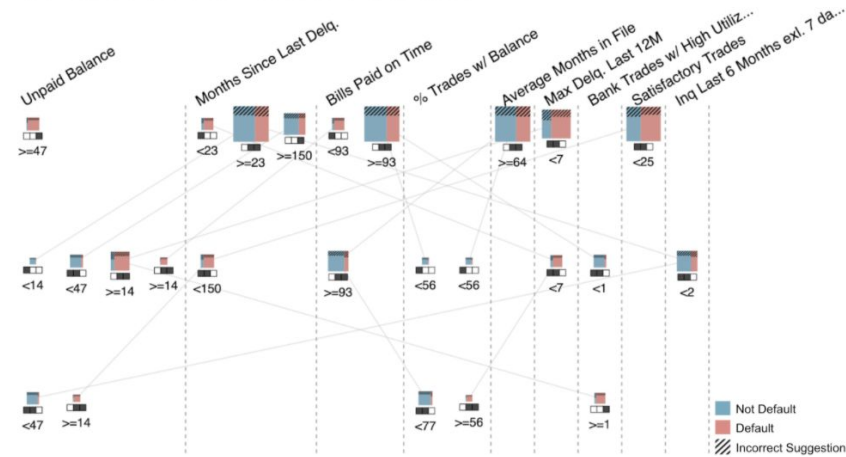# In-lab User Study

For the actual test, we are going to use another model that is trained for loan applications. Still, you do not need to know how the model is trained.

Given a loan application, this model suggests, or predicts, whether this applicant will default in the future. The figure below is the set of rules that describe such model. Please read it carefully and feel free to ask any questions.

Feature names that may be confusing:

Unpaid Balance: The percentage of the balance that is unpaid.

Months Since Last Delq.: Number of months since the last delinquency (nonpayment).

Average Months in File: The length of credit history.

You will be asked 12 questions in total:

- 5 questions for Task 1: Interpret properties of a given node
- 7 questions for Task 2: Find a node with given properties

Please keep in mind that we are timing your replies to each type of task. So please do not take any breaks during each task. We will remind you when you finish a type of task.

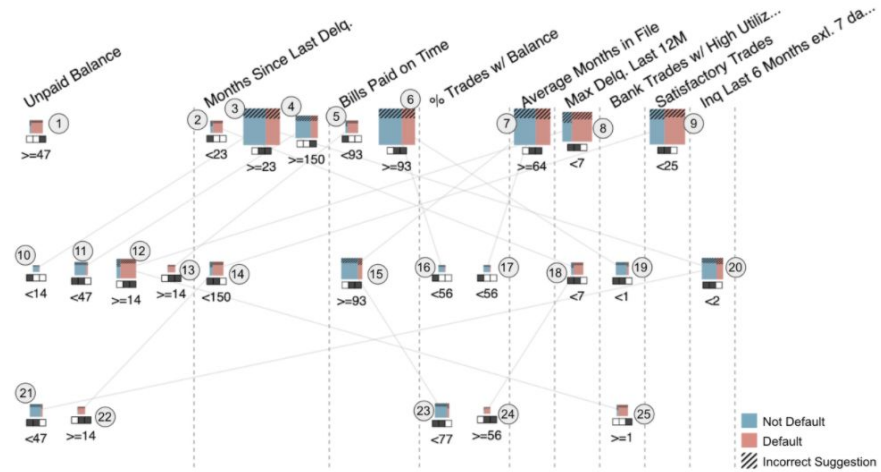Fill in your NetId in the next page and then you can start the actual test.

