

# Enhancement Test Results Demonstration

Prepared for NUS-ISS Machine Reasoning Course  
Individual Project

# Before Enhancement

Inlimit Machine Reasoning evaluation does not take  
into account of Credit Rating Risk Grade

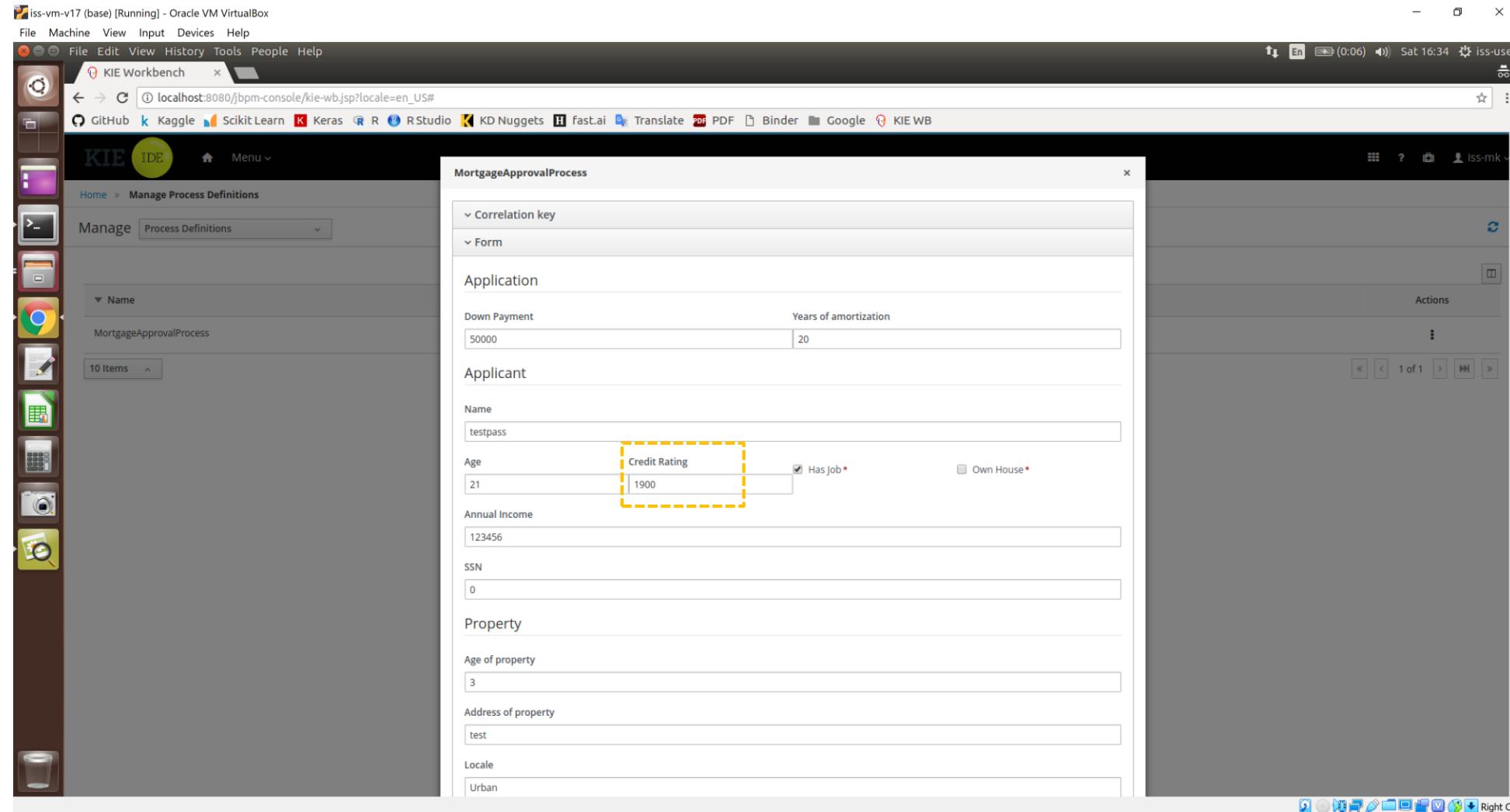
# Before: Mortgage Process Guided Decision Table

The screenshot shows the KIE Workbench interface for a Guided Decision Table named "MortgageMachineReasoningDT". The table has the following structure:

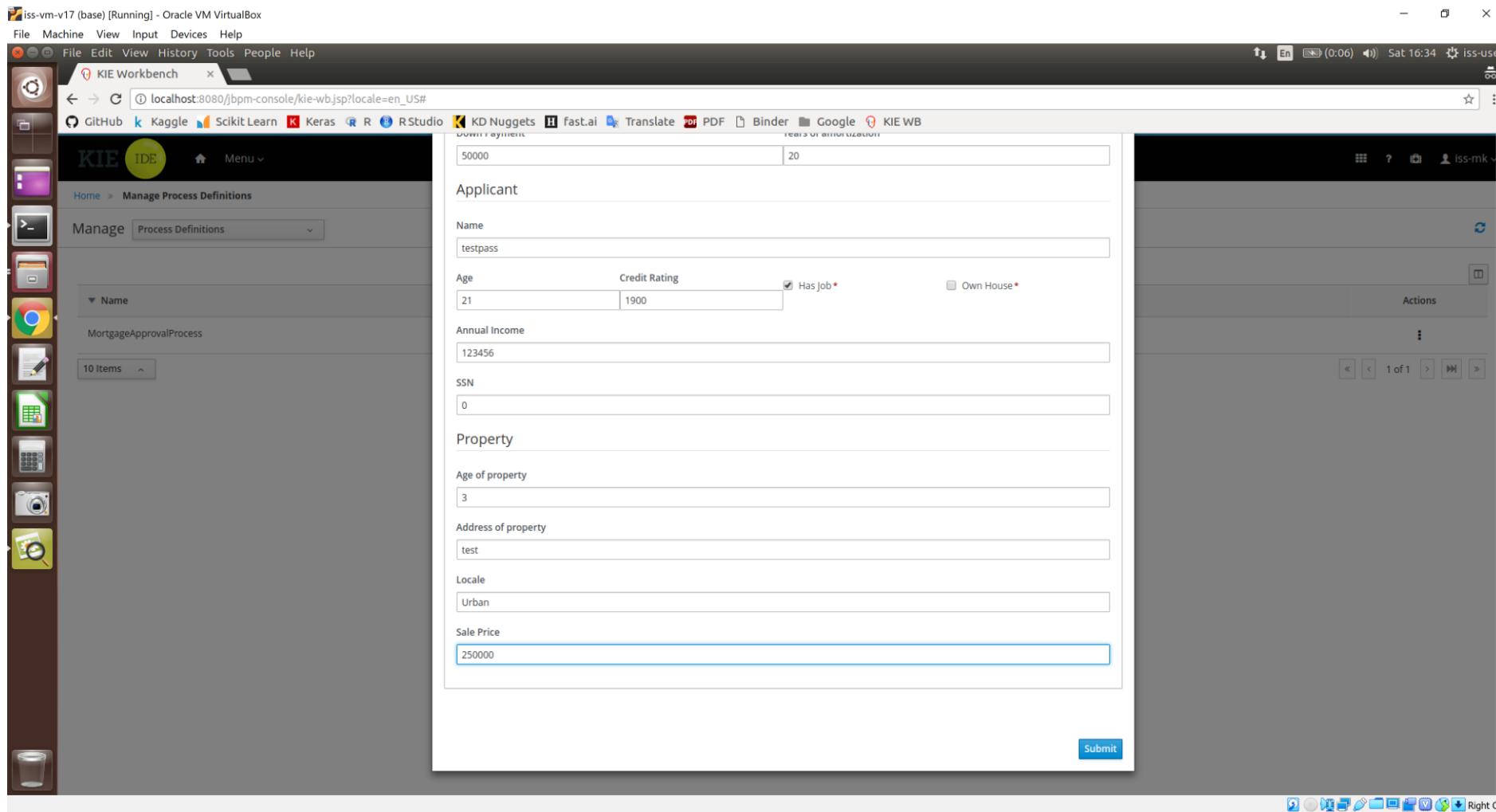
#	Description	ruleflow-group	Applicant Own House		Applicant Has Job		Applicant Age Range		Applicant Credit Rating		Approval In Limit	
			\$ownHouse	\$hasJob	\$ageLess	\$ageGE	\$creditRating	Approval In Limit				
1	MortgageMachineReasoningDT		true	true						true		
2	MortgageMachineReasoningDT		true	false						true		
3	MortgageMachineReasoningDT		false	true						true		
4	MortgageMachineReasoningDT		false	false						false		

A green box highlights the first four columns of the table, and a yellow dashed box highlights the last four columns.

