ICDCIT-2024

DECISIONHUB

Corridor Platforms

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OBJECTIVE

You've been hired by a Bank to create a Decision Management Hub for all automated decisions made in bank.

In this DecisionHub, analysts should be able to:

1. Write and modify rules
2. Check that the rules run correctly
3. Debug every calculation in the rules

BACKGROUND

Banks extend their services to clients spanning diverse sectors, including retail, healthcare, technology, and more. these clients showcase varied behavior characterized by payment patterns, cibil score etc.

To handle this, banks need to:

1. Automate their decision-making to cater to client's digital needs
2. Update their decision strategies quickly to remain competitive
3. Handle complex cases to cater to all these variations

Business Analysts write business logic / rules based on analysis of data as a decision strategy for products services provided by Bank.

CHALLENGES - PART 1
ENGLISH LIKE RULE WRITING

Rules can be largely of 3 types:

1. **Yes/No rules**
These are rules that imply that the decision to be made should be a Yes or No. If any of these evaluate to No - then the decision is marked as “No”.

2. **Assignment rules**
Side effect rules are conditions where certain variables are calculated and set. For example, Pricing - i.e. deciding on the interest rate for a loan needs to be calculated and set as the interest rate.
Other decisions can have different variables being assigned.

3. **Nested rules**
Nested rules are typically used with Yes/No rules to decide when other rules should run or should not run.

Any combination of these rules is typically used by business analysts.

This is an example of the challenges analysts face today.

Most Business Analysts do not know programming languages and are not tech-savvy.

They need a no-code rule-writing experience where they can focus on penning down their business knowledge without technology getting in the way.

CHALLENGES - PART 2
SUPPORT FOR ADVANCED CONDITIONALS

Conditions in the rule can use comparison operators like:
<, >, <=, >=, ==, !=, etc.

Conditions can also use basic arithmetic expressions like:
annual_income / 12 < 1000000

Conditions can be chained together using boolean operators:
CONDITION1 and CONDITION2

Sometimes, it is also useful to have functions available. For example:
datediff(date_of_birth, today) > 40

An example rule could be:
Rule Name: Applicant is not under-age, and has a high income
Rule Condition:
datediff(date_of_birth, today) > 18 AND annual_income / 12 > 1000000

This is an example of the challenges analysts face today.

Business Analysts are typically familiar with excel or calculator-like logic.

Allowing them to write basic arithmetic expression with conditional or comparison operators

CHALLENGES - PART 3
AGILITY IN QUICKLY CHANGING RULES

For example, the Lending team modified rules thrice in August 2023:

1. **On August 4**: The rules were updated as part of a routine update:
    - If the CIBIL score is over 750:
        - If the loan duration is less than 5, lend at 13% interest.
        - If the duration is between 5 and 10, lend at 11% interest.
        - Otherwise, lend at 9% interest.
    - If the CIBIL score is below 750, follow other rules.
2. **On August 18**: A scam was discovered in the construction industry
    - If the loan is being taken from someone who owns a construction company, don't lend through the system.
    - For non-construction clients - continue with the same rules as above
3. **On August 31**: After markets stabilized, start issuing loans to construction
    - For construction sector clients:
        - If filed for bankruptcy - reject the loan
        - If the CIBIL score is over 850 & no existing loans, lend at 12% interest
        - Otherwise, reject the loan
    - For non-construction clients - continue with the same rules as above

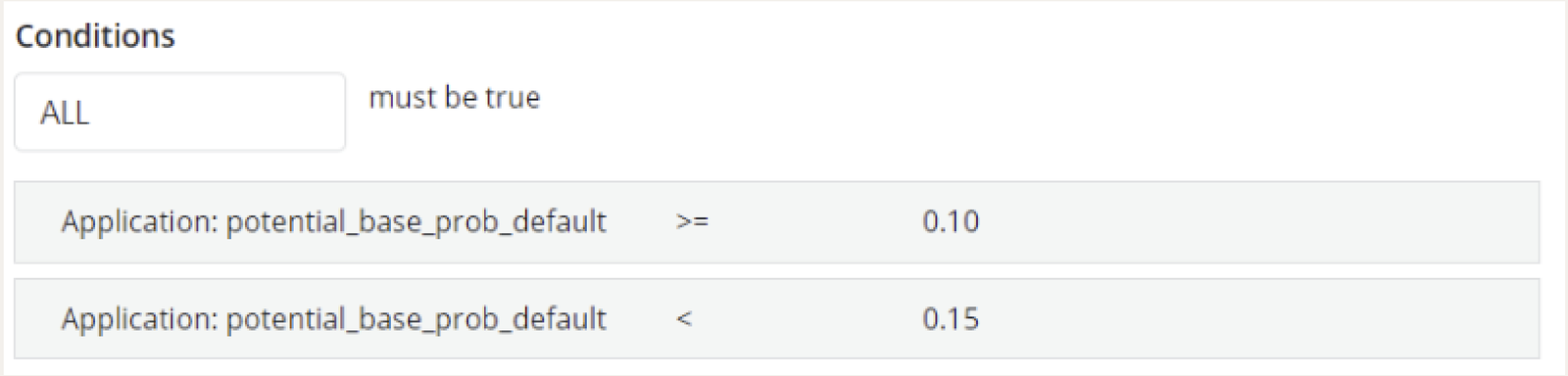
This is an example of the challenges analysts face today.

Here, a Business Analyst had to change the lending strategy frequently.
In the real world, these rules get way more complicated, and analysts can easily make mistakes.

Having the ability to quickly modify and test the rules is crucial.