→

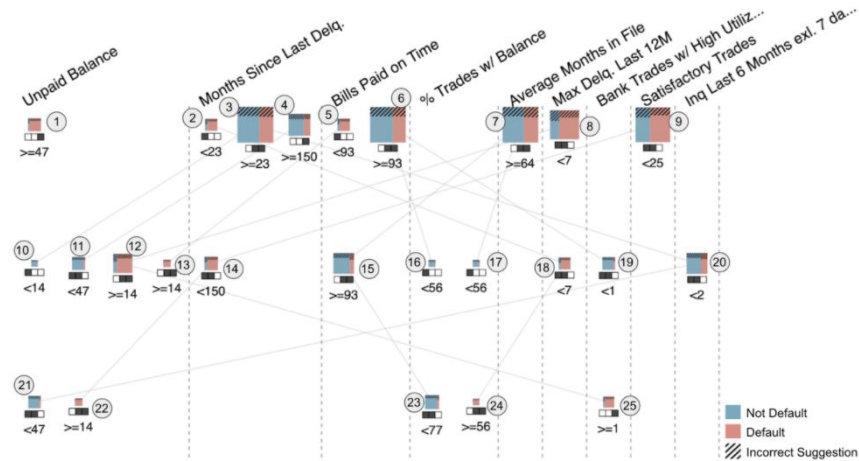What is your NetID?

Click the next page to start the actual test.

→

Labels visible in figure: Unpaid Balance, Months Since Last Delq., Bills Paid on Time, % Trades w/ Balance, Average Months in File, Max Delq. Last 12M, Bank Trades w/ High Utiliz..., Satisfactory Trades, Inq Last 6 Months exl. 7 da...

Node values: >=47 (1), <23 (2), >=23 (3), >=150 (4), <93 (5), >=93 (6), >=64 (7), <7 (8), <25 (9), <14 (10), <47 (11), >=14 (12), >=14 (13), <150 (14), >=93 (15), <56 (16), <56 (17), <7 (18), <1 (19), <2 (20), <47 (21), >=14 (22), <77 (23), >=56 (24), >=1 (25)

Legend:
- Not Default
- Default
- Incorrect Suggestion

1. *What rule does the node 15 represent?*

Bills Paid on Time >= 93

Bills Paid on Time < 93

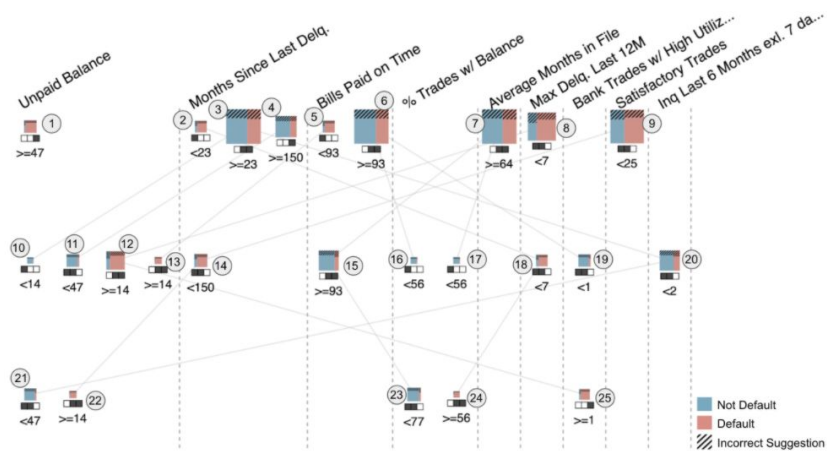Average Months in File >= 64 And Bills Paid on Time >= 93

2. What rule does the node 14 represent?

Satisfactory Trades = Low OR Medium

Satisfactory Trades = Low OR Medium, And Months Since Last Delq. = Low OR Medium

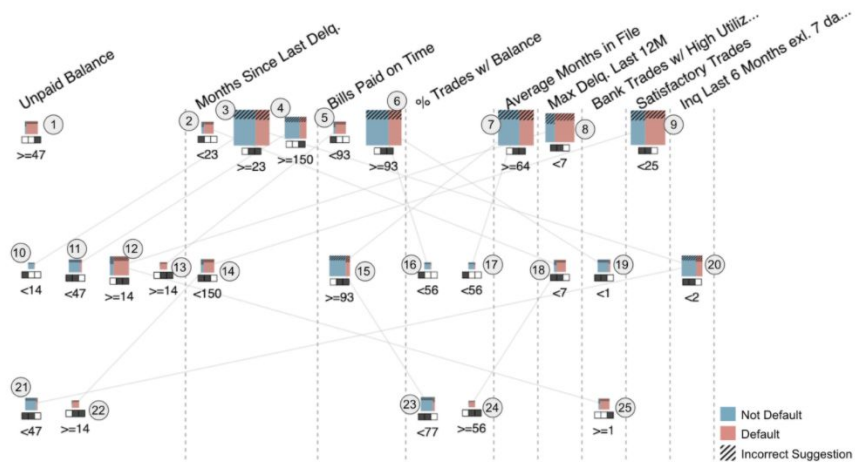Satisfactory Trades = Low, And Months Since Last Delq. = High

