



Berner Fachhochschule  
Haute école spécialisée bernoise  
Bern University of Applied Sciences



# Coin-selection

Bohdan Potuzhnyi | Vlada Svirsh | Emmanuel Benoist

# Agenda

- ▶ 1. Problem
- ▶ 2. Team
- ▶ 3. Solution
- ▶ 4. SCRUM

# Problem overview

## Objective:

Optimize Transaction Efficiency in the GNU Taler System

## Approach:

1. Simulation Development
2. Capture Simulation
3. Curve Fitting for Predictive Analysis

# Problem

## Technologies

1. No restrictions, but .c is preferred
2. Algorithmic description of the selected strategies

## Challenges

1. Programming Efficiency
2. Analytical Processing
3. Mathematical Modeling

# Stakeholders



**Emmanuel Benoist**



**Christian Grothoff**

# Team

## Bohdan Potuzhnyi

### Roles:

- ▶ Developer
- ▶ System Architect
- ▶ Data Analyst

## Vlada Svirsh

### Roles:

- ▶ Scrum Master
- ▶ Developer
- ▶ System Architect
- ▶ Data Analyst

## Prof. Dr. Emmanuel Benoist

### Roles:

- ▶ Product Owner
- ▶ Dozent
- ▶ Mentor

# Solution

## Simulation

- ▶ **4** User Types implemented (*16 more planned + usage of credit cards datasets*)



