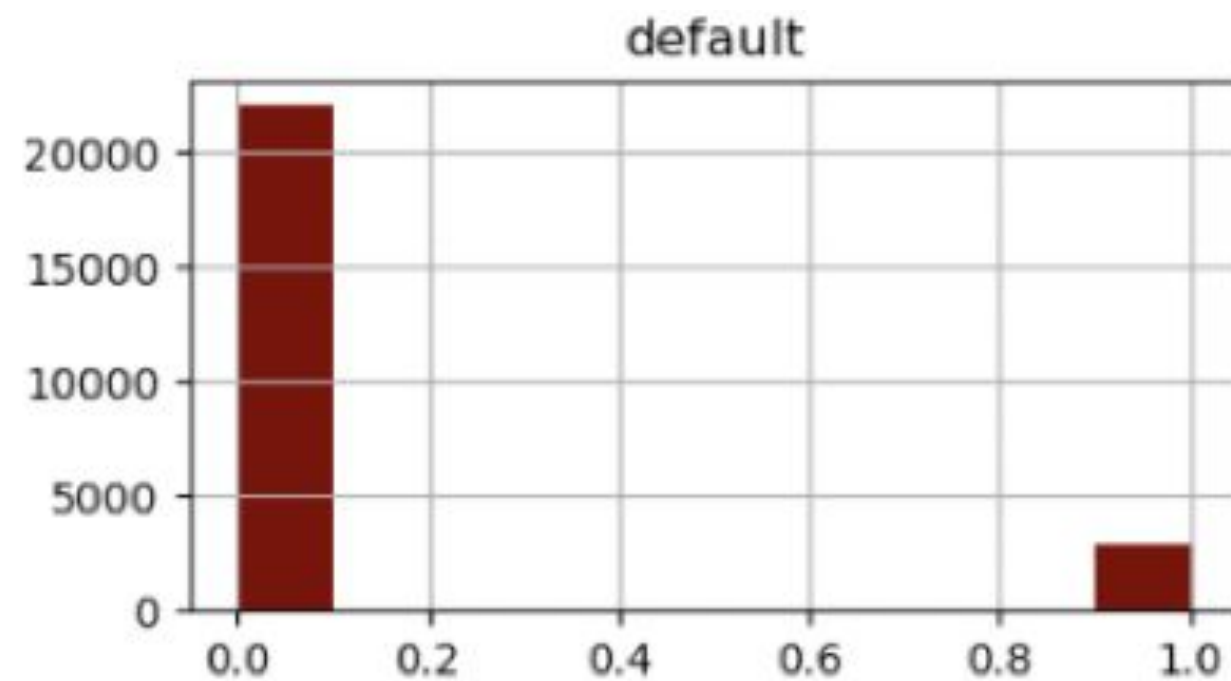# Methodology for the Churn Problem

Roselyn Rozario
Data Scientist

How Does the Logistic Regression (Classification) Model Help Address the Churn Problem?
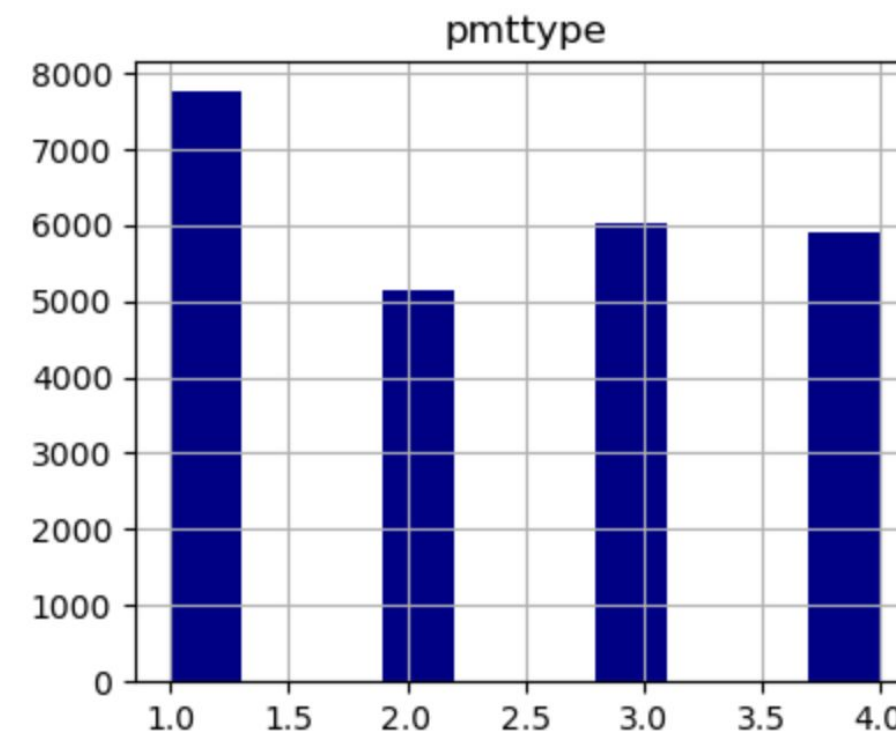
- **Logistic Regression (Classification) Model Characteristics:**