Unpaid Balance
>=47

Months Since Last Delq.
<23 >=23 >=150

Bills Paid on Time
<93 >=93

% Trades w/ Balance

Average Months in File
>=64

Max Delq. Last 12M
<7

Bank Trades w/ High Utiliz...

Satisfactory Trades
<25

Inq Last 6 Months exl. 7 da...

<14 <47 >=14 >=14 <150

>=93

<56 <56 <7 <1 <2

<47 >=14

<77 >=56 >=1

Not Default
Default
Incorrect Suggestion

3. What is the most probable outcome/prediction of the model for applications that match the rule represented in node 18?

Not Default

Default

Not sure

→

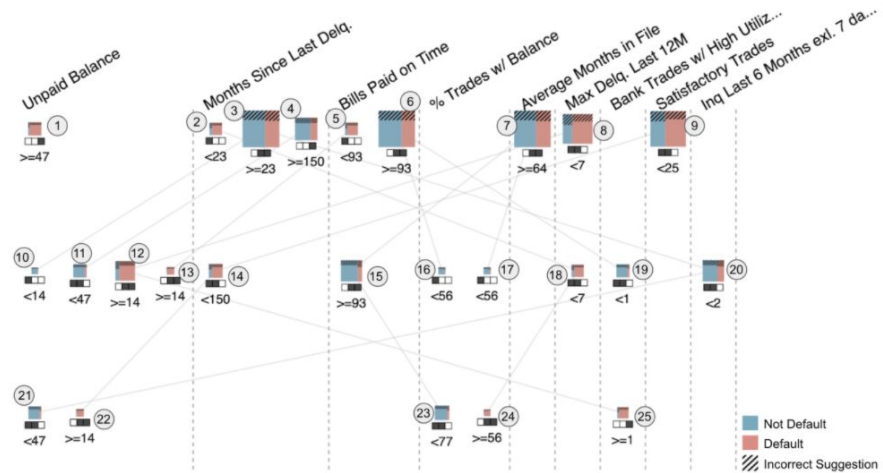4. Which of the following nodes covers the most people?

node 1

node 12

node 24

Node labels (left to right / top to bottom):

Unpaid Balance, Months Since Last Delq., Bills Paid on Time, % Trades w/ Balance, Average Months in File, Max Delq. Last 12M, Bank Trades w/ High Utiliz..., Satisfactory Trades, Inq Last 6 Months exl. 7 da...

1 — >=47
2 — <23
3
4 — >=150
5 — <93
6 — >=93
7 — >=64
8 — <7
9 — <25
10 — <14
11 — <47
12 — >=14
13 — <14
14 — <150
15 — >=93
16 — <56
17 — <56
18 — <7
19 — <1
20 — <2
21 — <47
22 — >=14
23 — <77
24 — >=56
25 — >=1