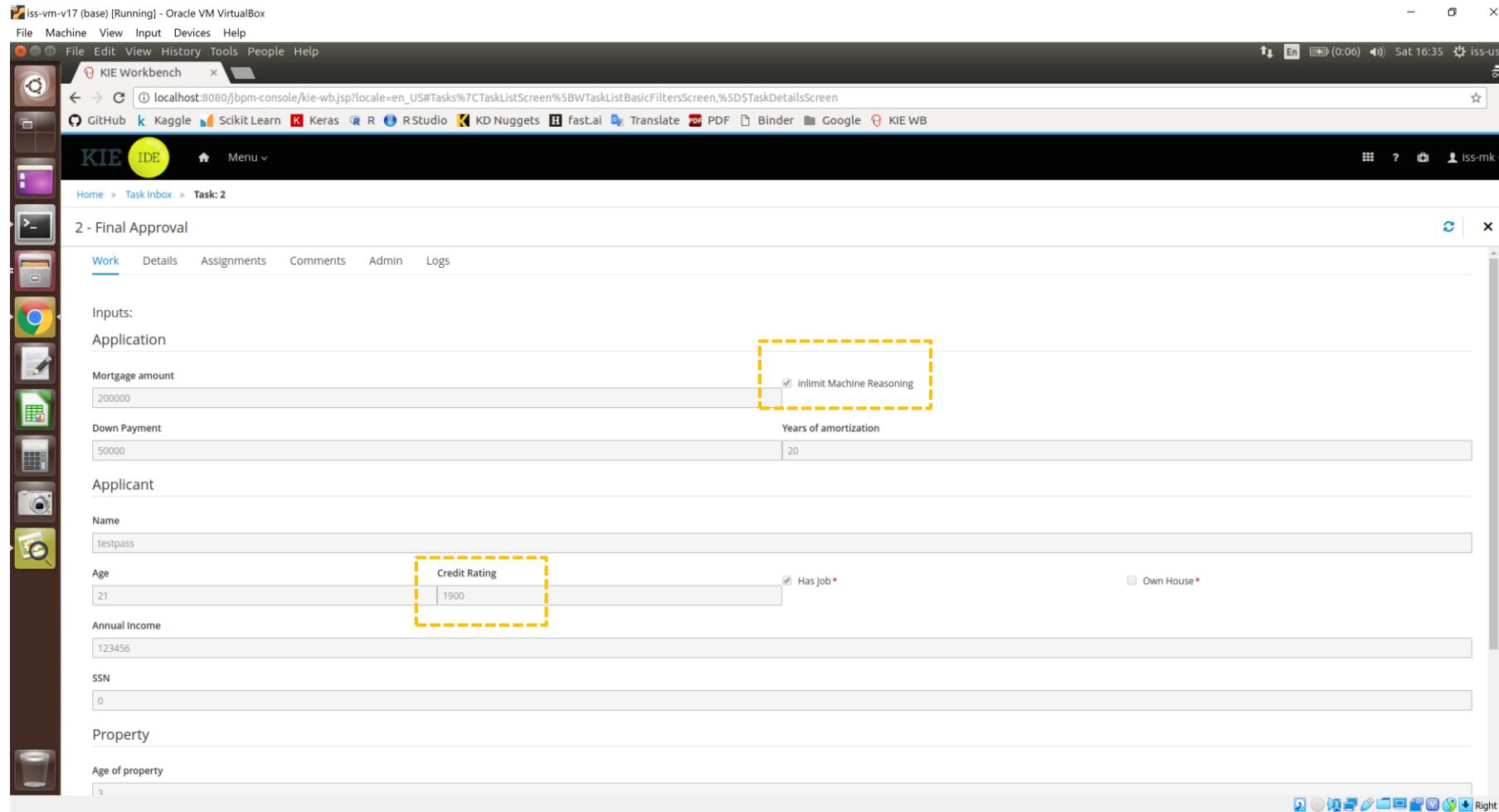
# Approved Evaluation with BB Risk Grade (1)



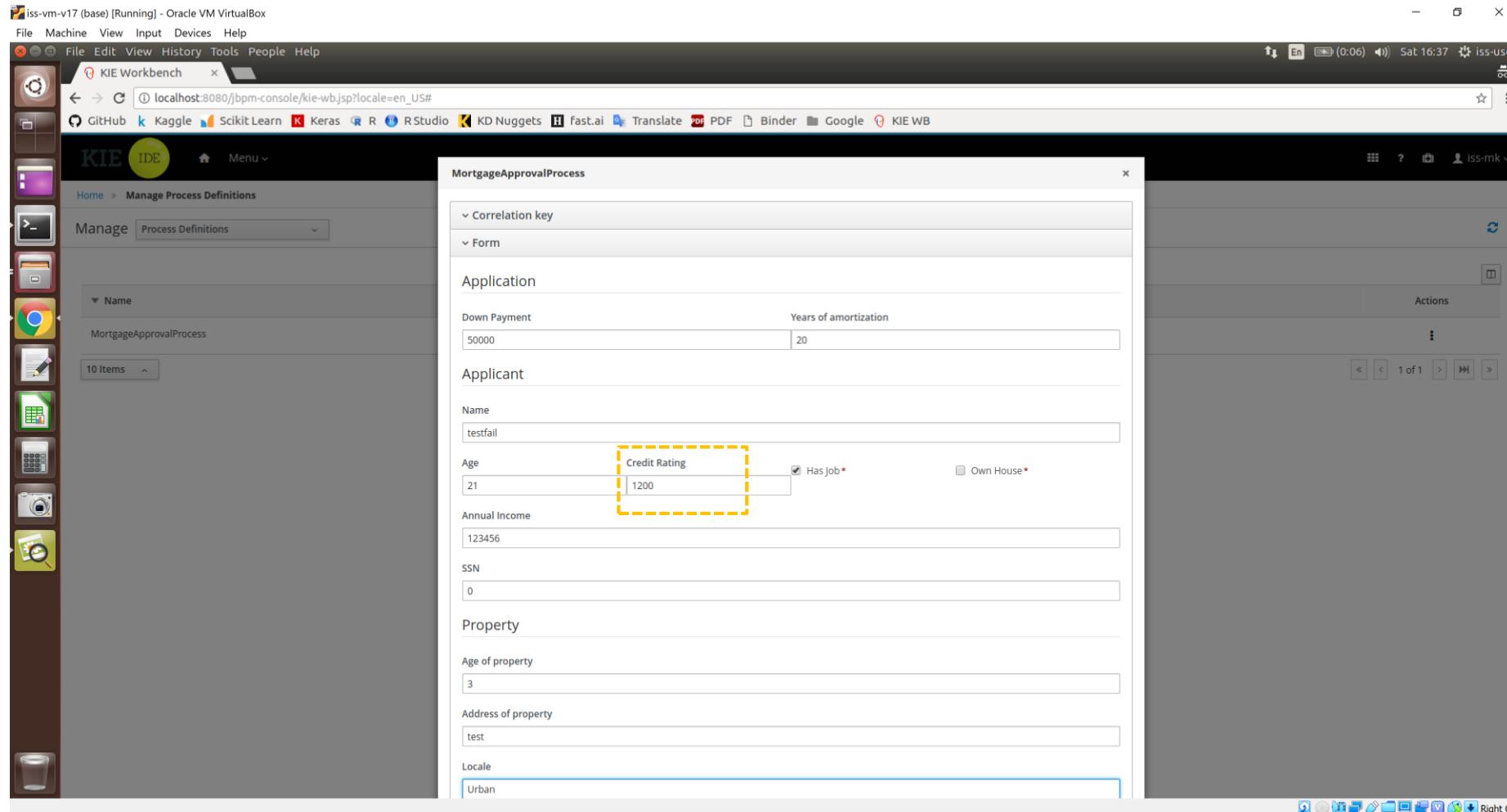
# Approved Evaluation with BB Risk Grade (2)