Business owner



Student



Retired



Family



# Solution

## Simulation

- ▶ 3 years of wallet usage for each user

2 000 000

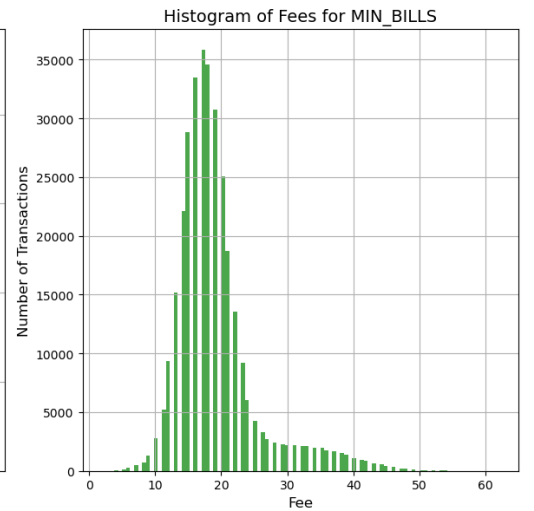
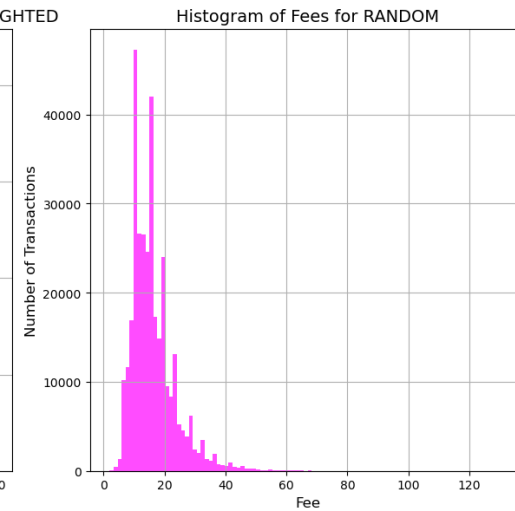
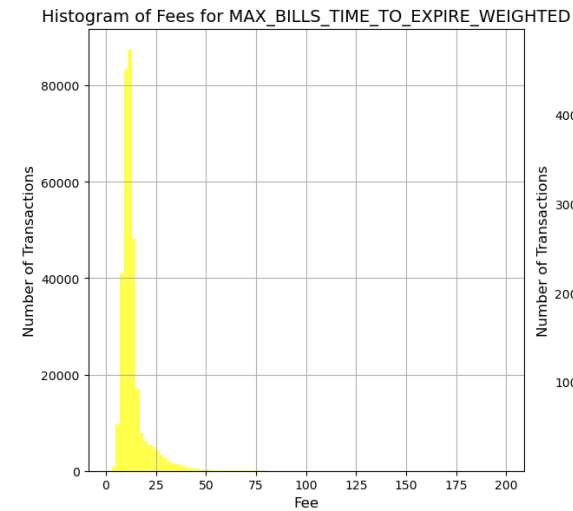
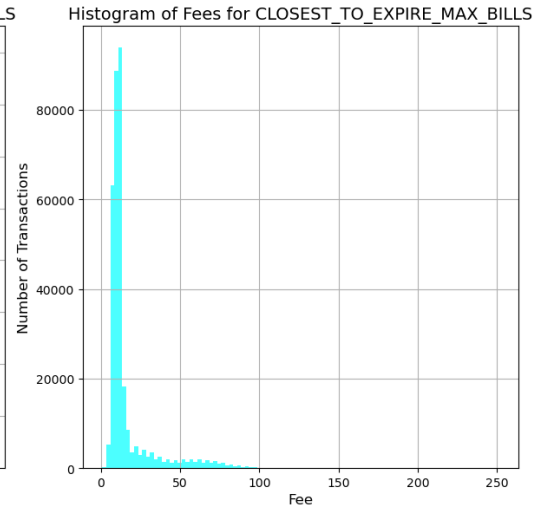
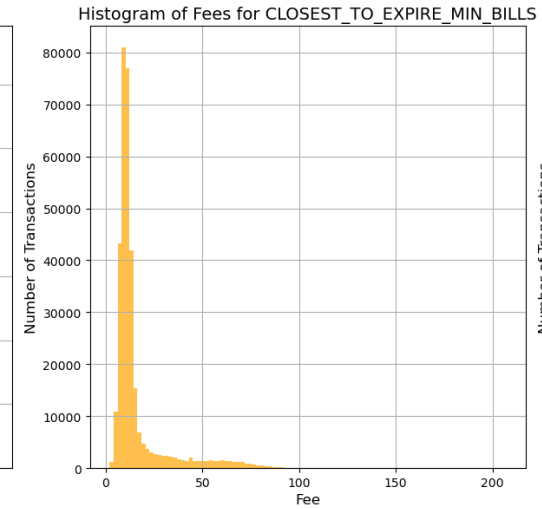
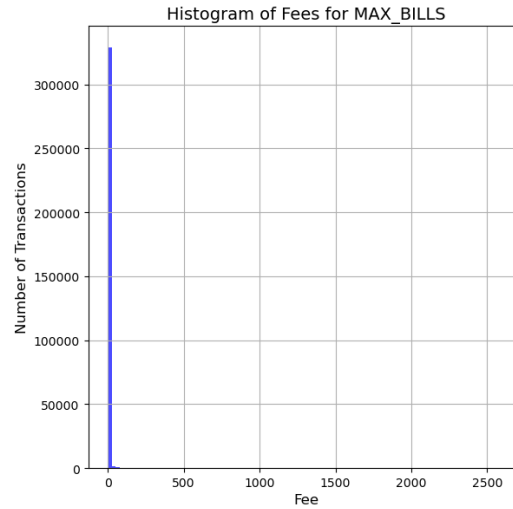
Transactions in each simulation run



# Solution

## Simulation

- **6 Strategies implemented**  
*(4 more planned)*



# Strategies Analytics

## *MAX\_BILLS:*

Points Above: 28868 (8.67%)  
Points Below: 304254 (91.33%)  
Total Points: 333122

## *CLOSEST\_TO\_EXPIRE\_MIN\_BILLS:*

Points Above: 1543 (0.46%)  
Points Below: 331579 (99.54%)  
Total Points: 333122

## *CLOSEST\_TO\_EXPIRE\_MAX\_BILLS:*

Points Above: 1980 (0.59%)  
Points Below: 331142 (99.41%)  
Total Points: 333122

## *MAX\_BILLS\_TIME\_TO\_EXPIRE\_WEIGHTED:*

Points Above: 1352 (0.41%)  
Points Below: 331770 (99.59%)  
Total Points: 333122

