

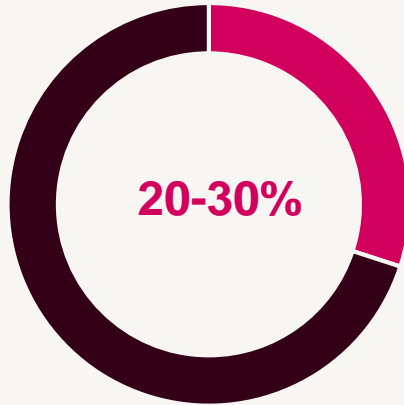
Business Process Conclusion Prediction

Case Study, May 2024

BPM Situation in Banking Industry

Currently, Business Processes' impact on the Banking Sector is characterized by the following inefficiencies...

Revenue Loss



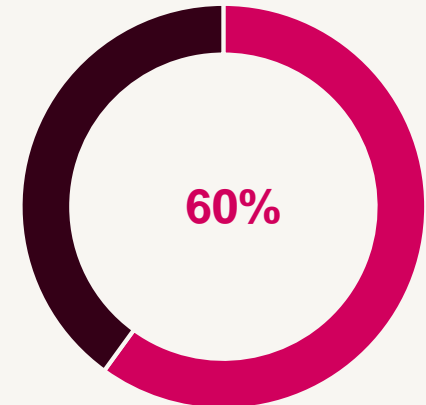
... due to inefficient processes

Time Spent



... weekly on tasks
already been completed

Work Time Lost



... on lack of coordination in
business processes

The left side of the slide features a series of vertical stripes in alternating shades of pink and white, creating a decorative border.