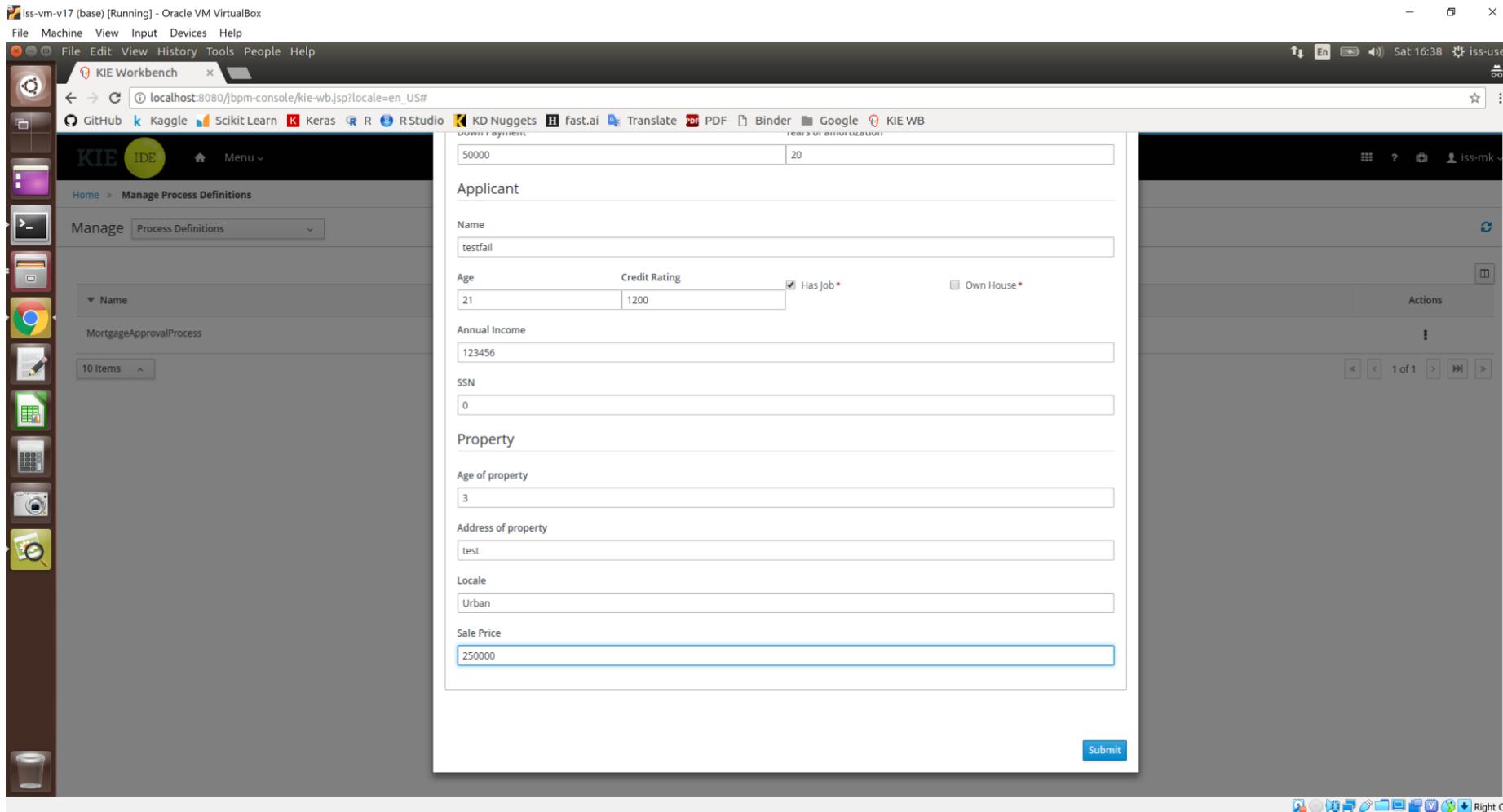
# Approved Evaluation with BB Risk Grade (3)



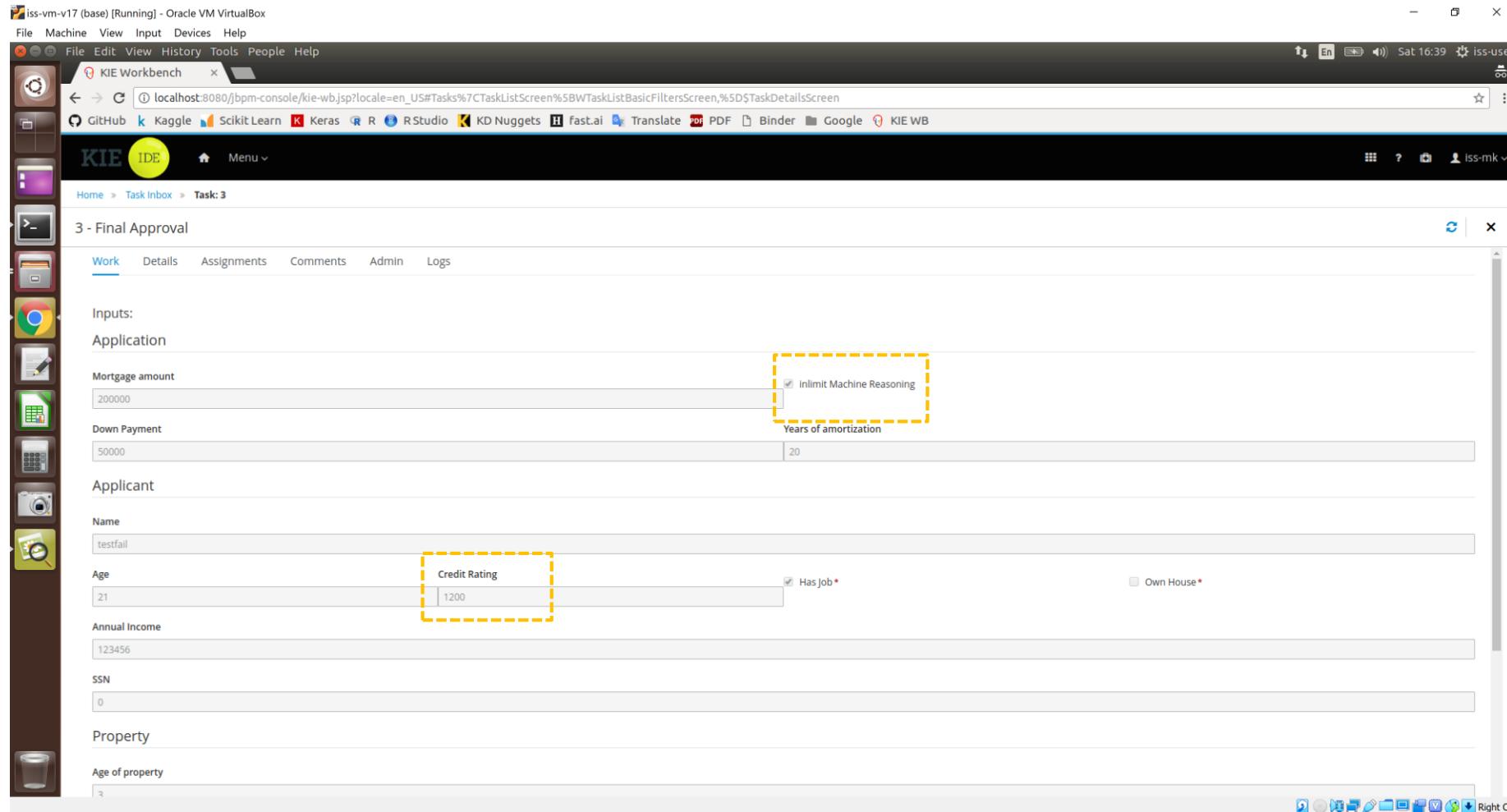
# Approved Evaluation with HH Risk Grade (1)