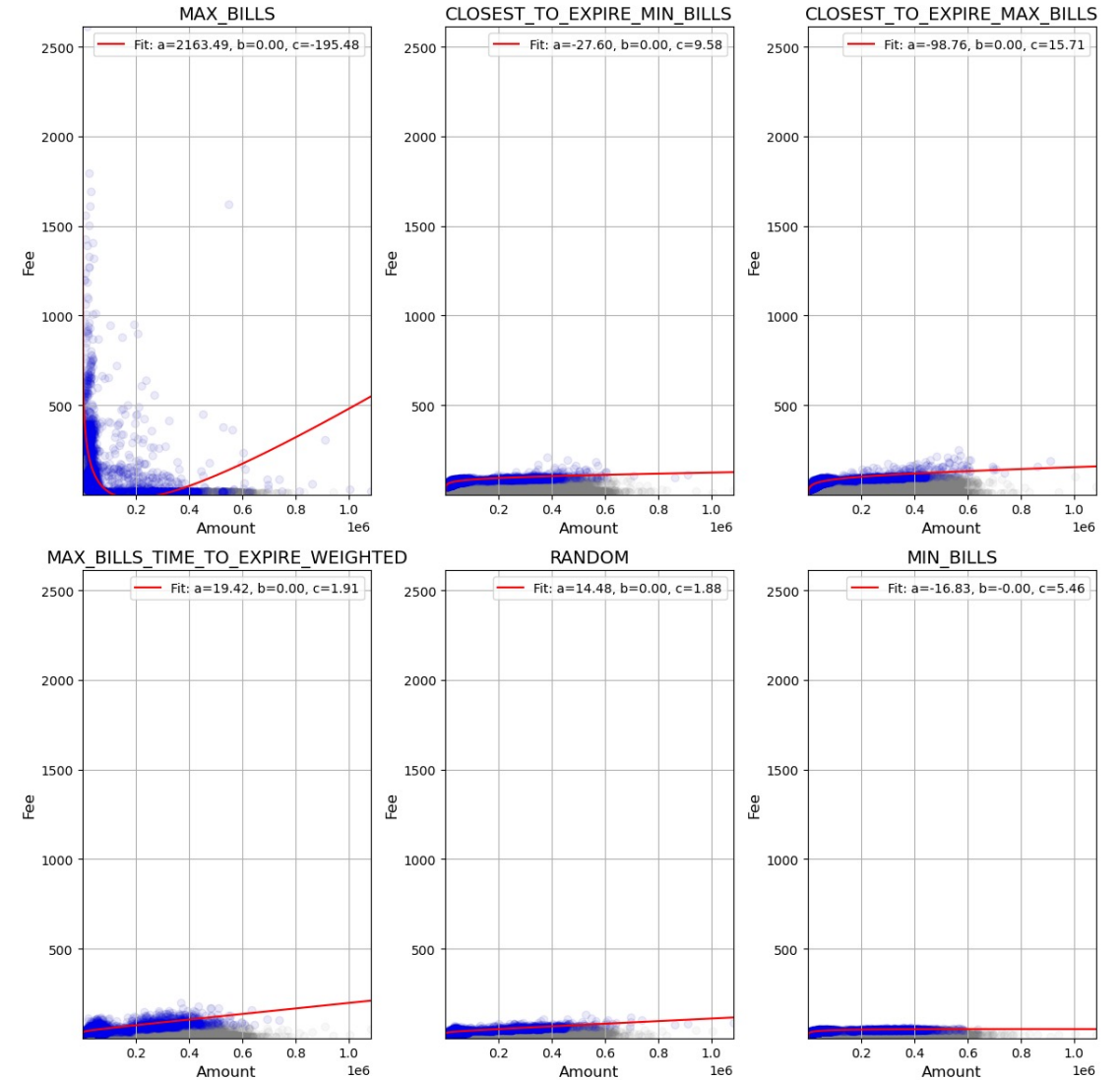
