



Informatica® RulePoint  
6.1

# Business Process Management Use Case Example

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Publication Date: 2018-07-19

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# Preface

This guide describes how financial firms can use RulePoint to make their business process management more effective, taking loan processing as an example.

The guide provides an understanding of how RulePoint fits into the overall business process management to create an effective loan processing solution. You understand the type of rules that you can configure to evaluate the loan eligibility criteria for an applicant. This guide assumes that you have an understanding of RulePoint and are familiar with the RulePoint concepts.

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# CHAPTER 1

## Business Process Management Use Case

This chapter includes the following topics:

- [Business Process Management Use Case Overview, 7](#)
- [Determining the Loan Eligibility Criteria, 7](#)
- [RulePoint Solution in Loan Processing System, 8](#)
- [Business Process Modeling Using RulePoint, 10](#)

### Business Process Management Use Case Overview

Business Process Management (BPM) is an approach to identify, evaluate, and manage processes as a means to drive business results, create value, and enable an organization to meet its business objectives. A loan processing system in BPM is a complicated multi-step system, which evaluates multiple parameters before granting personal loans to customers.

The BPM use case deals with loan processing as an example to explain the business process management. You learn how you can implement RulePoint to improve the loan processing system to help banks make better decisions when deciding the eligibility criteria for loans.

### Determining the Loan Eligibility Criteria

Banks collect information from applicants, credit rating agencies, and other sources to check the loan eligibility criteria before sanctioning a loan to the applicant.

To determine whether a customer qualifies for the loan can be a complicated preposition for banks. The amount of information that banks need to procure from multiple sources creates logistical issues. Banks need to determine whether a customer qualifies for the loan based on the collected information. Failure to appreciate the information given, override and suppression of bad information due to sales target pressures, and human errors while handling the data or managing the process can be some concerns that affect the evaluation process.

The bank adds weightage for parameters collected from sources, such as customers and credit rating agencies, to understand their impact in the final decision making process. Banks use this information to create rules to check if an applicant is eligible for the loan.

The following table lists some parameters that a bank collects, in their order of priority, along with the granted weightage:

Parameters	Weightage
Loan amount request	10
Number of months to pay back the loan	8
Take home salary	8
Any existing insurance, home loan, car loan, former family payment, insurance payment details, and other loans	8
Net assets	8
Years in the same marriage, working spouse, combined salary	7
Credit rating	6
Criminal record	5
Number of dependents	4
History of paying back other loans	4
Medical history, including physical and psychological of the customer	3
Years in present job	3
Age	3

## RulePoint Solution in Loan Processing System

RulePoint evaluates all parameters based on configured rules and provides an evaluation that is error free.

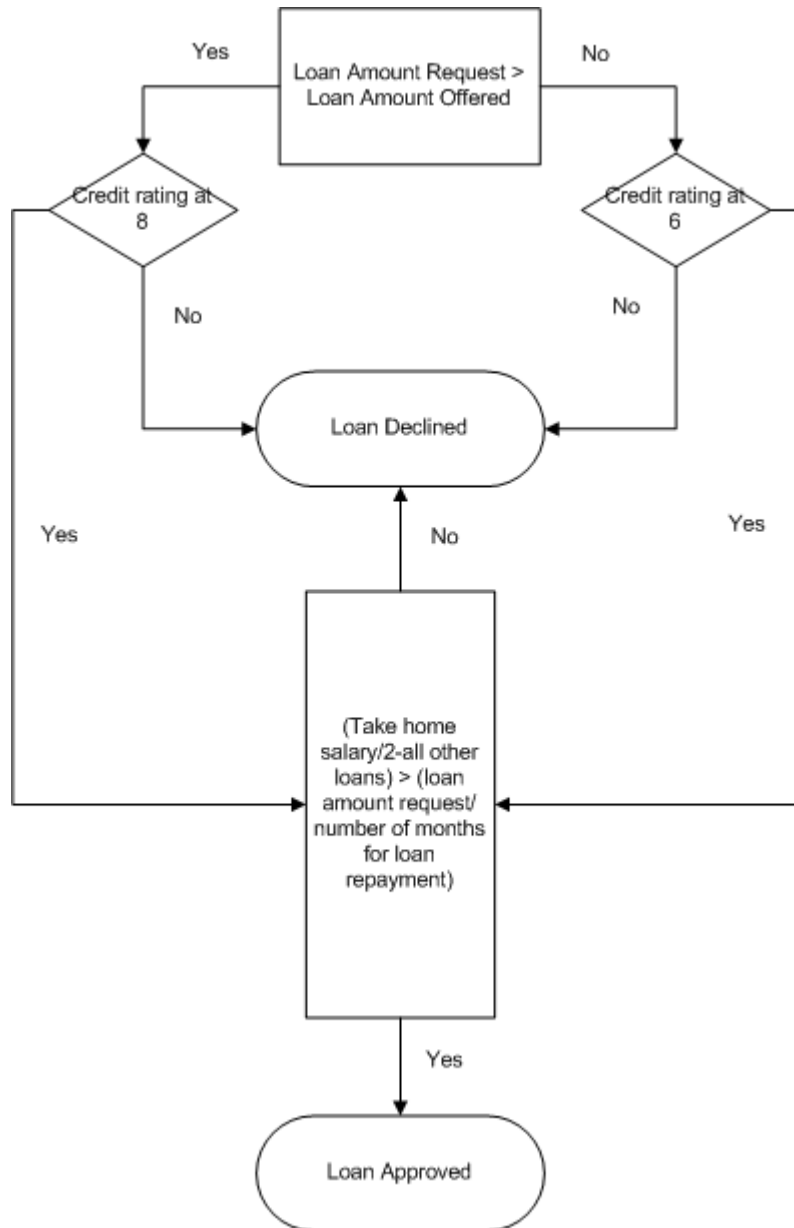
You can use RulePoint to retrieve information from multiple sources that are relevant for a specific workflow and process rules configured for a particular evaluation. RulePoint can manage thousands of rules per second.