# Approved Evaluation with HH Risk Grade (2)



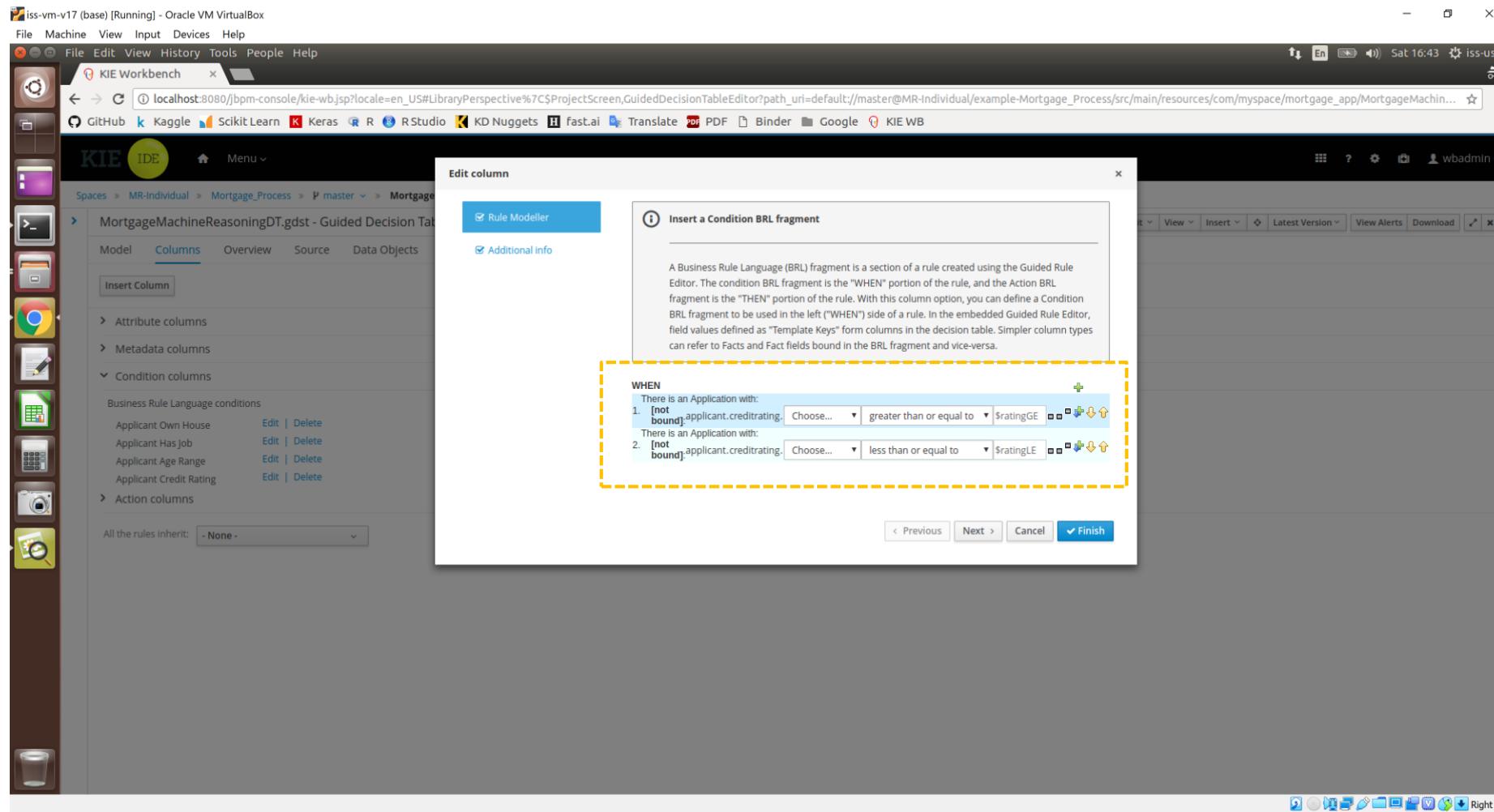
# Approved Evaluation with HH Risk Grade (3)



# After Enhancement

Inlimit Machine Reasoning evaluation takes into account of Credit Rating Risk Grade

# After: Mortgage Process Guided Decision Table (1)



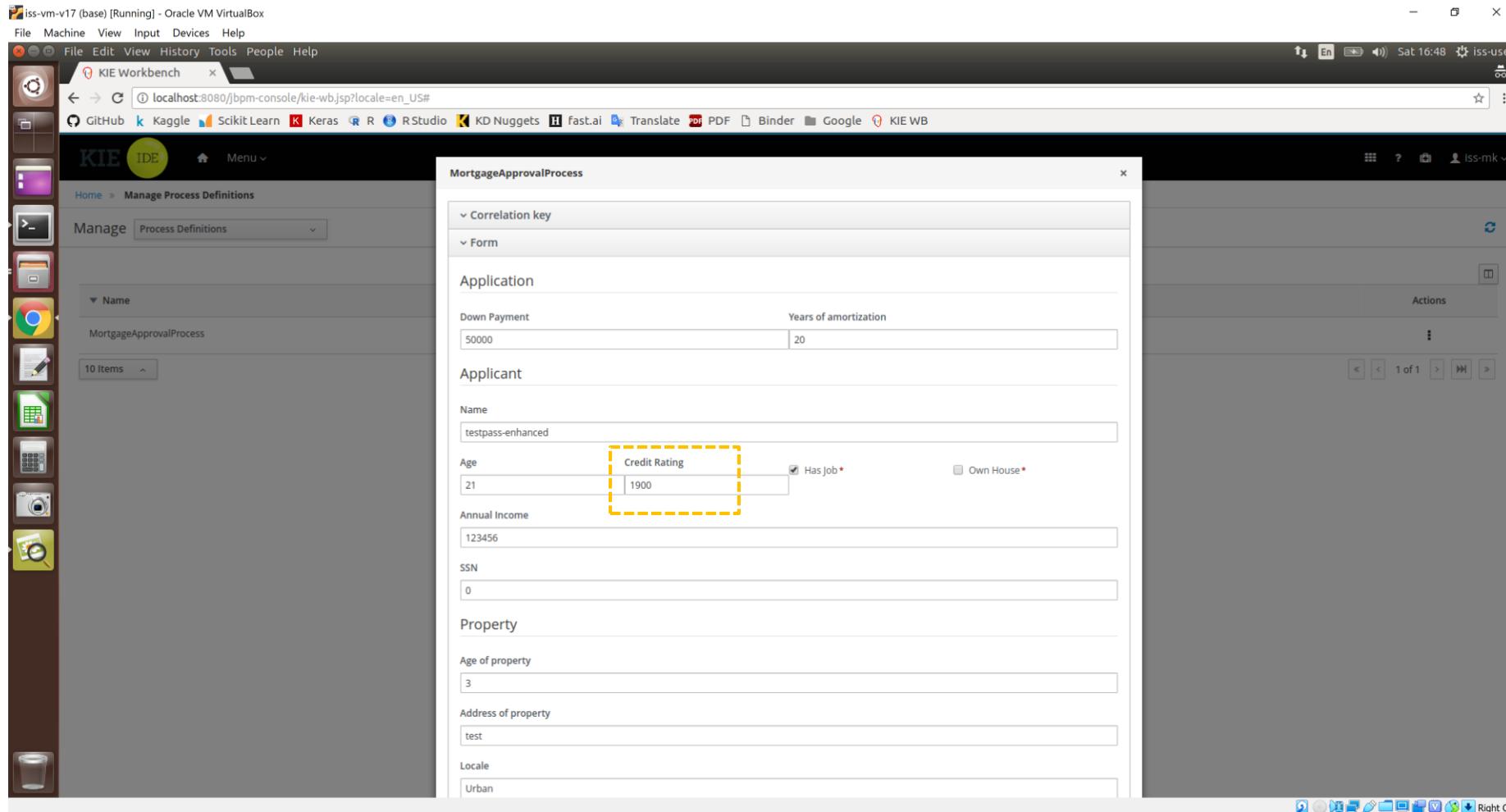
# After: Mortgage Process Guided Decision Table (2)