  o Observes outcomes that are categorical.

  o Outcome is predicted based on inputs, or other variables.

Outcome (Binary Result)　　　　　　　　　　**Examples of Input Variables**
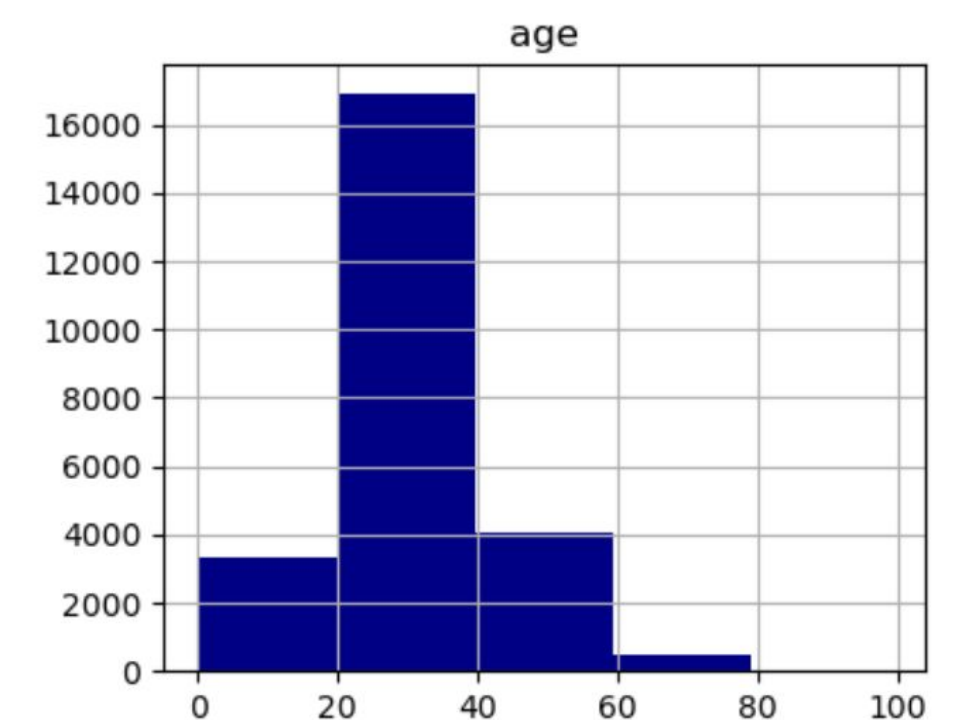

Churn (1) or No Churn (0)　　**Categorical (Qualitative)**　　**Numerical (Quantitative)**