Legend:
- Not Default
- Default
- Incorrect Suggestion

5. Which suggestion has higher error rate with node 8?

Not Default

Default

They look quite similar

→

Now you have finished all the questions for Task 1: Interpret properties of a given node.
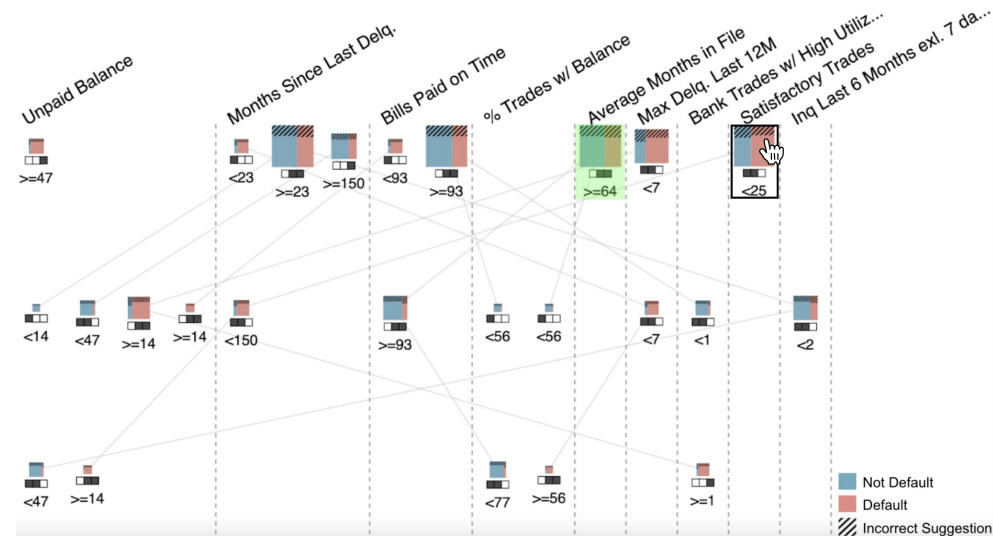To what extent do you agree with the following statement:

	Extremely Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Extremely Agree
It was easy for me to answer the questions of Task 1.	○	○	○	○	○

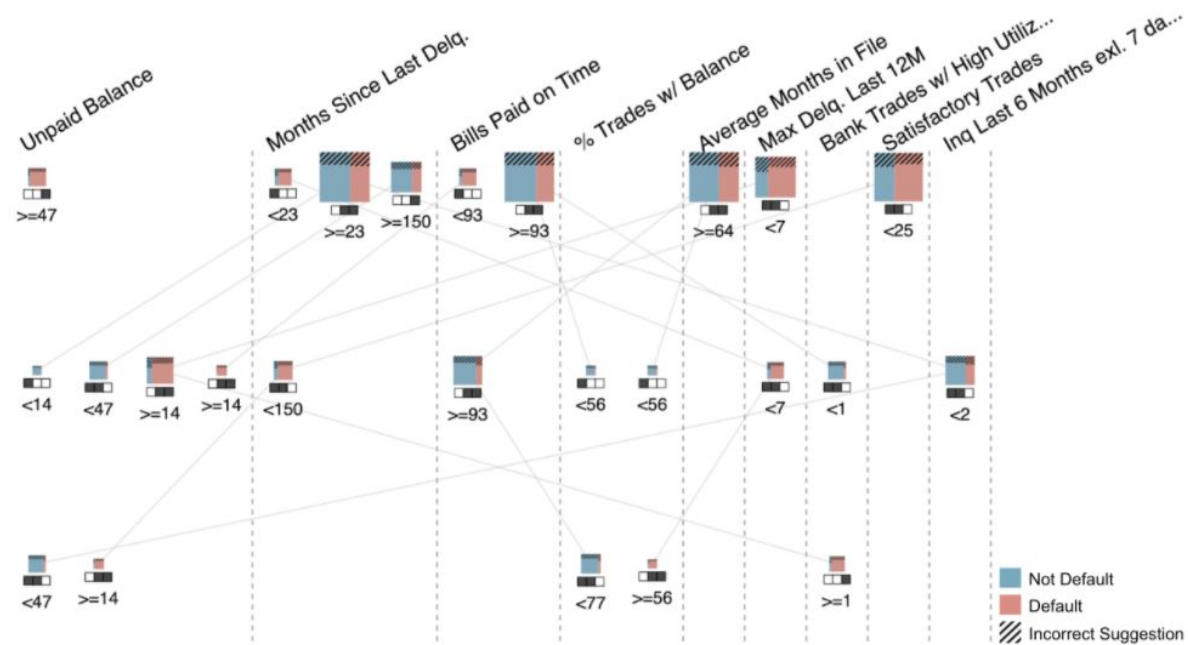Click the next page to answer questions for Task 2: Find a node with given properties.