The screenshot shows the KIE Workbench interface running on a Linux desktop. The main window displays a Guided Decision Table (GDT) titled "MortgageMachineReasoningDT.gdst". The table has the following structure:

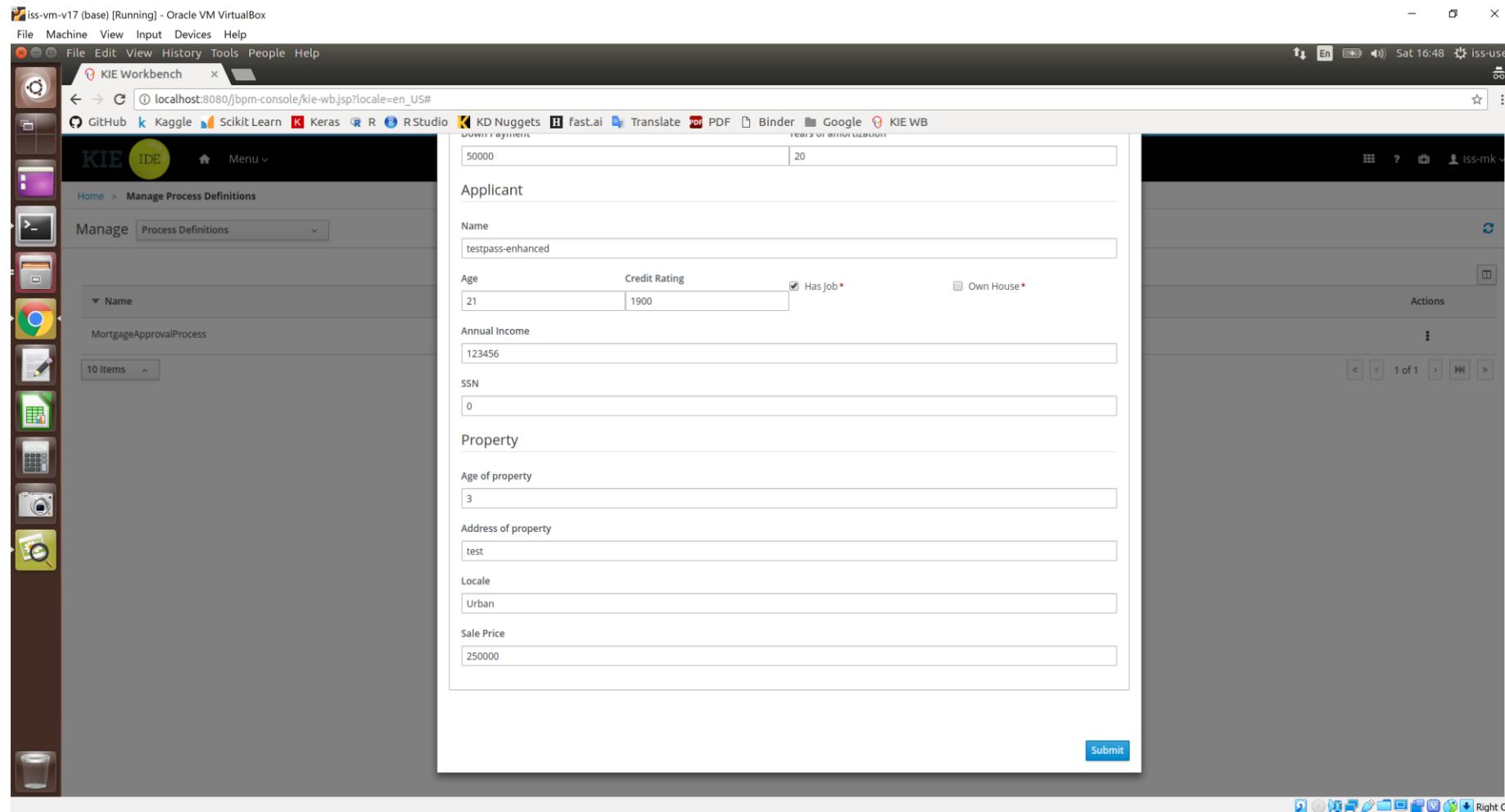
#	Description	ruleflow-group	Applicant Own House		Applicant Has Job		Applicant Age Range		Applicant Credit Rating Range		app	
			\$ownHouse	\$hasJob	\$ageLess	\$ageGE	\$ratingGE	\$ratingLE	Approval In Limit			
1	MortgageMachineReasoningDT	true	true				1825	2000	true			
2	MortgageMachineReasoningDT	true	false				1825	2000	true			
3	MortgageMachineReasoningDT	false	true				1825	2000	true			
4	MortgageMachineReasoningDT	false	false				1000	2000	false			
5	MortgageMachineReasoningDT	true	true				1000	1824	false			
6	MortgageMachineReasoningDT	true	false				1000	1824	false			
7	MortgageMachineReasoningDT	false	true				1000	1824	false			

A yellow dashed box highlights the "app" section of the table, specifically the columns for \$ratingGE, \$ratingLE, and Approval In Limit. The value "1000" is highlighted in green for rows 5, 6, and 7. The KIE IDE sidebar on the left shows various project and tool icons.

# Approved Evaluation with BB Risk Grade (1)



# Approved Evaluation with BB Risk Grade (2)



# Approved Evaluation with BB Risk Grade (3)

iss-vm-v17 (base) [Running] - Oracle VM VirtualBox

File Machine View Input Devices Help

KIE Workbench

localhost:8080/bpm-console/kie-wb.jsp?locale=en\_US#Tasks%7CTaskListScreen%SBWTaskListBasicFiltersScreen,%5D\$TaskDetailsScreen

GitHub Kaggle Scikit Learn Keras R R Studio KD Nuggets fast.ai Translate PDF Binder Google KIE WB

KIE IDE Home Task inbox Task: 4

4 - Final Approval

Work Details Assignments Comments Admin Logs

Inputs:

Application

Mortgage amount: 200000  inlimit Machine Reasoning

Down Payment: 50000 Years of amortization: 20

Applicant

Name: testpass-enhanced

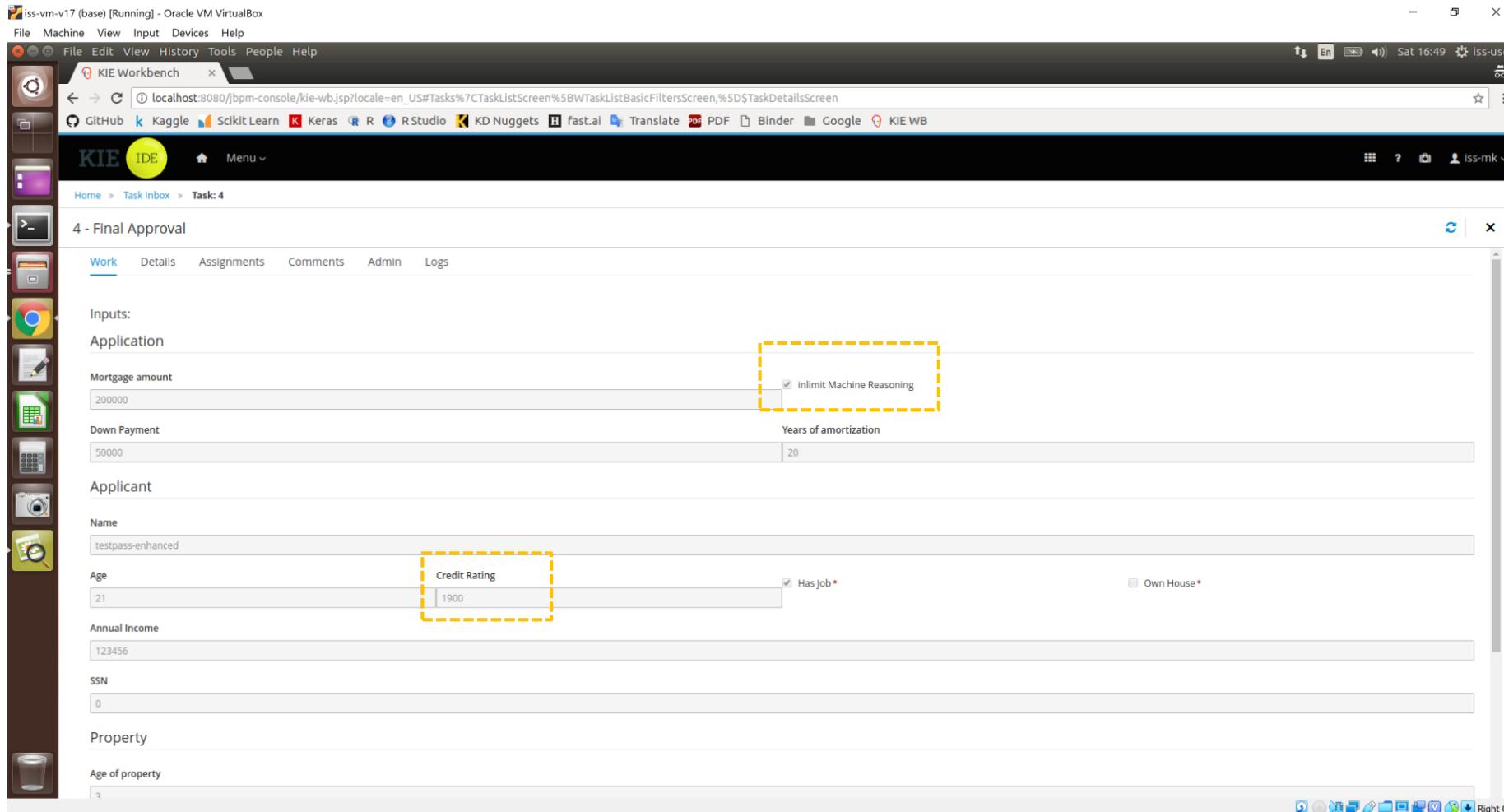
Age: 21 Credit Rating: 1900  Has job\*  Own House\*