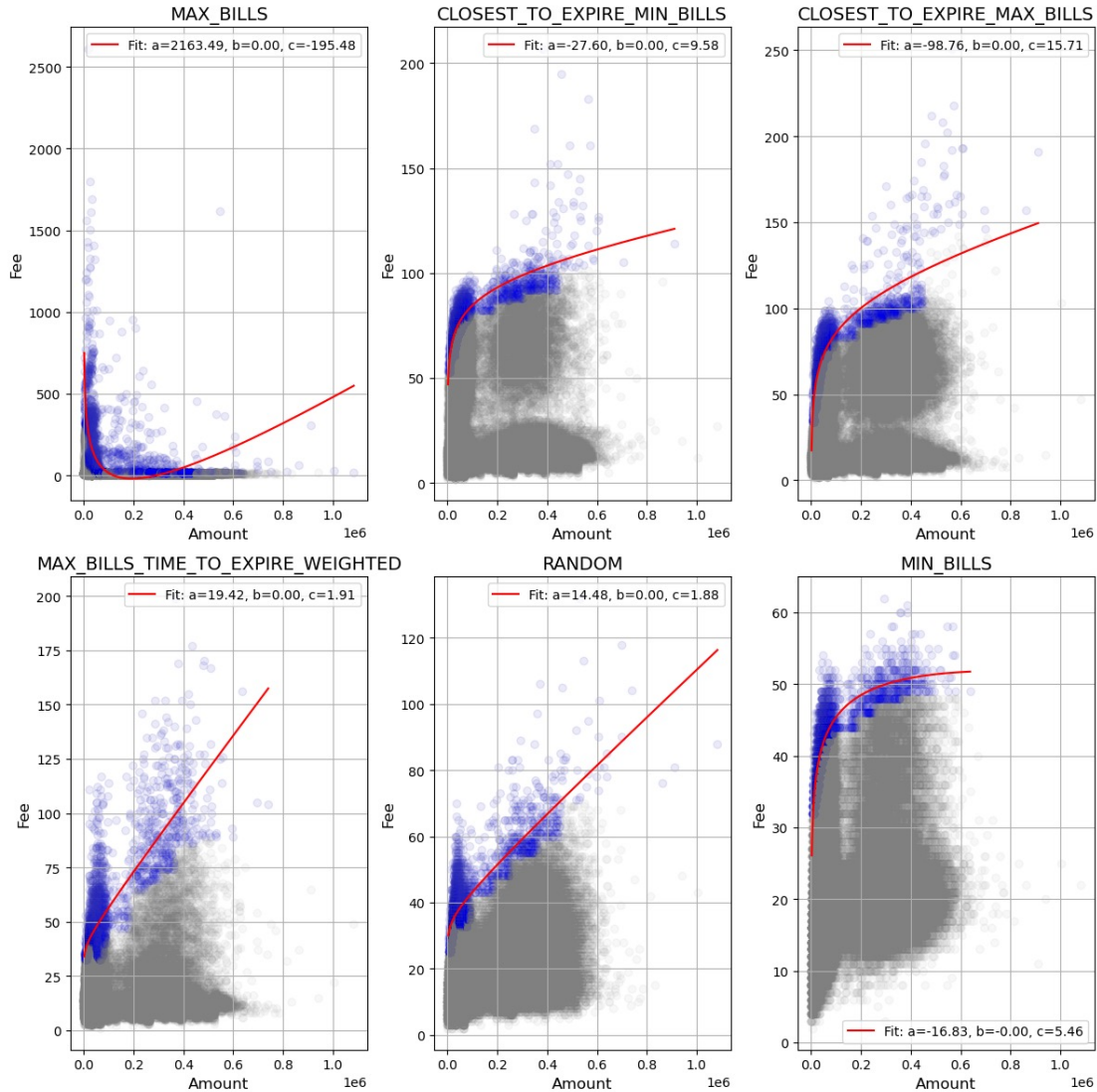
## *RANDOM:*