→

For this type of task, we will ask you to click a node that matches the given properties. There may be more than one correct answer. But you only need to click one.

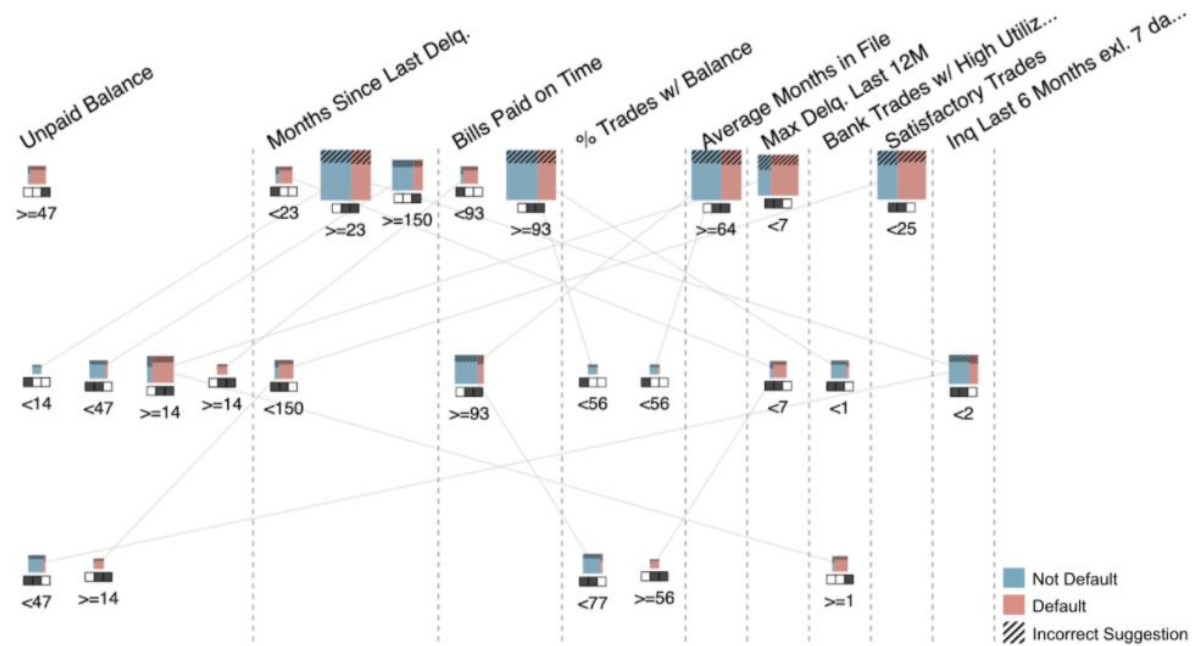Try to hover on the nodes below and click. You will also be able to click the nodes in the later test.