## Proposed Algorithms

You can use the algorithms presented in the BPM use case during the loan processing. You can include additional steps or eliminate steps to the algorithm depending on the outcome of a process.

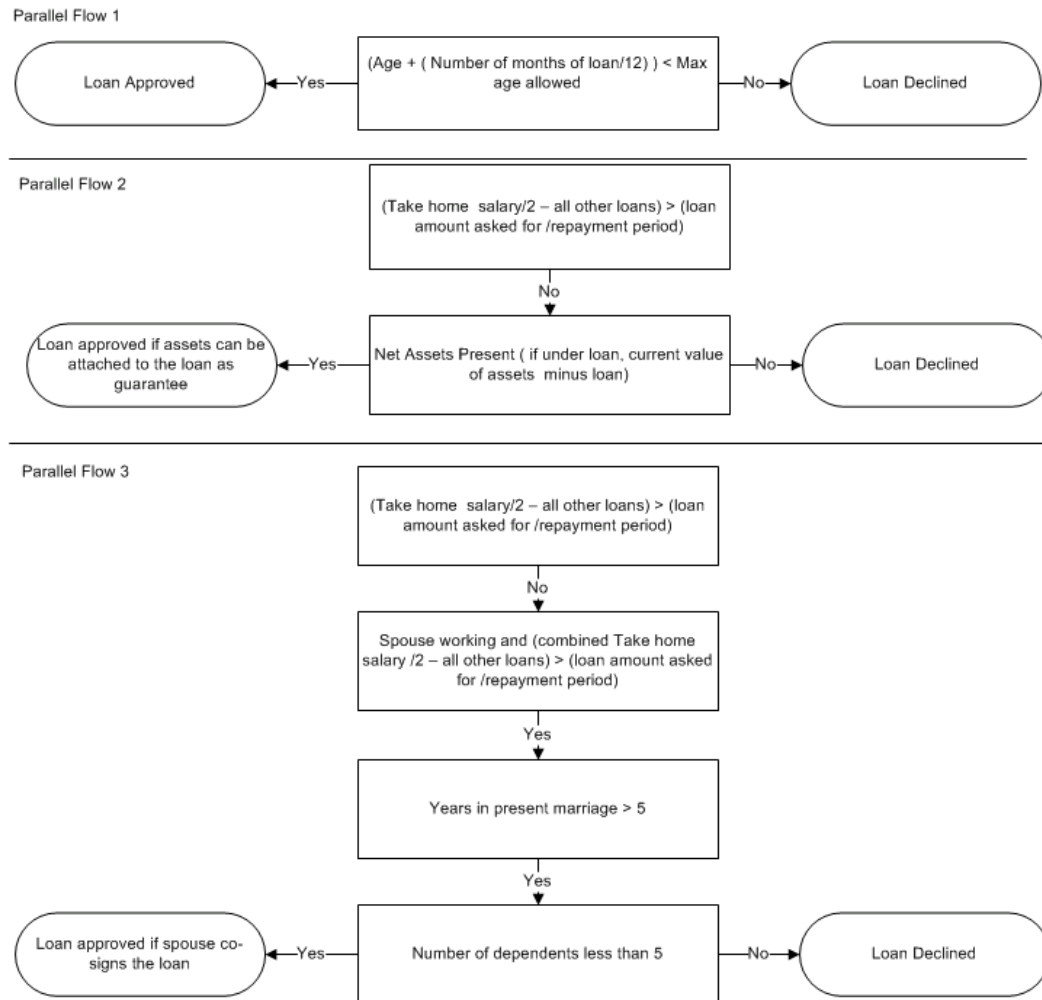
The following figure depicts the process flow in a loan processing system:



The eligibility criteria for a loan in the figure is based on the credit rating for that applicant, the total salary, all the availed loans, and the repayment term.

You can add parallel workflows within RulePoint to evaluate the loan eligibility.

The following figure depicts some of the workflows that you can use in RulePoint to evaluate the data:



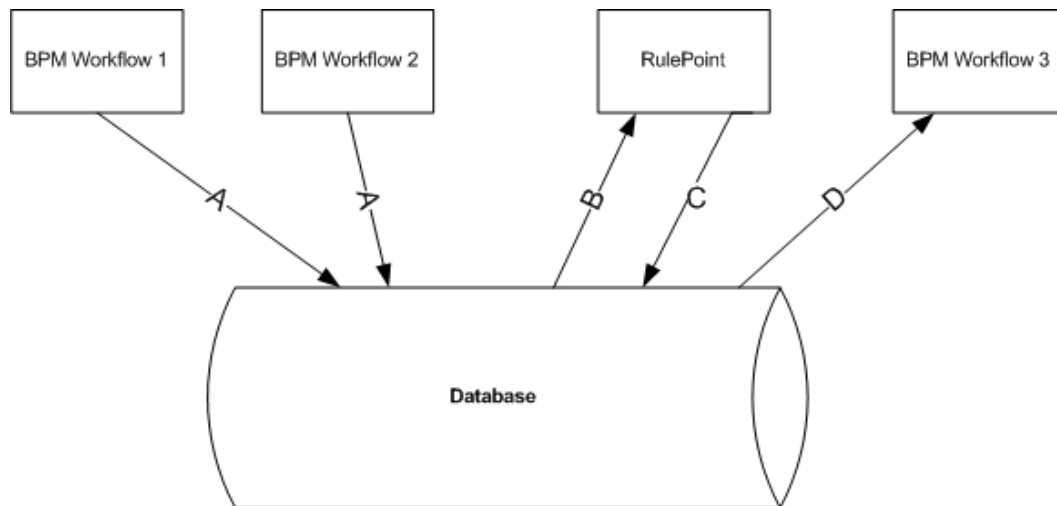
The workflows show the various rules you can use to evaluate the loan eligibility for an applicant. In workflow 1, age of the applicant and the loan payment term decide whether an applicant is eligible for the loan. Workflow 2 includes additional conditions, such as the salary, all availed loans, attached net assets against the loan amount request to decide the loan eligibility. Workflow 3 includes the salary, all availed loans, salary of the spouse, repayment period, years in marriage, and number of dependents that decide the loan eligibility.

## Business Process Modeling Using RulePoint

RulePoint effectively enhances the BPM workflow while processing a loan.

The BPM workflows update the database tables when it completes a task. The source services in RulePoint use the database table as the source. The source services in RulePoint pick data from the tables, evaluate the data, and send an SQL response back to the database tables. The BPM workflow picks up the data and continues to process the loan.

The following figure shows the BPM workflow:



A: BPM workflows update data in the database.