Points Above: 1517 (0.46%)  
Points Below: 331605 (99.54%)  
Total Points: 333122

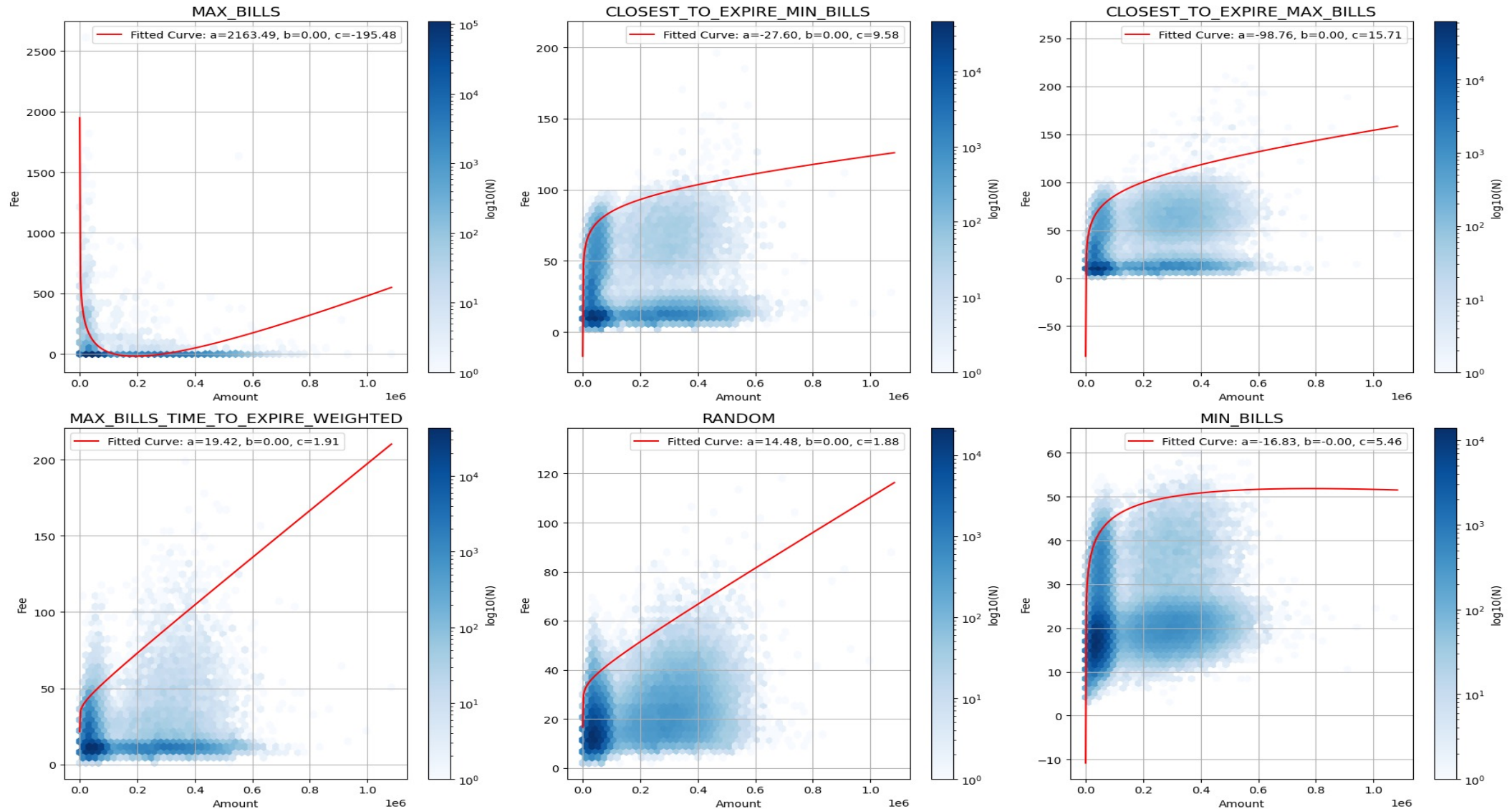
## *MIN\_BILLS:*

Points Above: 1643 (0.49%)  
Points Below: 331479 (99.51%)  
Total Points: 333122