CHALLENGES - PART 4
DEBUGGING RULES QUICKLY

Consider the below decision strategy rule, which was written by a Business Analyst:



The analyst by mistake could have selected:

"ANY" must be true

instead of "ALL". This completely changes the meaning of the rule due to a small mistake.

When the Analyst runs this rule on a Loan Application - it will quickly be found that the rules are incorrect.
But finding the fix amongst 1000+ rules takes hours !!

This is another example of the challenges analysts face today.

When working with 1000s of rules, analysts need an easy way to check the logic of each portion of their calculations quickly.

There is a need to quickly run the rules, and double click to figure out where a wrong condition could be present.

DECISIONHUB

As the client base and the complexity of rules continue to increase, there is a need for a centralized tool to create and maintain these decision strategies.

DecisionHub should provide Business Analysts the ability to:

1. Write rules quickly without technical expertise
2. Visualize and test the rules on data
3. Troubleshoot issues in these rules with ease

PROBLEM STATEMENT

Develop a Rule Builder application “DecisionHub” that empowers Business Analysts to create, save, and visualize decision strategies.
Provide a no-code rule writing experience and visual representation to test these rules in real-time and observe the calculations at each step.

REQUIREMENTS

The envisioned application seeks to provide users with a comprehensive User Interface, empowering them with the following capabilities:

1. Rule Creation and Nesting

Business Analysts should be able to create rules within DecisionHub without knowing programming. DecisionHub should support intricate logical structures that are required for their Decision Strategies.

2. Real-Time Rule Execution

In DecisionHub, Business Analysts should be able to run their Decision Strategy with sample input values. In this process, the application should intelligently ask Analysts to enter the required inputs to run the rules.

3. Rule Storage and Retrieval

DecisionHub should be able to persist the rules written in the application in an SQL database. There should be a provision for retrieving the rules. Having a clear visual representation of the rules would be useful to Business Analysts so they can quickly read and find issues in the rules.

4. Flexible Rule Processing

The choice of whether rule processing and execution occur in the backend or frontend is left to the participant's discretion. However, irrespective of the chosen approach, the application's UI should dynamically display the results of rule execution.

Business Analysts should be able to opt for a debug mode. In the debug mode, the application should provide a detailed breakdown of calculation steps for each node, enhancing transparency and aiding in troubleshooting. Having a step-by-step debugger would be useful too.

By encapsulating these functionalities, DecisionHub should be able to deliver a user-centric and versatile Rule Builder environment. This not only empowers Analysts to construct and test rules intuitively but also ensures that the execution and debugging processes are transparent and accessible through a sophisticated User Interface.

EVALUATION CRITERIA

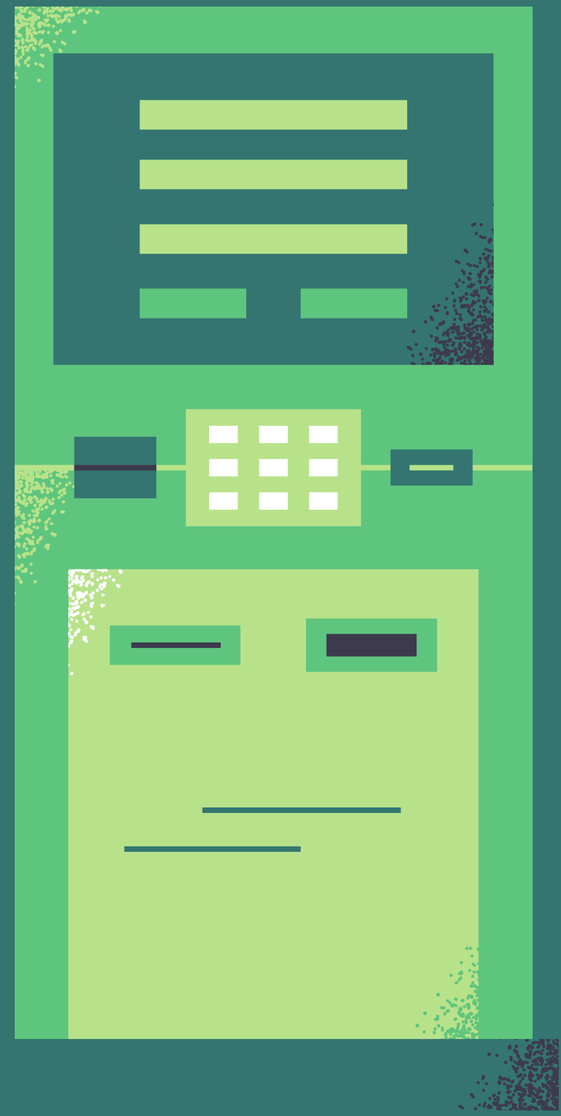
Participants' submissions for the hackathon will be evaluated based on four key criteria:

1. English-like Rule Writing Experience
We will be rating the UX to see how intuitive it is for a non-technical person to write rules.

2. Debugging Capabilities and Experience
We will be rating how quickly the Business Analyst can identify the issues in the rules for common situations where rules are incorrect.

3. Visualization of Rules
We will be rating innovative ideas on how decision rules are shown to Business Analysts so they can quickly go through the rules when there are a lot of rules present.

4. Complexity of Rules supported
We will be checking if complex Decision Strategies can be written using the rule-writing experience.



We will additionally be looking at technical architecture, user-centric design, and completeness of the developed application

Participants are encouraged to showcase their creativity, efficiency, and attention to detail to excel in the evaluation process. Partial submissions are encouraged - please add comments on ideas you may not have had the time to implement in the given time frame.

FAQS
(CLICK HERE)

In case of any more clarification/confusion, feel free to reach us out at:-

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