Goals Definition

Business Goals



**Understanding client
needs accurately**



**Reduce financial
expenditure on
miscommunications**



**Reduce internal systems
complexity**



**Sustain rapid creation
of workflows**



**Process outcome
prediction in 2
separate stages**

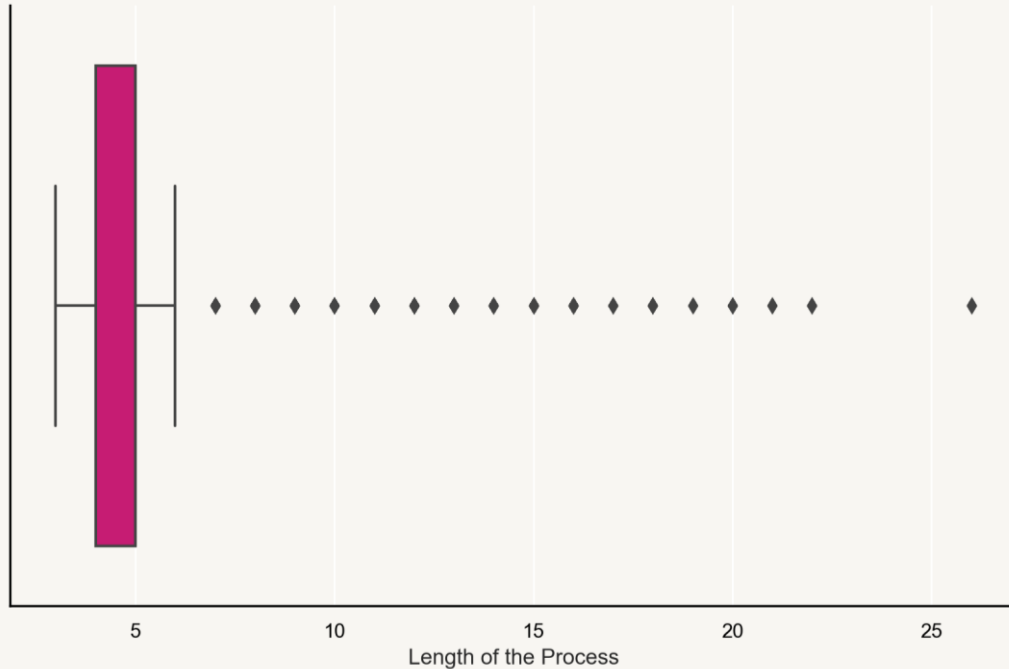


**Understanding of
relevance of given
features**



Initial Insights

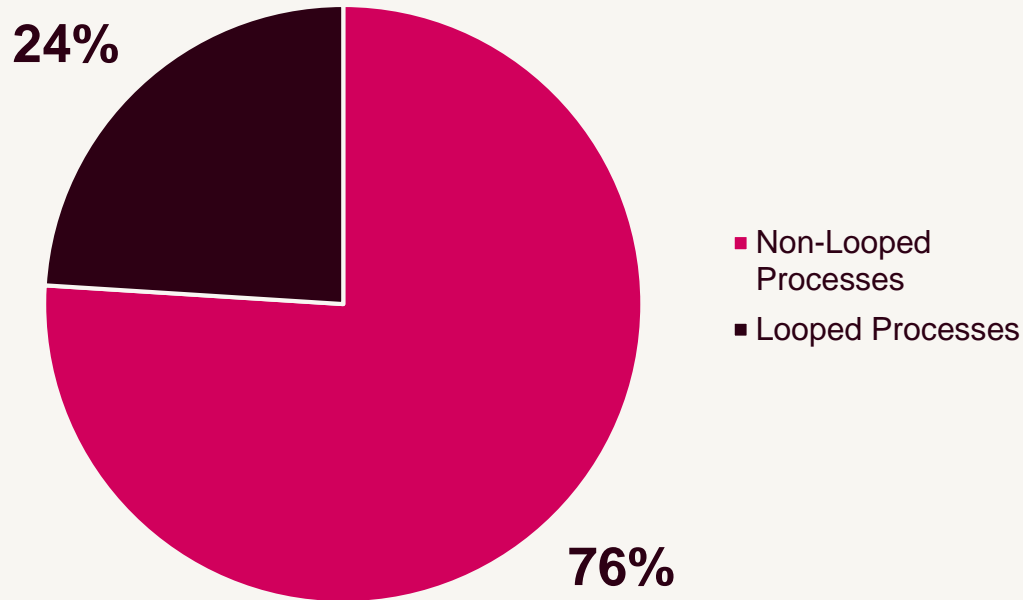
Processes' Length Distribution



Takeaways:

- ❑ **2%** of Processes have >10 Activities;
- ❑ Depiction of importance of early stages of processes.

Proportion of Looped vs. Non-Looped Processes



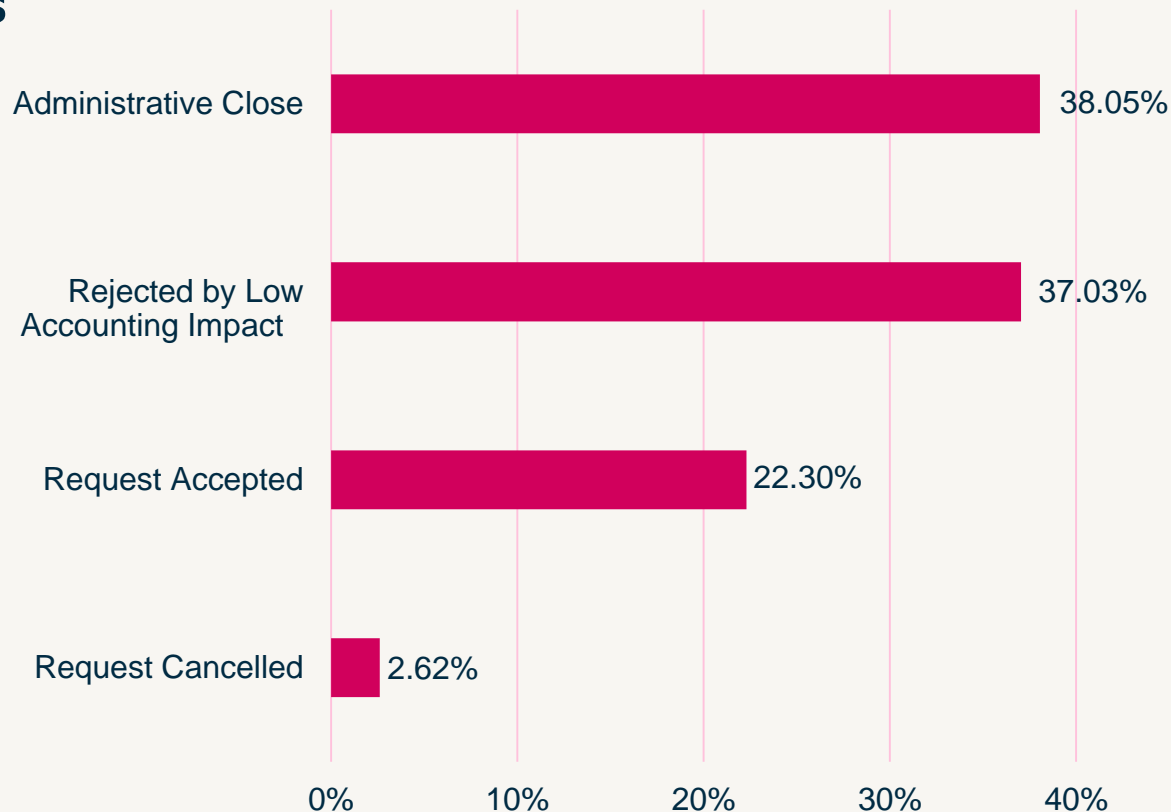
Takeaways:

- ❑ Majority avoid loops;
- ❑ Need to focus on first occurrences of Activities 100, 102 and 105

Outcomes Frequencies

Takeaways:

- ❑ Only 22% of request is accepted
- ❑ Uneven outcome distribution: Imbalanced Scenario



A series of vertical stripes in alternating shades of pink and light pink, located on the left side of the slide.