Annual Income: 123456

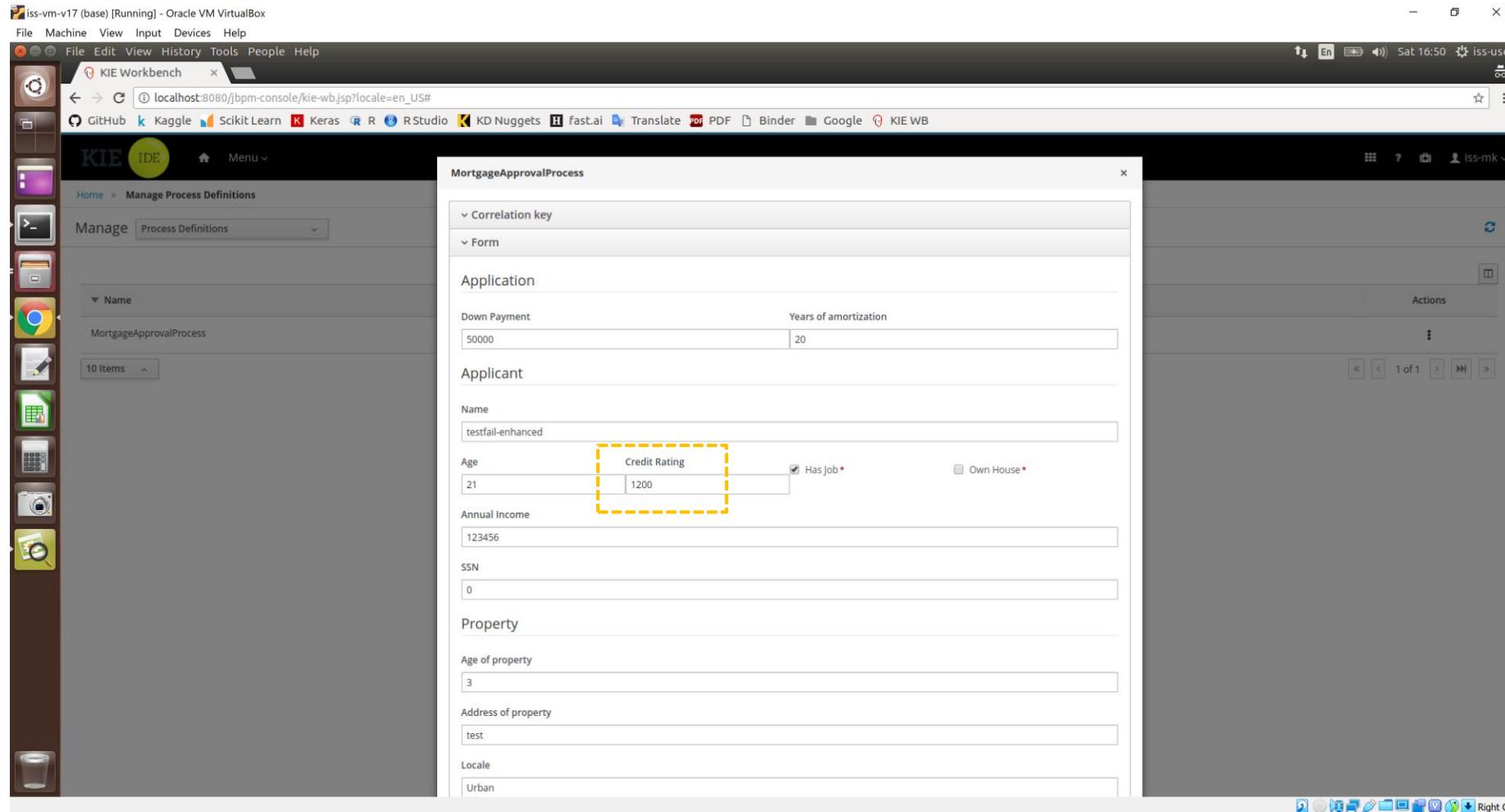
SSN: 0

Property

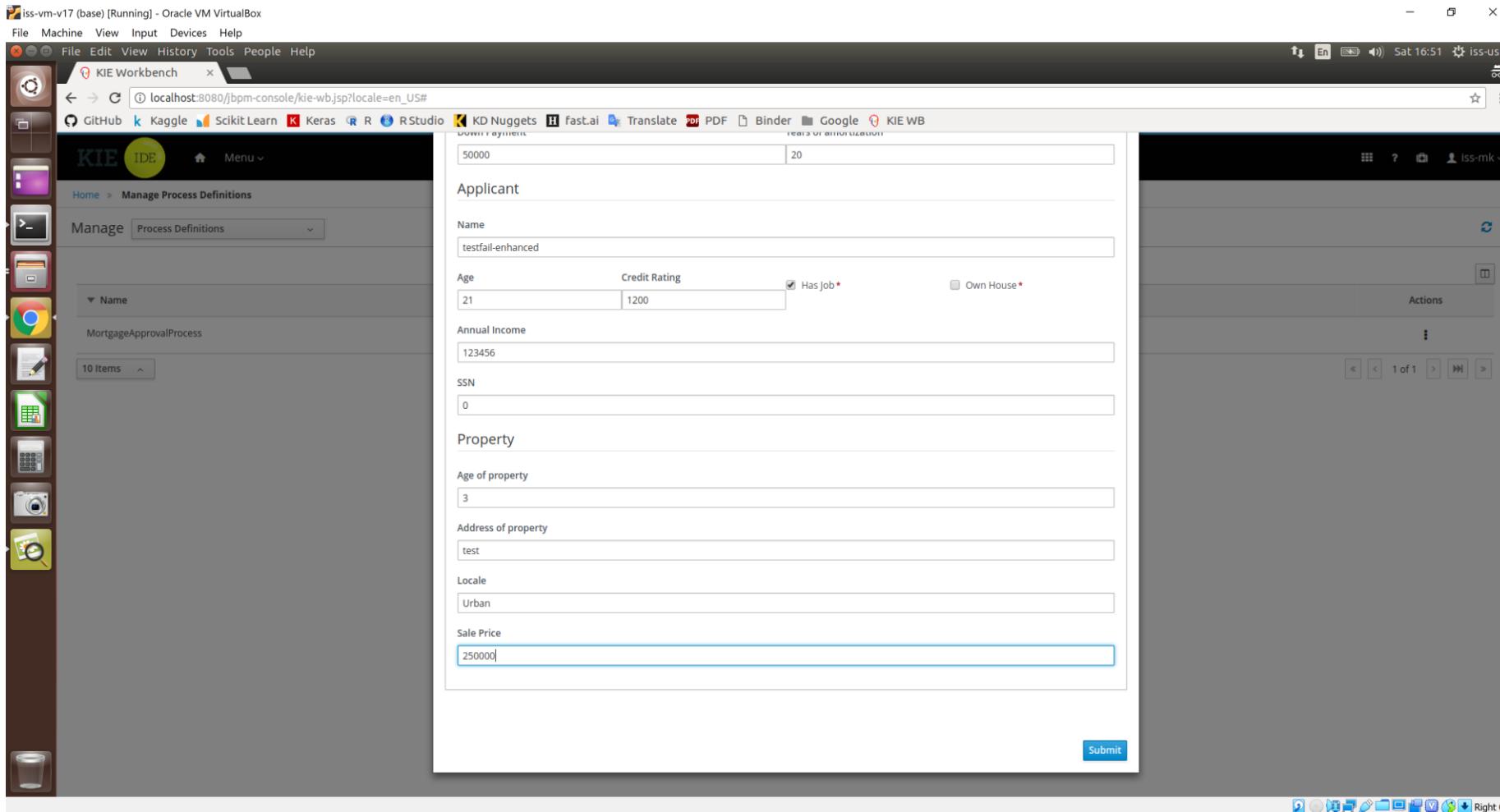
Age of property: ?



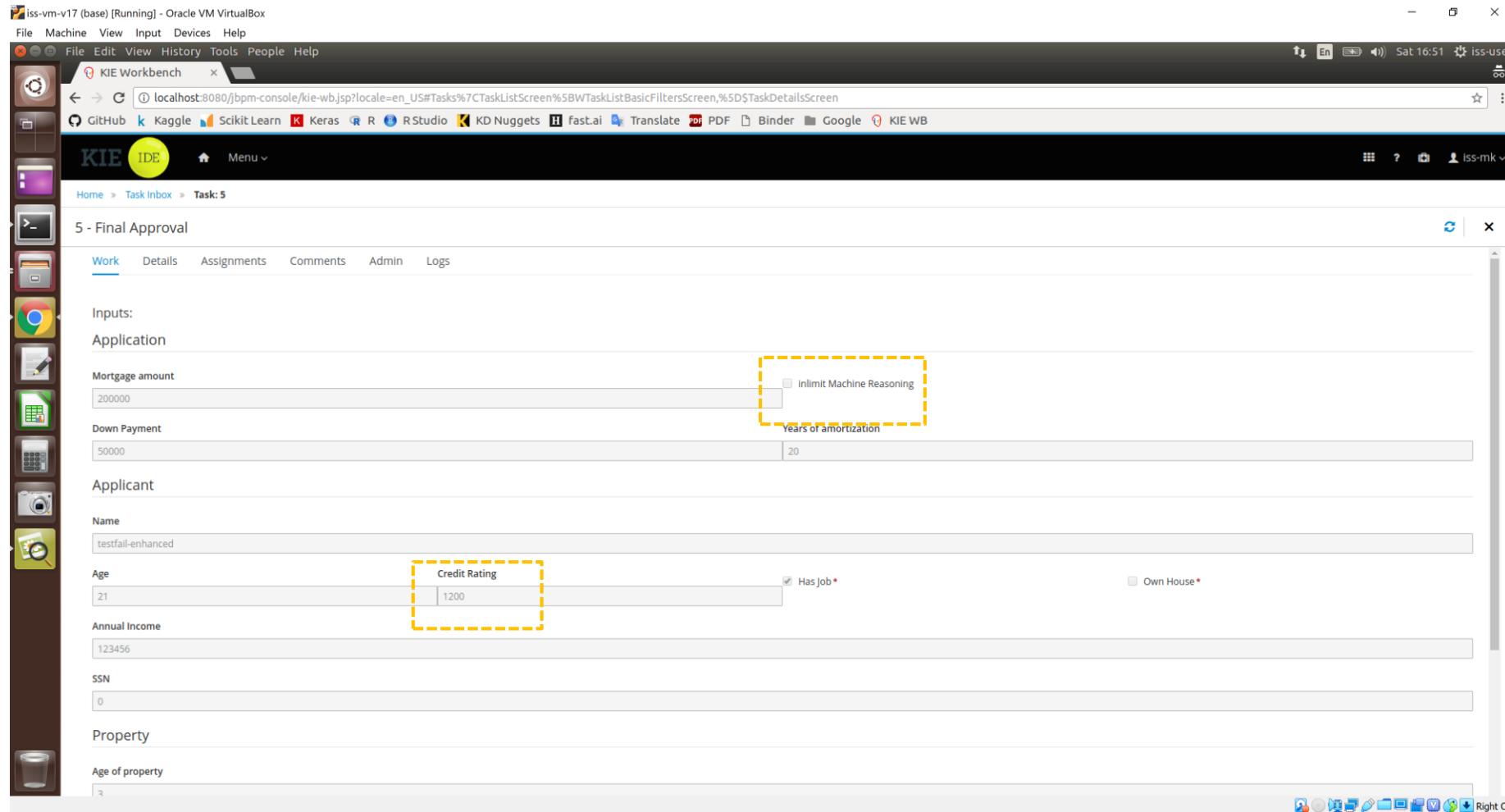
# Rejected Evaluation with HH Risk Grade (1)