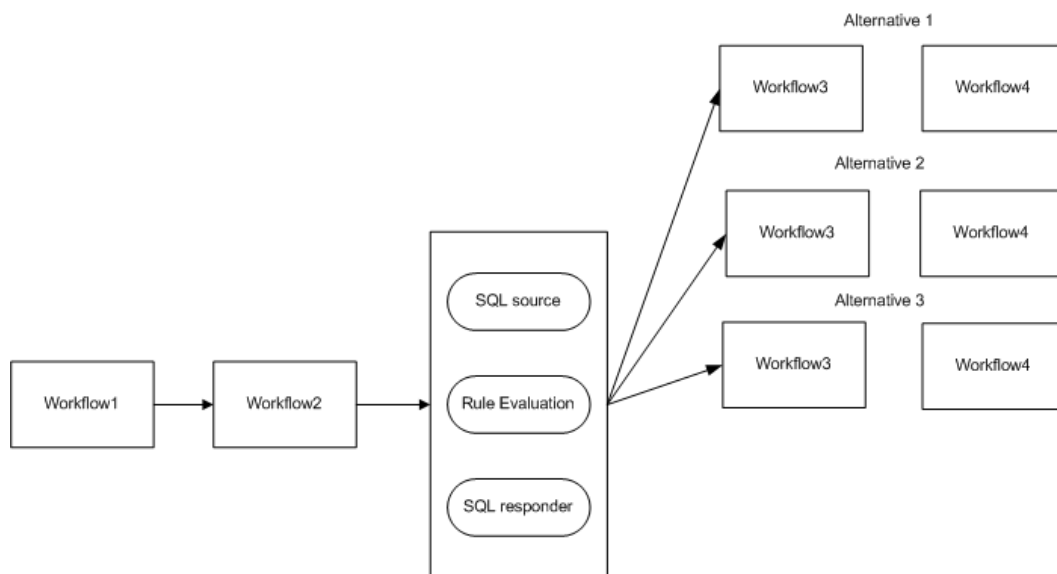
B: Source services in RulePoint pick up data from the database.

C: The responder services in RulePoint update the database with the response.

D: BPM workflow picks up data from the database.

The workflow might reach a point in which you might need to take decisions. You might need to choose among multiple alternatives based on the outcome of a rule.

The following figure shows the BPM workflows that use RulePoint at a particular instance of the workflow:



Workflows 1 and 2 are BPM processes configured to get third-party credit scores of customers, and other customer and loan information. Source services in RulePoint retrieve data from the tables, the rules process the data based on the conditions and make decisions when the conditions are met. Based on the decision, BPM can choose an option from different alternatives provided. For example, if the conditions specified in the rule determine that an applicant is eligible for the loan if the applicant has net assets, the BMP workflow picks this information, enquires the applicant for net assets, and processes data based on that. On the other hand, if the conditions determine that an applicant is eligible for the loan if the spouse salary is attached, BPM starts another workflow to get more information about the spouse's net salary along with the proof.

## Schemas Used for Evaluation

The information that banks collect from customers and credit rating services are updated in the database tables. The database tables are the source for RulePoint services to pick the data and start processing.

The following table provides the properties of the proposed schemas for the BPM loan processing use case:

Schemas	Properties
Customer Personal information	Customer ID Name Age Address Home phone number Office address Office phone number Company name Company address Years in present job
Customer financial Information	Customer ID Net take home salary per month Net assets Total loan EMI payment per month
Customer credit Information	Customer ID Credit rating (1-10) History of paying back loan (1-10)
Customer family Information	Customer ID Married Number of dependents Spouse's net salary per month Years in same marriage
Customer Criminal Information	Customer ID Criminal record ( 1-10)
Customer medical history	Customer ID Medical history of customer ( 1-10)
Customer loan request Information	Customer ID Loan amount requested Number of months to pay back

## RulePoint Implementation

The BPM firm requires a complex event processing product as RulePoint to process real-time data and send in required alerts.

The alerts can be in the form of email, RTAM, or database updates. The use case covers the basic usage of RulePoint objects and a high-level flow based on the proposed rules.

The use cases employ the following objects to implement a solution for evaluating the loan eligibility criteria:

- SQL Source. Connects to a database and executes SQL queries or commands to create RulePoint events. The SQL source publishes an event for each row returned from an SQL query.
- SQL Responder. Responds to events by connecting to a database and executing SQL commands.
- SQL Analytic. Runs an SQL query or command against a target database to enrich the data to provide additional information during rule processing that is not available in the event data.
- Custom Analytic. Analyzes data within a system and implements a data processing function. The custom analytic takes data in day format and returns the data in years format.
- Advanced Rules. The Detect and Respond Query Language (DRQL) syntax of RulePoint that consists of the WHEN, WITH, and THEN clauses that define the rule.
- Topics. Categorizes events and their properties. When RulePoint receives an event, RulePoint identifies its properties and values and categorizes it under a specific topic.