Preliminary Findings that Support the Logistic Regression Model

Mike Meissner
Data Scientist

Predicting Churn Based on Input Variables
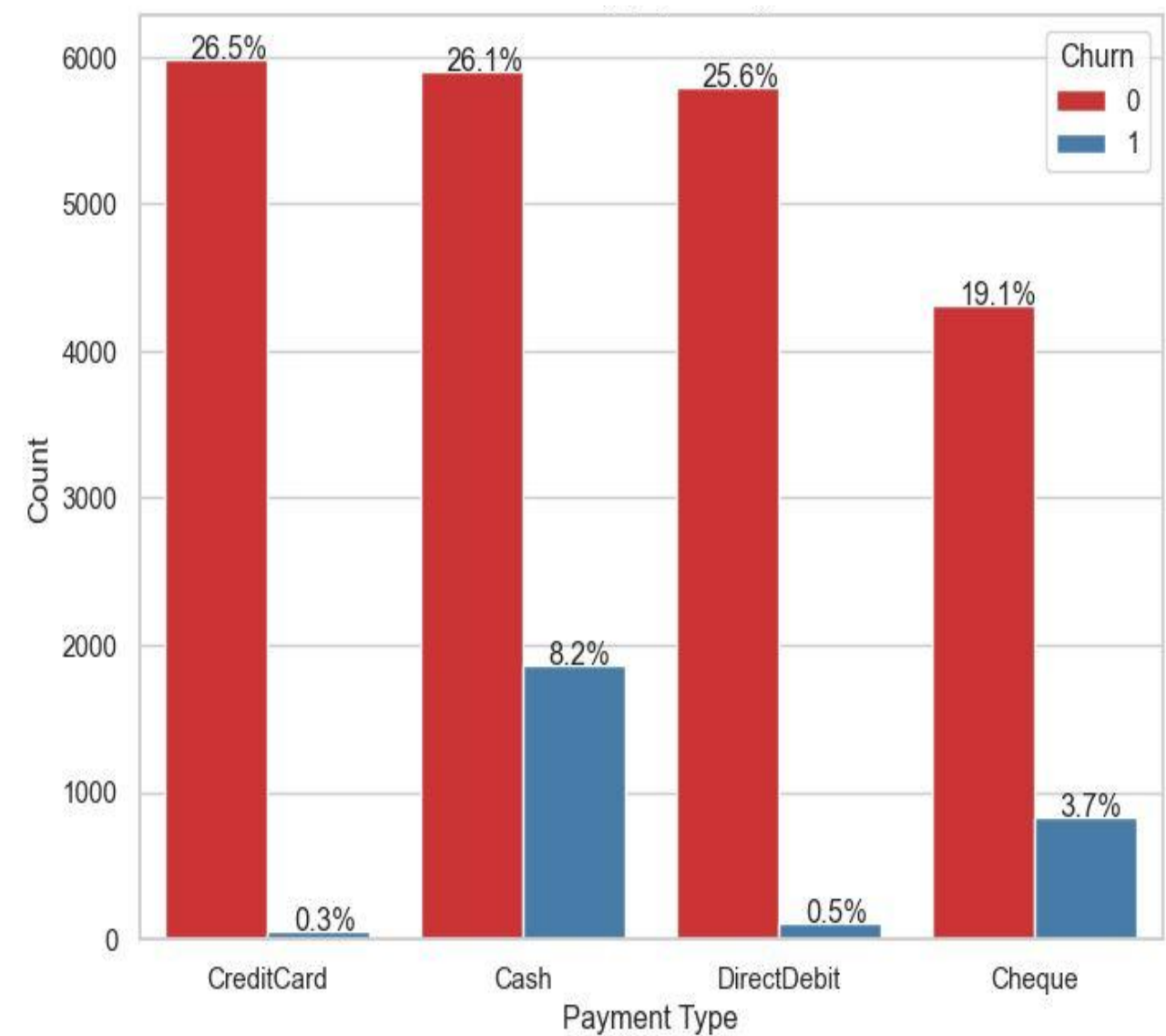
Churn by Payment Type
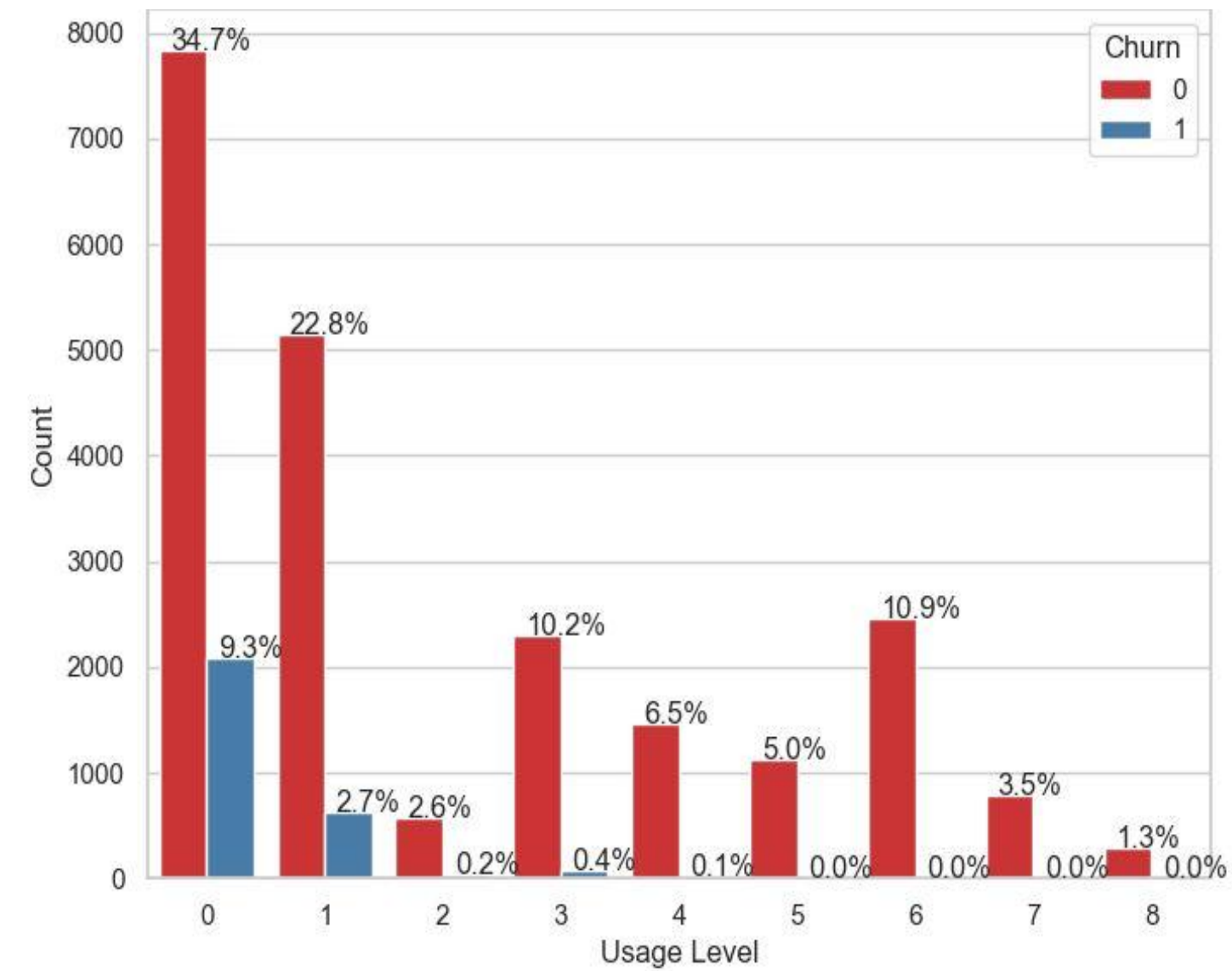
Churn by Usage