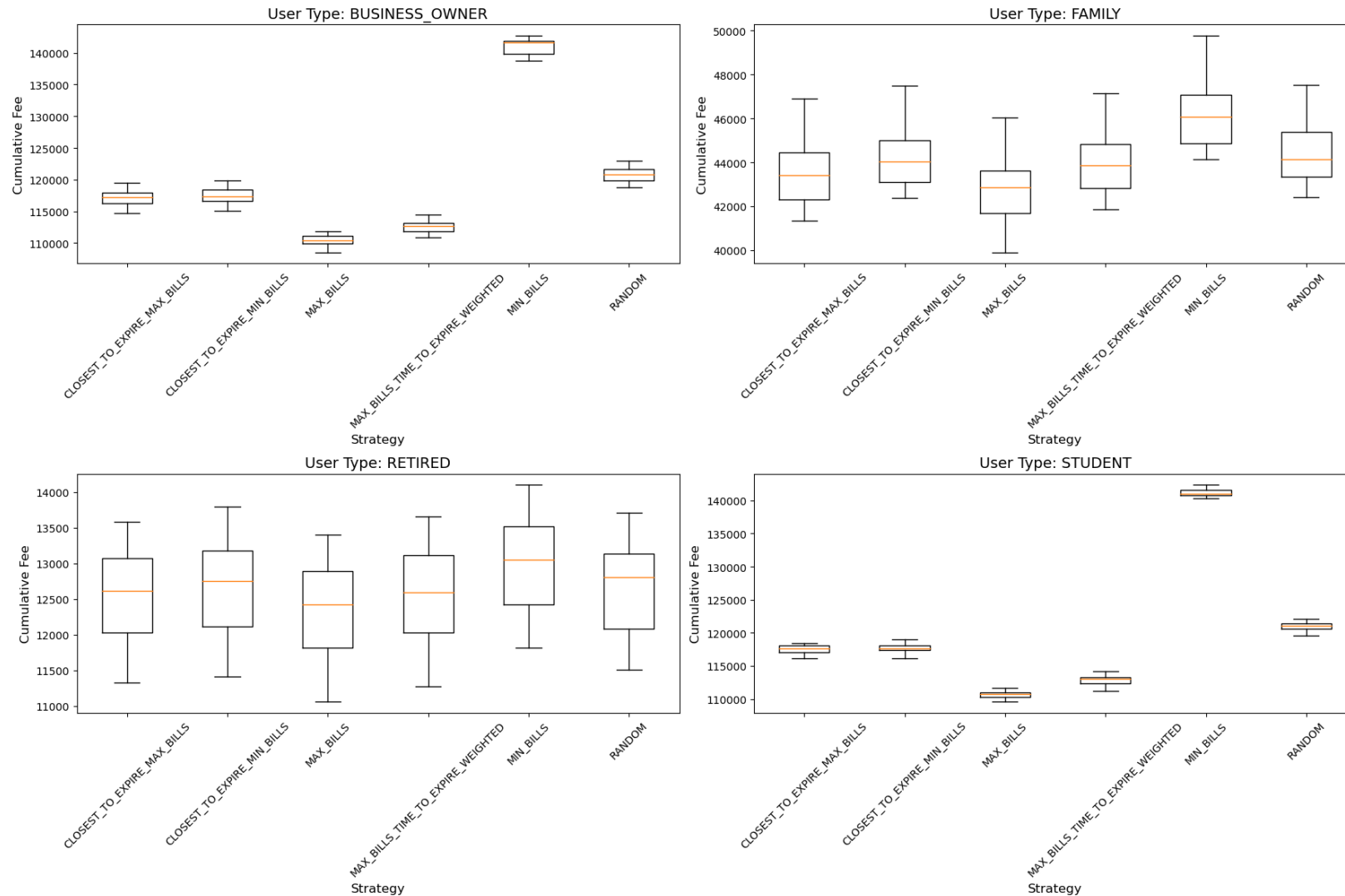
# Strategies Analytics



# Strategies Analytics



# Strategies Analytics



# Scrum

## Project goal:

List of possible strategies with clear fee amount prediction through Stephan curve.