General Methodology

General Methodology

Data Preprocessing

New Variables

Extended Preprocessing



Date Inconsistencies



Mismatch of Periods



Long Processes



More than 10 steps



'Robot' Cases



Missing 'Task executer'
Information

General Methodology

Data Preprocessing

New Variables

Extended Preprocessing

Period Between Arrival
and Capture (Hours)

Period Between Arrival
and Execution (Hours)

Cummulative Lenght
of the Process

Years in Org Position

Age

Overdue by Expected
Date (Days)

Number of Females

Number of Managers

Number of Outsorcers

Number of Rejections

Value Count

General Methodology

Data Preprocessing

New Variables

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General Methodology

Data Preprocessing

New Variables

Extended Preprocessing



Prefix Extraction



Since we are handling processes up to 10 steps , we will identify 10 prefixes



Resampling



To balance the data



Prefix-Specific Methodology

Prefix-Specific Methodology



A diagram illustrating a methodology workflow. On the left, a horizontal line extends from the edge of the slide to a small white circle. From this circle, a line connects to a magenta rounded rectangle containing the text 'ACTIVITY: 100/102/105'. To the right of this rectangle are two stacked boxes: a white one with a magenta border containing '1. Feature Selection' and a list of four tasks, and a pink one containing '2. Baseline Modelling'.

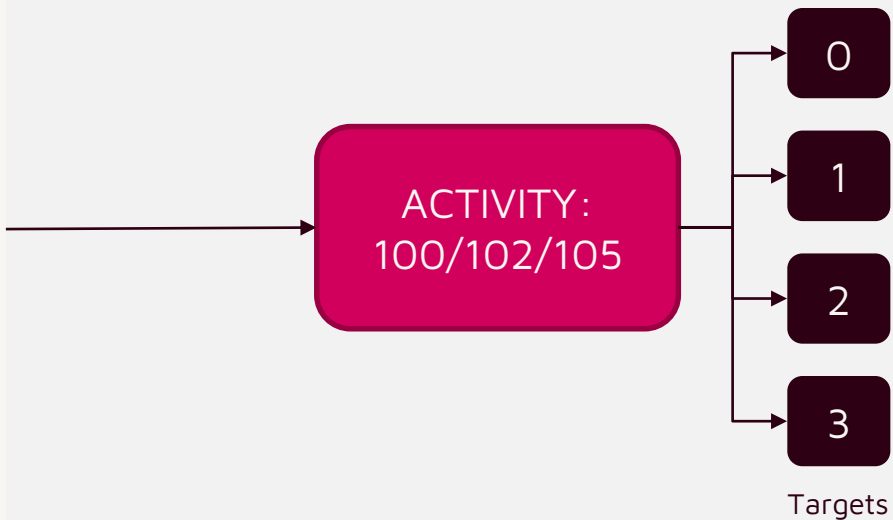
ACTIVITY:
100/102/105

1. Feature Selection

- ☐ Remove 0 Variance Features
- ☐ Remove Redundant Features
- ☐ Remove Irrelevant Features
- ☐ Inspect interactions with Target