Data-Driven Recommendations and Approach

Adela Cho

Project Manager

Recommendations

- ***Key Focus***: Member Engagement (Equipment, Cleanliness, Personal Training)

- Increase quality and diversify options for Power Pulse to attract and retain clients.

- Collaborate with relevant departments (Fitness Trainers, Member Engagement, Maintenance, etc) to retrieve more data about current state (programs, cleanliness, etc) in relation to previous years' performance.
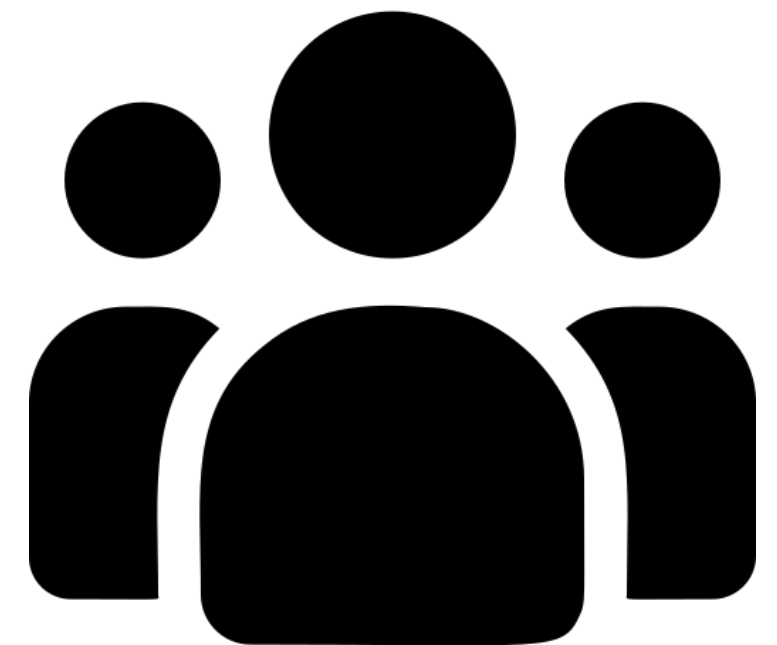
Analytical Roadmap: Milestones and Deadlines

Jaelynn Kim
Project Manager

Analysis Timeline

01 **Data Collection and Cleaning**
(2 weeks)

- Clarify data collection process and data sources
- Ensure data privacy and security measures
- Conduct data cleaning and preprocessing

02 **Data Analysis and Modeling**
(3 weeks)

- Apply logistic regression for classification modeling
- Train model using historical data
- Calibrate and fine-tune model for accuracy

03 **Key Questions and Data Gathering**
(4 weeks)