Here show how it looks like after a participant clicks/select a node or hovers a node.
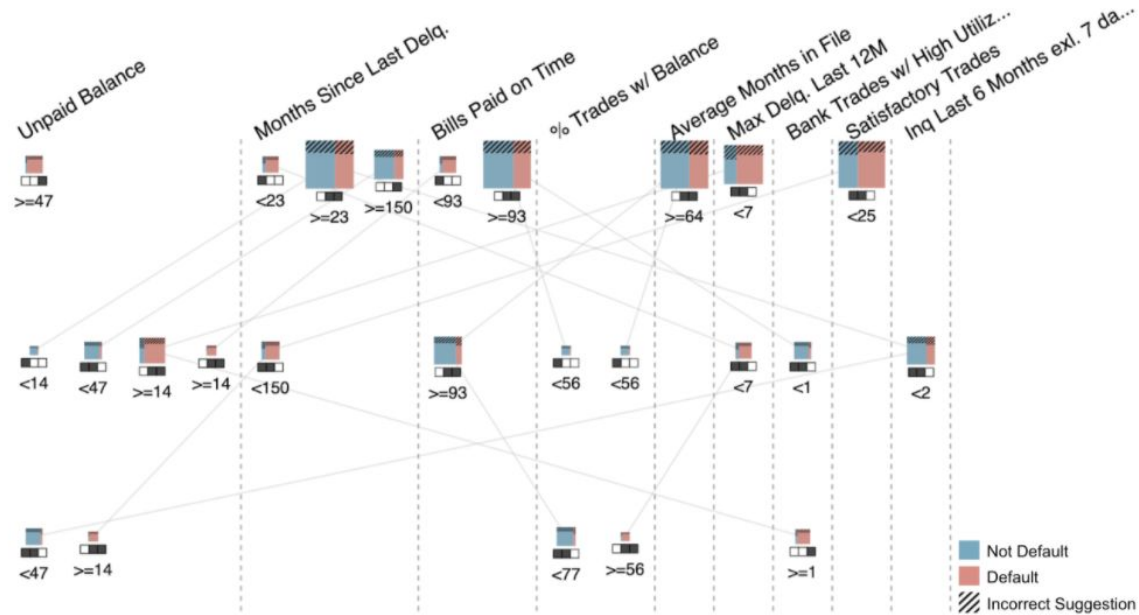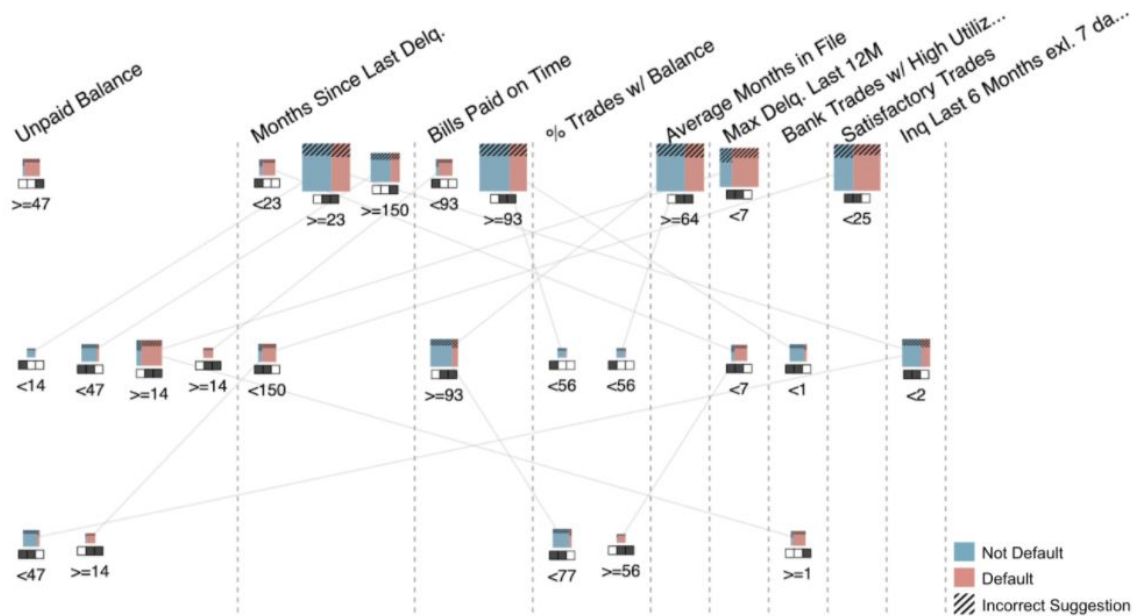
6. Please click a node that suggests Not Default.

7. Please click a node that contains a condition with **Month Since Last Delq.**

Unpaid Balance
Months Since Last Delq.
Bills Paid on Time
% Trades w/ Balance
Average Months in File
Max Delq. Last 12M
Bank Trades w/ High Utiliz...
Satisfactory Trades
Inq Last 6 Months exl. 7 da...