2. Baseline Modelling

Prefix-Specific Methodology



3. Model Tunning

Logistic Regression

SVC

Random Forest

Gradient Boosting

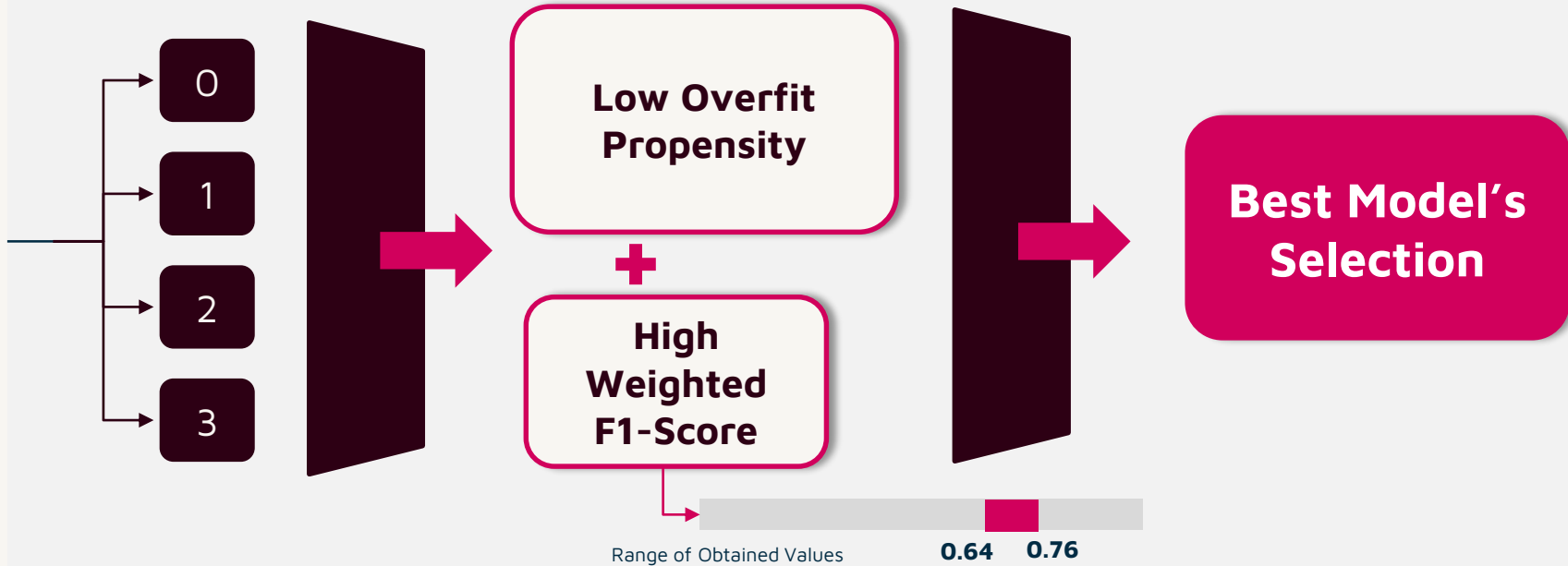
XGBoost

LGBM

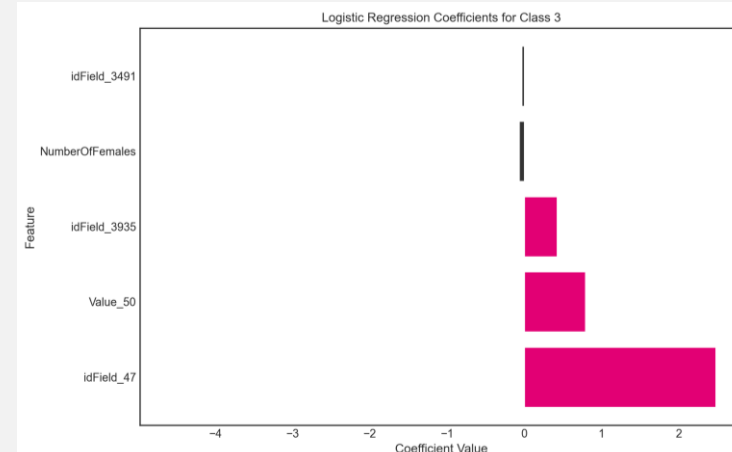
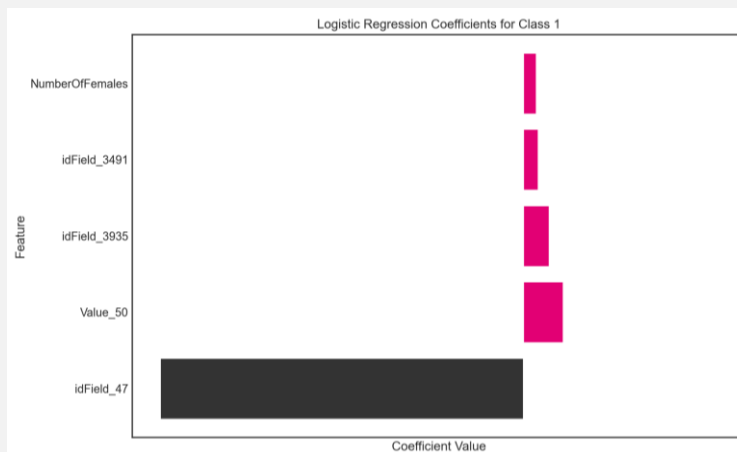
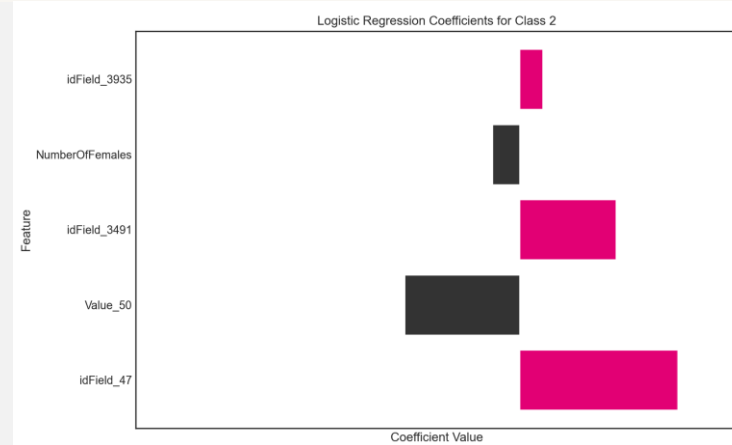
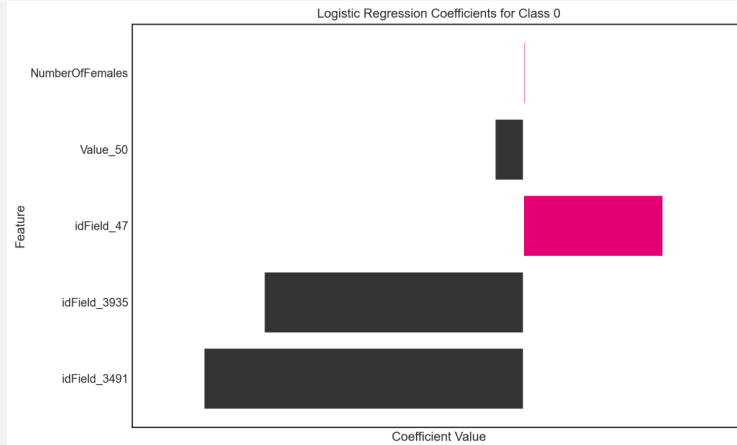
Ensamble