- Collaborate with Power Pulse departments to gather supplemental data

04 **Data Visualization and Preliminary Findings**
(4 weeks)
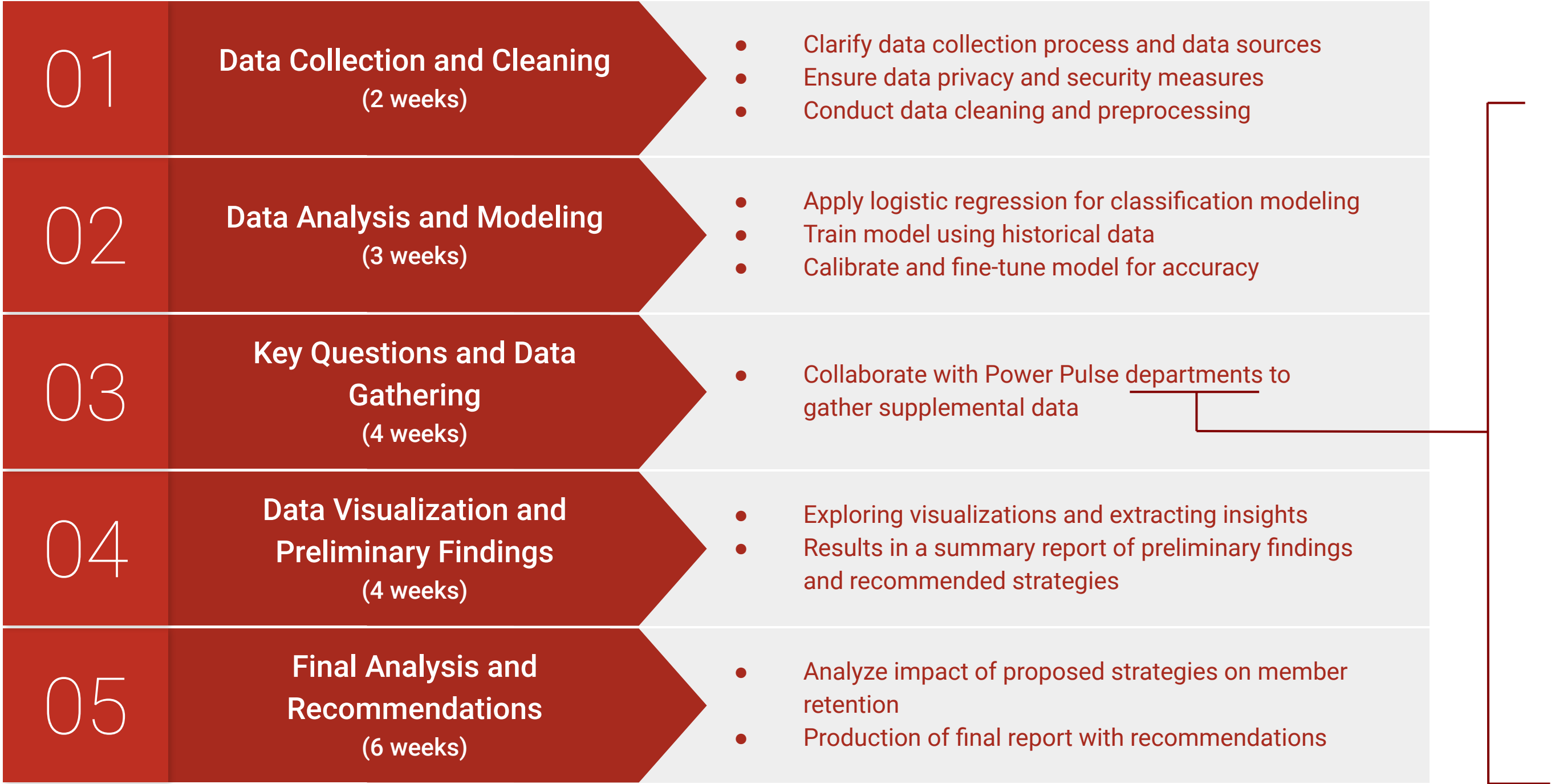
- Exploring visualizations and extracting insights
- Results in a summary report of preliminary findings and recommended strategies

05 **Final Analysis and Recommendations**
(6 weeks)

- Analyze impact of proposed strategies on member retention
- Production of final report with recommendations

- **Facility Maintenance:**

  Data on equipment availability and cleanliness.

- **Pricing and Plans:**

  Membership options, pricing, onboarding

- **Front Desk Staff:**

  Data on member visit times

- **Fitness Trainers:**

  Tools and strategies for member progress tracking

- **Fitness instructors & Class Coordinators:**

  Group activities and classes

- **Communications Team:**

  Data on communication and engagement strategies

- **Marketing and Sales:**

  Competition dynamics and past marketing strategies

Project Roadmap

	M1				M2				M3				M4			
	W1	W2	W3	W4	W1	W2	W3	W4	W1	W2	W3	W4	W1	W2	W3	W4

Data Collection and Cleaning (2 weeks)

Data Analysis and Initial Insights (3 weeks)

Data Gathering and Interdepartmental Meetings (4 weeks)

Data Visualization and Preliminary Findings (4 weeks)

Strategy Formulation and Recommendations (3 weeks)