The following loan processing use cases are represented in this document:

- Decide loan eligibility based on applicant salary and all availed loans
- Decide loan eligibility based on applicant age and repayment tenure
- Decide loan eligibility based on applicant salary and collateral security
- Decide loan eligibility based on the net salaried income of a couple

The high-level workflow for each of the use case involves the SQL sources that retrieve data from the SQL tables of a database and store it as RulePoint topics. The use cases represented in this document use different SQL sources, such as `customer_financial_info_source`, `customer_personal_info_source`, `customer_family_info_source`, and `customer_loan_request_info_source` to send information to the corresponding RulePoint topics. The RulePoint topics identify the event properties and values and group them under a specific topic. The value of each field in the table corresponds to the value in the property.

Based on the type of evaluation configured, the advanced rules pick the information from the topics and process them. The processing is based on the proposed rules. Rules evaluate whether the customer is eligible for the loan, and sends this information to the corresponding tables using the SQL responders. BPM picks up the data from the tables for further processing.

## CHAPTER 2

# Before You Begin

This chapter includes the following topic:

- [Before You Begin Tasks, 14](#)

## Before You Begin Tasks

As the document provides high-level information for creating RulePoint objects to execute the BPM use case, it is necessary that you complete the banking use case lessons. The Banking Use Case Tutorial provides a detailed understanding to create, execute, deploy, process, and view different RulePoint objects.

Complete the following tasks before you begin working with the use cases:

1. Run the script to create the required tables and populate the data for the use case located at `<RULEPOINT_HOME>\samples\BPM\db\<database>`.
2. Copy the custom jar `bpm-loanprocessing.jar` from `<RULEPOINT_HOME>/samples/BPM/build` to the `<RULEPOINT_HOME>/custom` directory.
3. Create a project named `BPM_Loan_Processing`.
4. Import the `BPM_Loan_Management.xml` file from `<RULEPOINT_HOME>/samples/BPM/db`.
5. Edit the SQL connection properties to point to the database where you run the database scripts.
6. Run `sample_customer_load_data.txt` in the database to load the sample data.

The following data is a sample of the collected customer information:

```
INSERT INTO
Loan_Processing."CUSTOMER_PERSONAL_INFO" (Customer_ID, Customer_Name, Customer_Age, Customer_Address, Customer_Home_Phone_Number, Customer_Office_Address, Customer_Office_Phone_Number, Customer_Company_Name, Customer_Company_Address, Customer_Years_In_Present_Job) VALUES (1, 'Michael Crichton', 32, '7, Broadway Drive, New York, USA', 87325426, '8, Passway Road, New York USA', 8792432, 'Ginge', '2321, Pathway Drive, USA', 5);
```

```
INSERT INTO Loan_Processing."CUSTOMER_FINANCIAL_INFO" (Customer_ID, Net_Take_Home_Salary_per_Month, Customer_Net_Assets, Loan_EMI_payment_per_month, Total_loans) VALUES (1, 80000, 2000000, 10000, 11000);
```

```
INSERT INTO Loan_Processing."CUSTOMER_CREDIT_INFO" (Customer_ID, Customer_Credit_Rating, History_of_Paying_back_loan) VALUES (1, 2, 2);
```

```
INSERT INTO Loan_Processing."CUSTOMER_FAMILY_INFO" (Customer_ID, Customer_Married, Customer_Number_Of_Dependents, Spouse_Net_Salary, Years_In_Same_Marriage) VALUES (1, 1, 2, 0, 7);
```

```
INSERT INTO Loan_Processing."CUSTOMER_CRIMINAL_INFO" (Customer_ID, Customer_Criminal_Record) VALUES (1, 1);
```

```
INSERT INTO Loan_Processing."CUSTOMER_MEDICAL_HISTORY"(Customer_ID,  
Medical_History_Of_Customer) VALUES (1, 3);
```

```
INSERT INTO Loan_Processing."CUSTOMER_LOAN_REQUEST_INFO"(Customer_ID,  
Customer_Loan_Amount_Requested, Number_Of_Months_To_Pay_Back) VALUES (1, 100000, 60);
```

## CHAPTER 3

# RulePoint Design and Implementation

This chapter includes the following topics:

- [RulePoint Design and Implementation Overview, 16](#)
- [Use Case 1. Decide Loan Eligibility based on Applicant Salary and All Availed Loans, 16](#)
- [Use Case 2. Decide Loan Eligibility based on Applicant Age and Repayment Tenure , 17](#)
- [Use Case 3. Decide Loan Eligibility based on Applicant Salary and Collateral Security, 17](#)
- [Use Case 4. Decide Loan Eligibility based on the Net Salaried Income of a Couple , 18](#)

## RulePoint Design and Implementation Overview

This chapter provides information on the various rule types necessary to create a solution for the trading functionality.