Prefix-Specific Methodology

4. Metrics Evaluation



5. Model Explainability



5. Model Explainability



Request Canceled Class:

Negative Influences:

- ❑ 'idField_3491'
- ❑ 'idField_3935'

Positive Influences:

- ❑ 'idField_47' is the only variable with a significant positive influence

'NumberOfFemales' almost does not have any significance

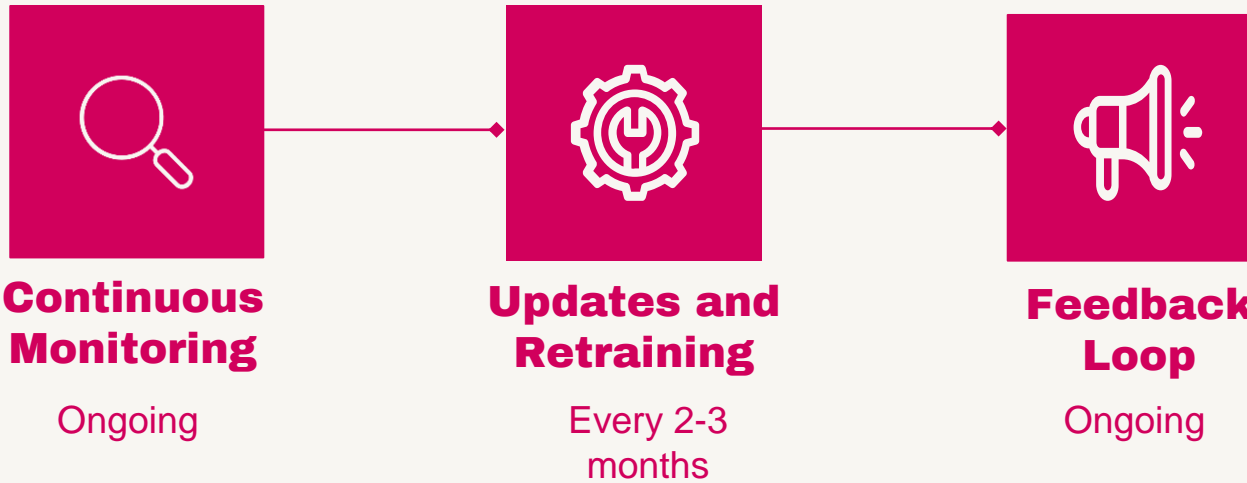


Deployment and Maintenance Plan

Deployment



Maintenance



Thank You

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