### Sprint 1: Create skeleton

Feb 25, 2024–Mar 4, 2024

Closed

project1-coin-selection-gnu-taler / coin-selection-c

1 Issue

100% complete



Reopen Milestone

### Sprint 2: Adaptation for TALER system

Mar 4, 2024–Mar 11, 2024

Closed

project1-coin-selection-gnu-taler / coin-selection-c

2 Issues

100% complete



Reopen Milestone

### Sprint 3: User Generation & Strategies Implementation

Mar 11, 2024–Mar 25, 2024

Closed

project1-coin-selection-gnu-taler / coin-selection-c

9 Issues

100% complete



Reopen Milestone

### Sprint 4: Implementation of new users and strategies

Mar 25, 2024–Apr 3, 2024

Closed

project1-coin-selection-gnu-taler / coin-selection-c

4 Issues

100% complete



Reopen Milestone

### Sprint 5: Refinement & Analytics

Apr 3, 2024–Apr 10, 2024

Closed

project1-coin-selection-gnu-taler / coin-selection-c

2 Issues

100% complete



Reopen Milestone

### Sprint 6: Refinement & Analytics 2

Apr 10, 2024–Apr 17, 2024

Closed

project1-coin-selection-gnu-taler / coin-selection-c

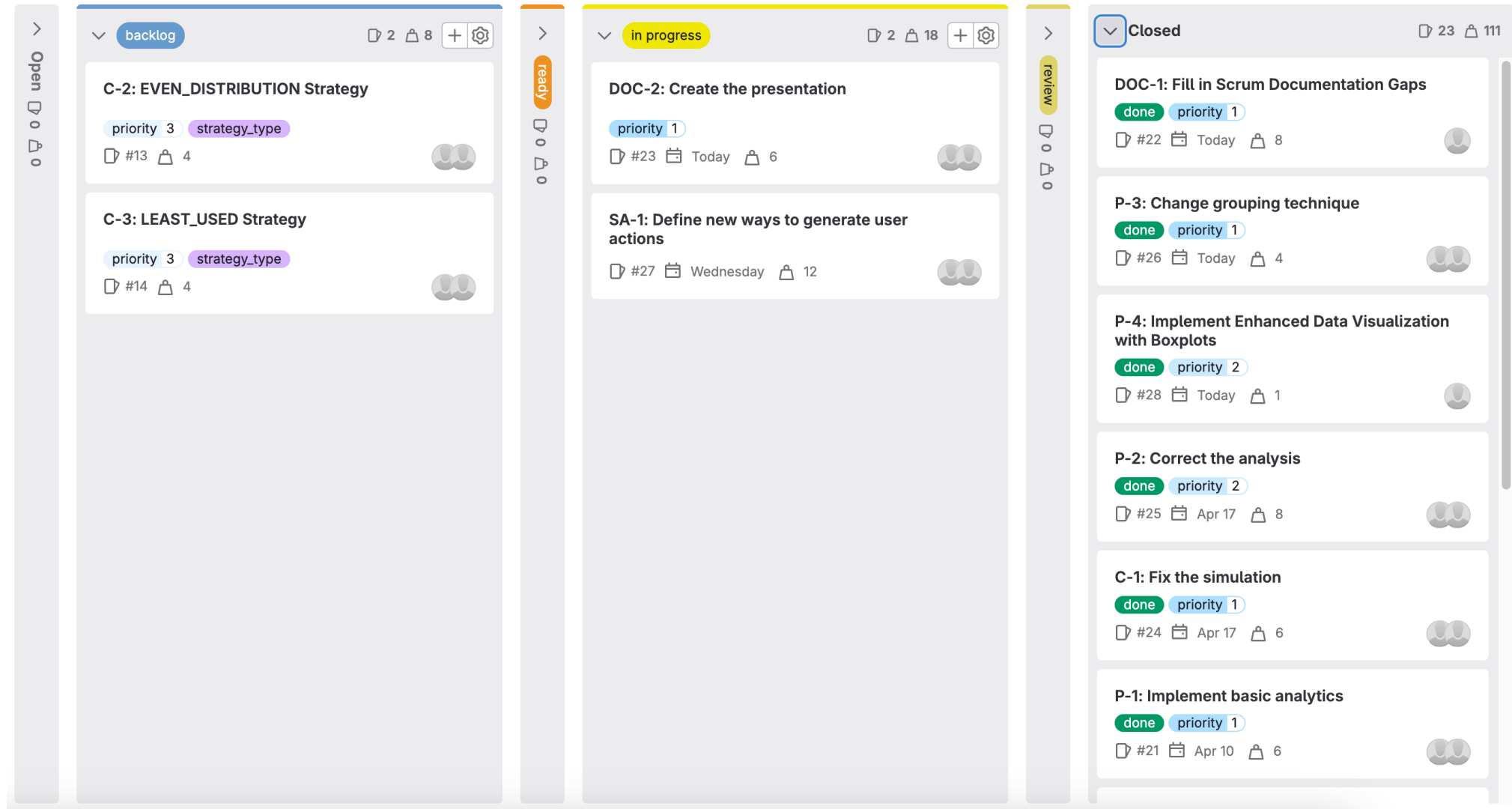
2 Issues

100% complete



Reopen Milestone

# Scrum





# Scrum

Open Milestone Apr 17, 2024–Apr 24, 2024

Close milestone



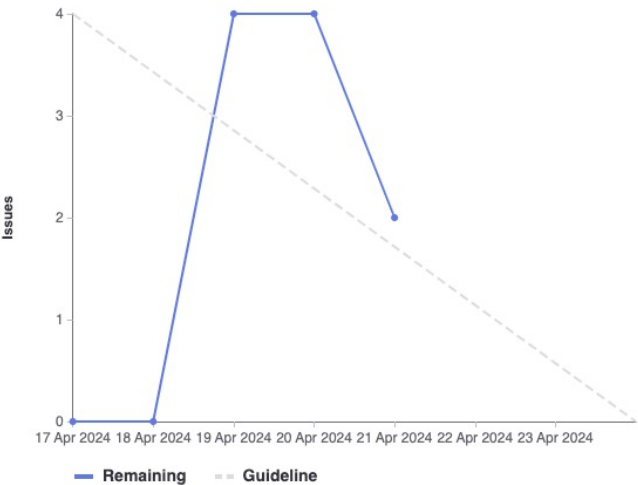
## Sprint 7: Issue Resolution and Presentation Prep

Milestone ID: 2283

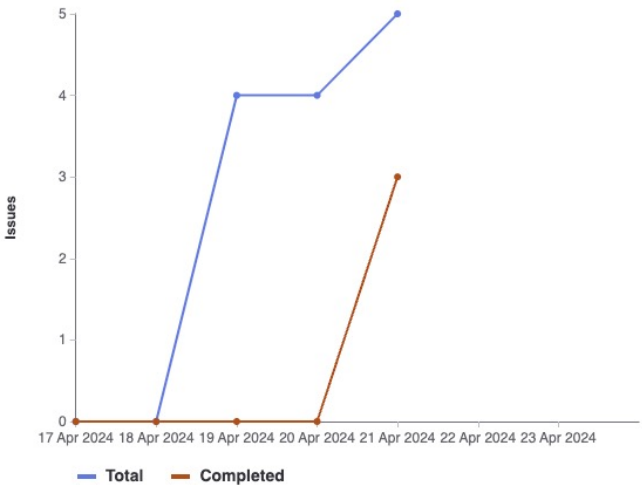
This sprint is supposed to cover some problems discussed in the last meeting with Prof. Grothoff(aka Stakeholder), and prepare the team for the upcoming presentation of the project at the university

Display by Issue count Issue weight

### Burndown chart



### Burnup chart



Issues 5 Participants 2 Labels 4

Unstarted Issues (open and unassigned) 0	Ongoing Issues (open and assigned) 2 18	Completed Issues (closed) 3 13
	SA-1: Define new ways to generate user actions #27 in progress 12	P-4: Implement Enhanced Data Visualization with Boxplots #28 done priority 2 1