>=47
<23
>=23
>=150
<93
>=93
>=64
<7
<25

<14
<47
>=14
>=14
<150
>=93
<56
<56
<7
<1
<2

<47
>=14
<77
>=56
>=1

Not Default
Default
Incorrect Suggestion

→
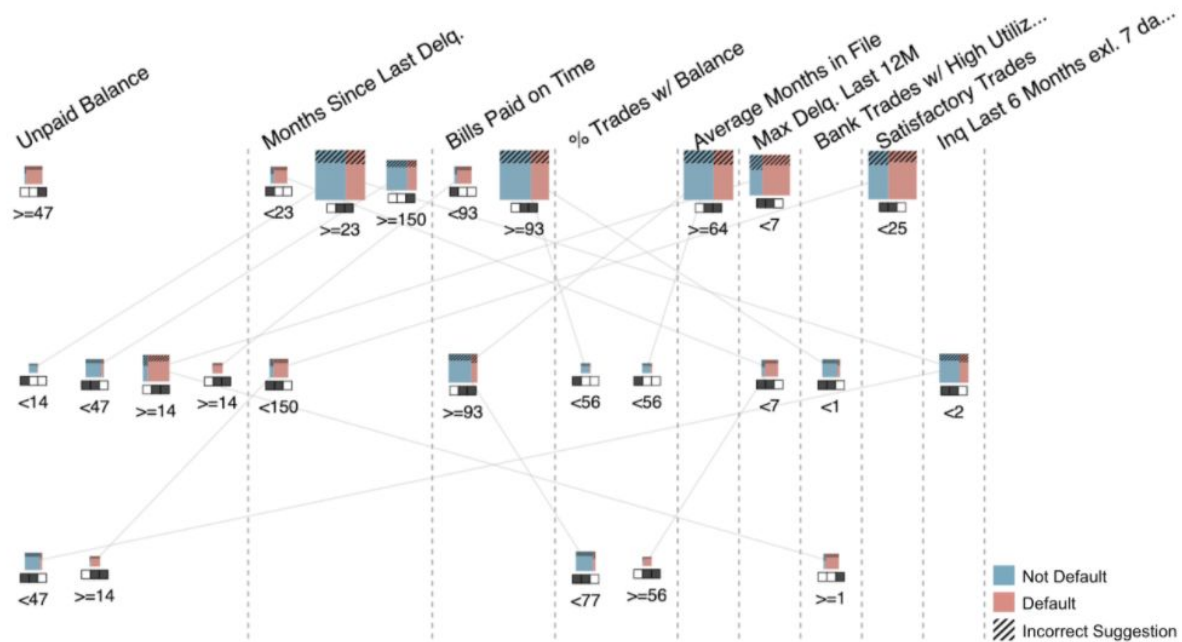
8. Please click a node that contains a condition with **Bills Paid on Time** and suggests Not Default.

9. Please click a node that presents a condition of
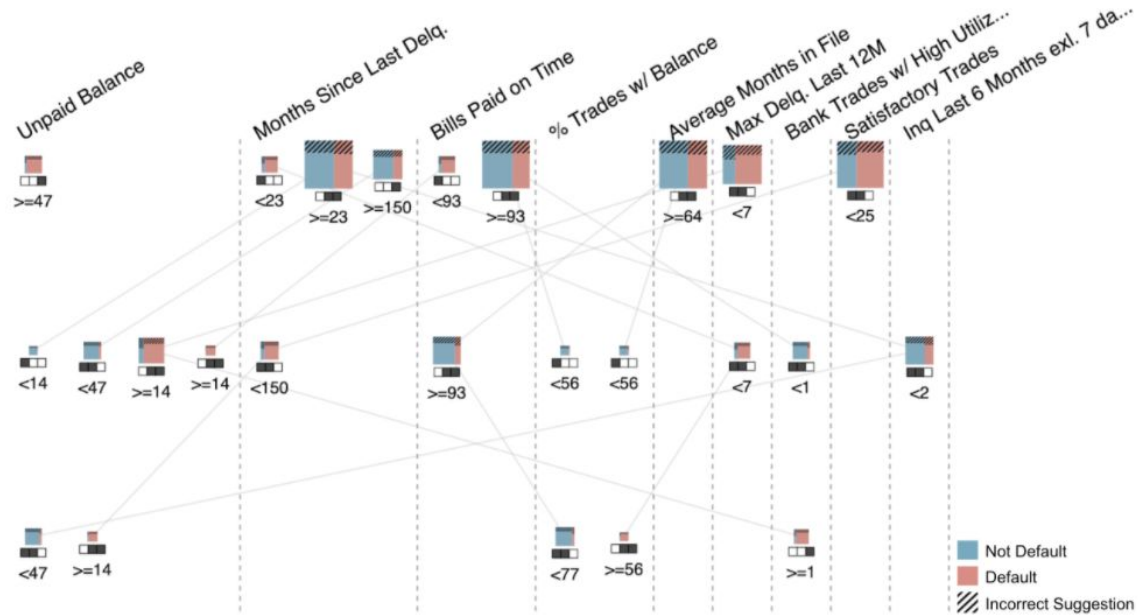**Months Since Last Delq**. >= 150 AND **Unpaid Balance** < 47.