POWER PULSE
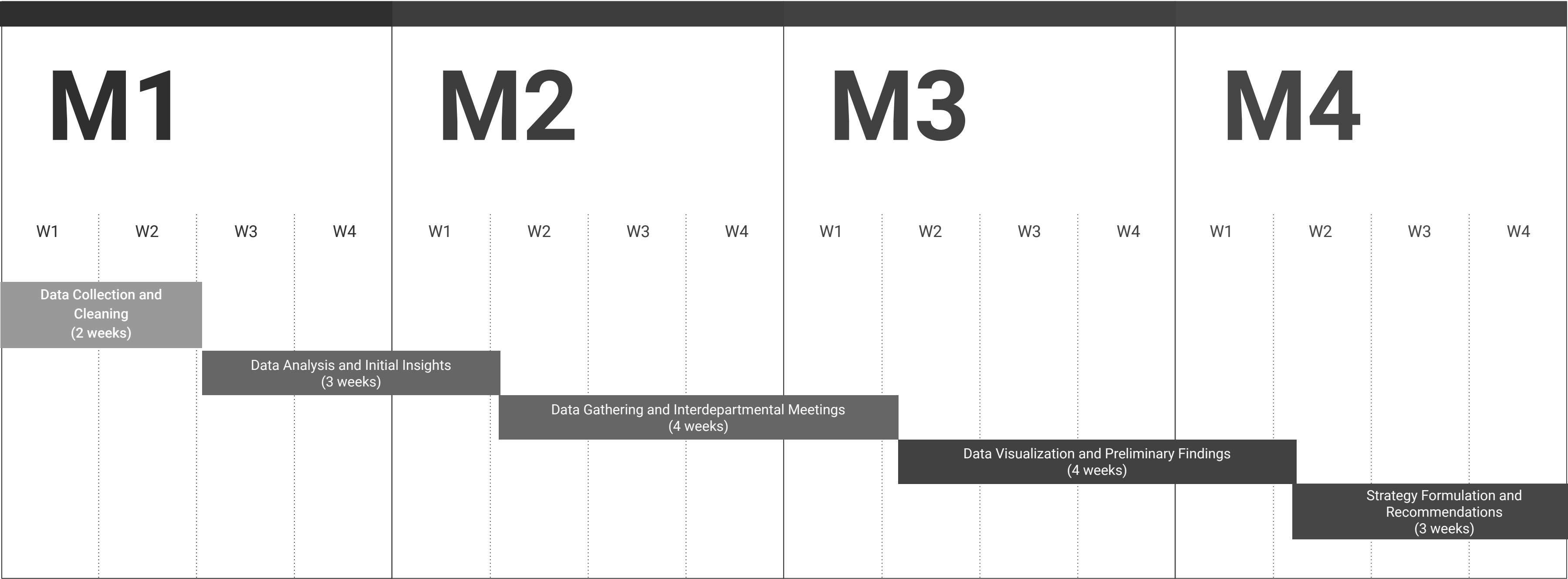
M5				M6				M7				M8			
W1	W2	W3	W4	W1	W2	W3	W4	W1	W2	W3	W4	W1	W2	W3	W4

Monitoring and Evaluation (Ongoing)

Implementation Planning (2 weeks)

Presentation and Feedback (3 weeks)

Drafting and Finalizing Strategy Report (4 weeks)

Cost/Benefit Breakdown of Investment in Analysis

	Expected
Financial Assumptions	
Revenue Growth Assumption	5.00%

	Expected
Operation Assumptions	
Power Pulse Operational Cost	-$120,000.00

Analytic Costs (19 Weeks)	

Databrick Costs
  Ex. DBUs Per Node Per Hour = 1 DBU
  $400/Week
	-$7,600.00

Azure VM Cost $200/Week	-$3,800.00

Salary
  Data Scientist: $55/Hour
  Client Liaison: $40/Hour
  Project Manager: $40/Hour
  40 Hours/Week"
	-$60,950.00

Analytic Benefits	
Customer Growth from Analytics	3.00%
Customer Retention Increase	40.00%

Net Present Value (NPV)	**$209,245.00**

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THANK YOU

Questions?