The use cases presented in this lesson represent common loan processing scenarios.

## Use Case 1. Decide Loan Eligibility based on Applicant Salary and All Availed Loans

If the salary and the total Equated Monthly Installment (EMI) for all loans availed by the applicant satisfy the conditions stated in the rule, send an SQL response to the salaryResponse table, indicating that the loan is "Approved." If the parameters do not satisfy the rule, send "Not approved" to the table. In this case, the response sends a value of 1 or 0 to a table field.

### Process Workflow

1. Deploy the following objects:
  - SQL sources: Customer Financial Information Source, Customer Loan Request Information Source
  - Rules: Salary Rule, Salary Rule2



- SQL Responder: Salary Responder
2. In the dashboard, select the event processor where you deployed the rule, and verify that you can view activations for the rule.
  3. In the database, view the Loan\_Aproved\_Common field in the Loan\_Processing.LOAN\_APPROVAL\_INFO\_Common table.

A return value of 1 indicates that the loan is approved, and a return value of 0 indicates that the loan is declined.

## Use Case 2. Decide Loan Eligibility based on Applicant Age and Repayment Tenure

If the applicant's age and the repayment term for the loan criteria are greater or lesser than the cut-off limits, the SQL response indicates whether the applicant is eligible for the loan. RulePoint sends a value of 1 or 0 to the AgeResponse table field. The rule uses a custom analytic to round off the derived age in the rule.

### Process Workflow

1. Deploy the following objects:
    - SQL sources: Customer Personal Information Source, Customer Loan Request Information Source
    - Rules: Age rule, Age Rule2
    - SQL Responder: Age Responder
  2. In the dashboard, select the event processor where you deployed the rule, and verify that you can view activations for the rule.
  3. In the database, view the Loan\_Aproved\_Age field in the Loan\_Processing.LOAN\_APPROVAL\_INFO\_Age table.
- A return value of 1 indicates that the loan is approved, and a return value of 0 indicates that the loan is declined.

## Use Case 3. Decide Loan Eligibility based on Applicant Salary and Collateral Security

If the net salary is less than the loan eligibility criteria, and the person can provide collateral security, the applicant is eligible for the loan. If the applicant is not eligible, RulePoint sends a value of 1 or 0 to the NetAssetResponse table field.

### Process Workflow

1. Deploy the following objects:
  - SQL sources: Customer Financial Information Source, Customer Loan Request Information Source

- Rules: Net Asset rule, Asset Rule2
  - SQL Responder: Net Asset Responder
2. In the dashboard, select the event processor where you deployed the rule, and verify that you can view activations for the rule.
  3. In the database, view the Loan\_Aproved\_Assets field of the Loan\_Processing.LOAN\_APPROVAL\_INFO\_Assets table.
- A return value of 1 indicates that the loan is approved, and a return value of 0 indicates that the loan is declined.

## Use Case 4. Decide Loan Eligibility based on the Net Salaried Income of a Couple

If the net salary is less than the loan eligibility criteria, but the applicant has a salaried spouse who co-signs the loan, and the net salary of the couple meets the loan eligibility criteria, the applicant becomes eligible for the loan. If not, RulePoint responds with a value of 1 or 0 to the SpouseResponse table field.

### Process Workflow

1. Deploy the following objects:
    - SQL sources: Customer Financial Information Source, Customer Loan Request Information Source, Customer Family Information Source
    - Rules: Spouse Rule, Spouse Rule2
    - SQL Responder: Spouse Responder
  2. In the dashboard, select the event processor where you deployed the rule, and verify that you can view activations for the rule.
  3. In the database, view the Loan\_Aproved\_Spouse field of the Loan\_Processing.LOAN\_APPROVAL\_INFO\_Spouse table.
- A return value of 1 indicates that the loan is approved, and a return value of 0 indicates that the loan is declined.

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