	DOC-2: Create the presentation #23 in progress priority 1 6	P-3: Change grouping technique #26 done priority 1 4
		DOC-1: Fill in Scrum Documentation Gaps #22 done priority 1 8

# Scrum

## DOC-2: Create the presentation

[Edit](#)

Open Issue created 2 days ago by Potuzhnyi Bohdan

### User Story

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*As a member of the project team, I need to create a comprehensive presentation that effectively communicates the progress, strategies, and outcomes of our project to stakeholders at the university.*

### Definition of Ready (DoR)

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- ☒ The scope and objective of the presentation are clearly defined.
- ☒ All necessary data and findings from the project that need to be included in the presentation are identified and collected.
- ☒ The target audience for the presentation (e.g., stakeholders, professors, fellow students) is defined.
- ☒ Required tools and software for creating the presentation (e.g., PowerPoint, Google Slides) are available.
- ☒ Deadlines for draft submission and final presentation date are set.

### Definition of Done (DoD)

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- ☐ The presentation is complete and includes all required sections (introduction, methodology, results, conclusion).
- ☐ Slides are visually appealing, with a consistent theme and readable fonts and graphics.
- ☐ The content has been reviewed for accuracy and clarity.
- ☐ Rehearsal of the presentation has been conducted to ensure it fits within the allotted time and flows smoothly.
- ☐ Feedback from the team on the draft presentation has been incorporated.
- ☐ The final version of the presentation has been approved by the project lead.

# Questions?

# Thank you!