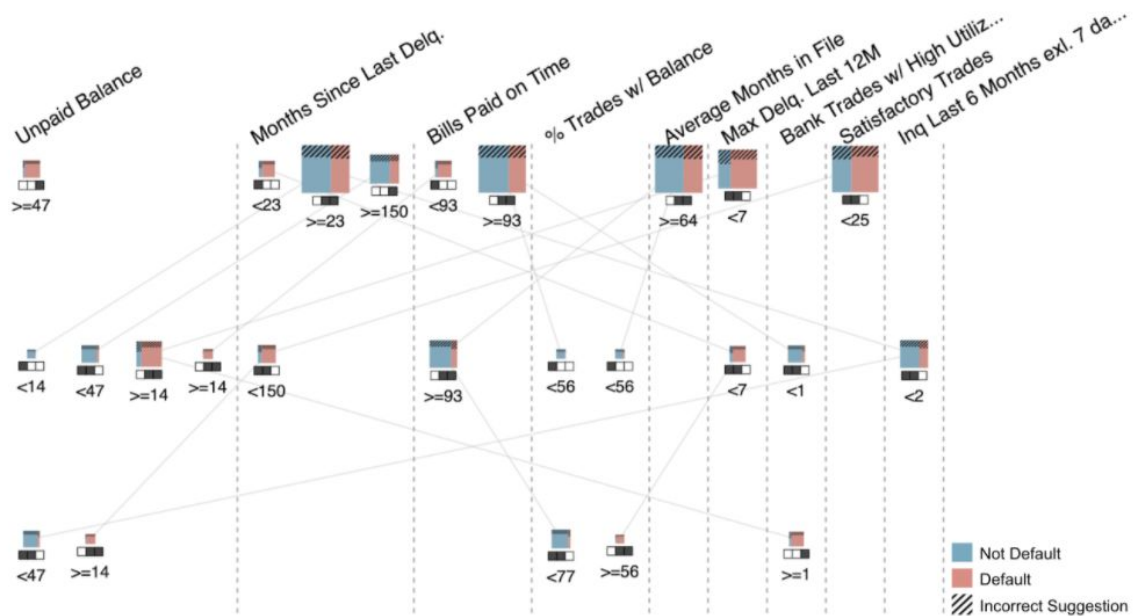# 10. Please click a node that you think it covers the least number of applications.

11. Please click a node whose Not Default suggestions have a higher error rate than Default suggestions.

12. Please click a node that represents

Months Since Last Delq. = Low, And **Max Delq. Last 12M** = Low OR Medium

Legend:
- Not Default (blue)
- Default (red)
- Incorrect Suggestion (hatched)

Now you have finished all the questions for Task 2: Find a node with given properties.
To what extent do you agree with the following statement

	Extremely Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Extremely Agree
It was easy for me to answer the questions of Task 2.	○	○	○	○	○

Now you have finished all the test. Did you find anything confusing during the study? If so, what makes you confused?

Click the next page to submit your answers.

→