# Rejected Evaluation with HH Risk Grade (2)



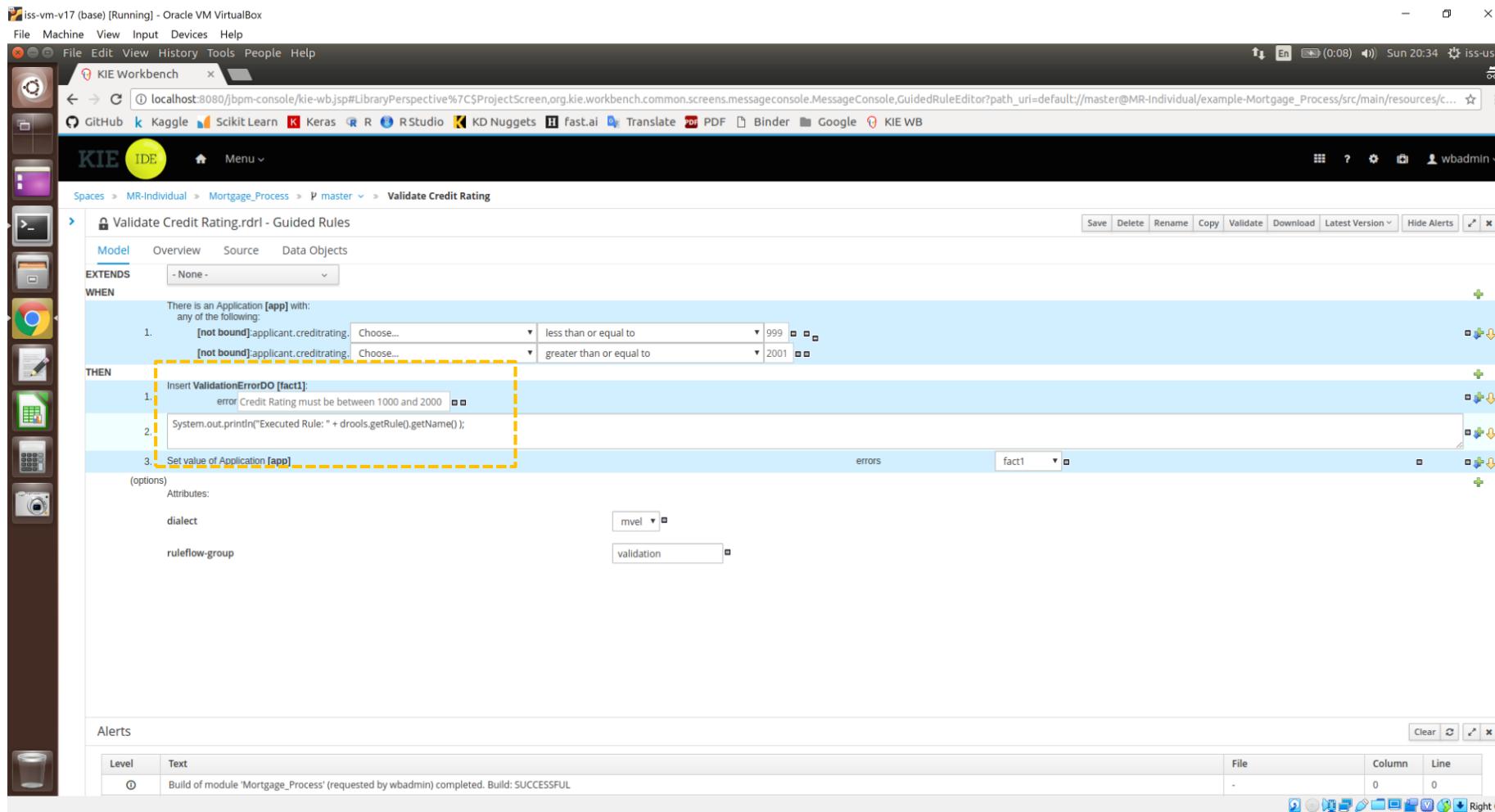
# Rejected Evaluation with HH Risk Grade (3)



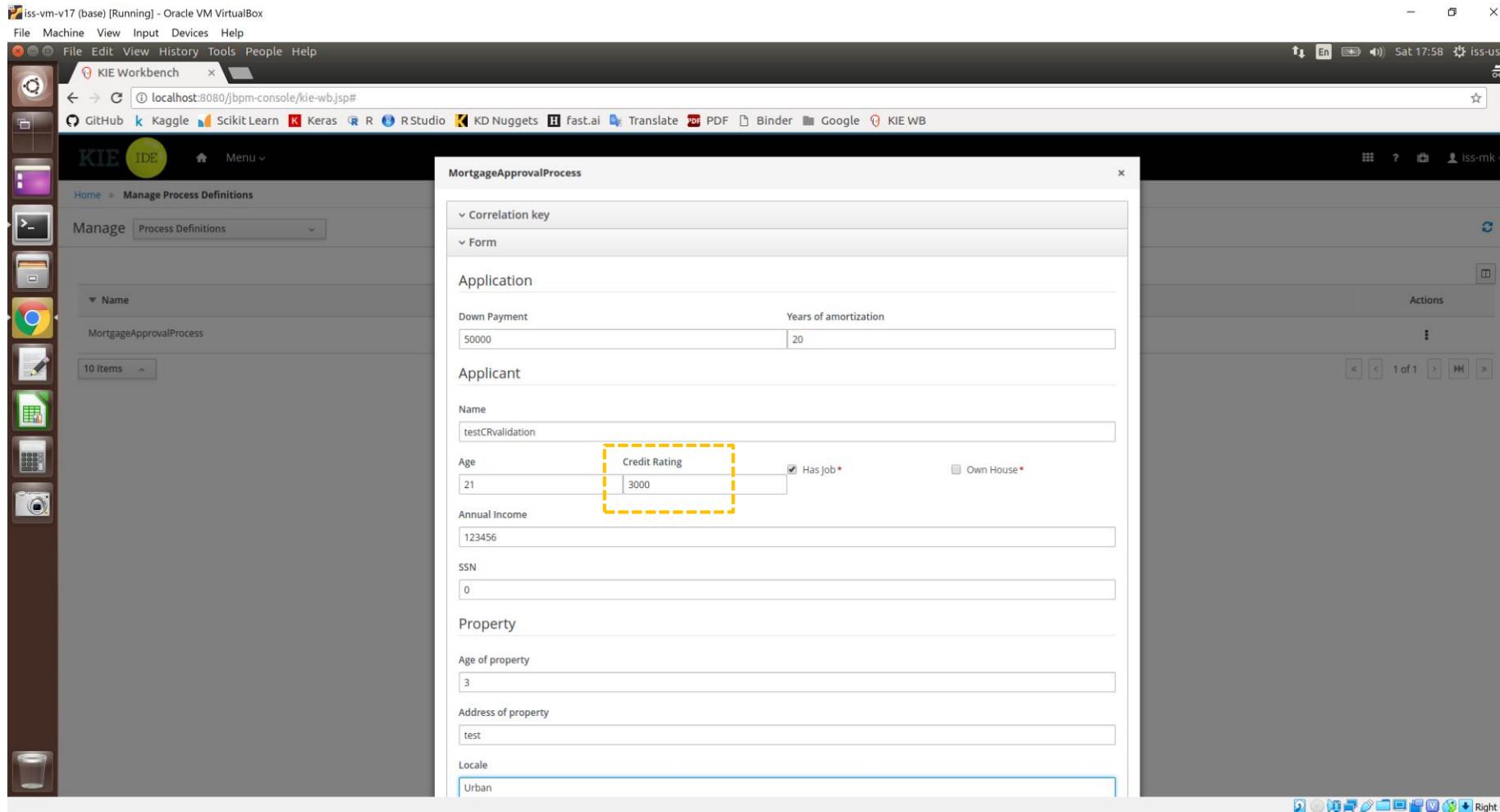
# After Enhancement

Additional validation for the Credit Rating field is added to check for valid values

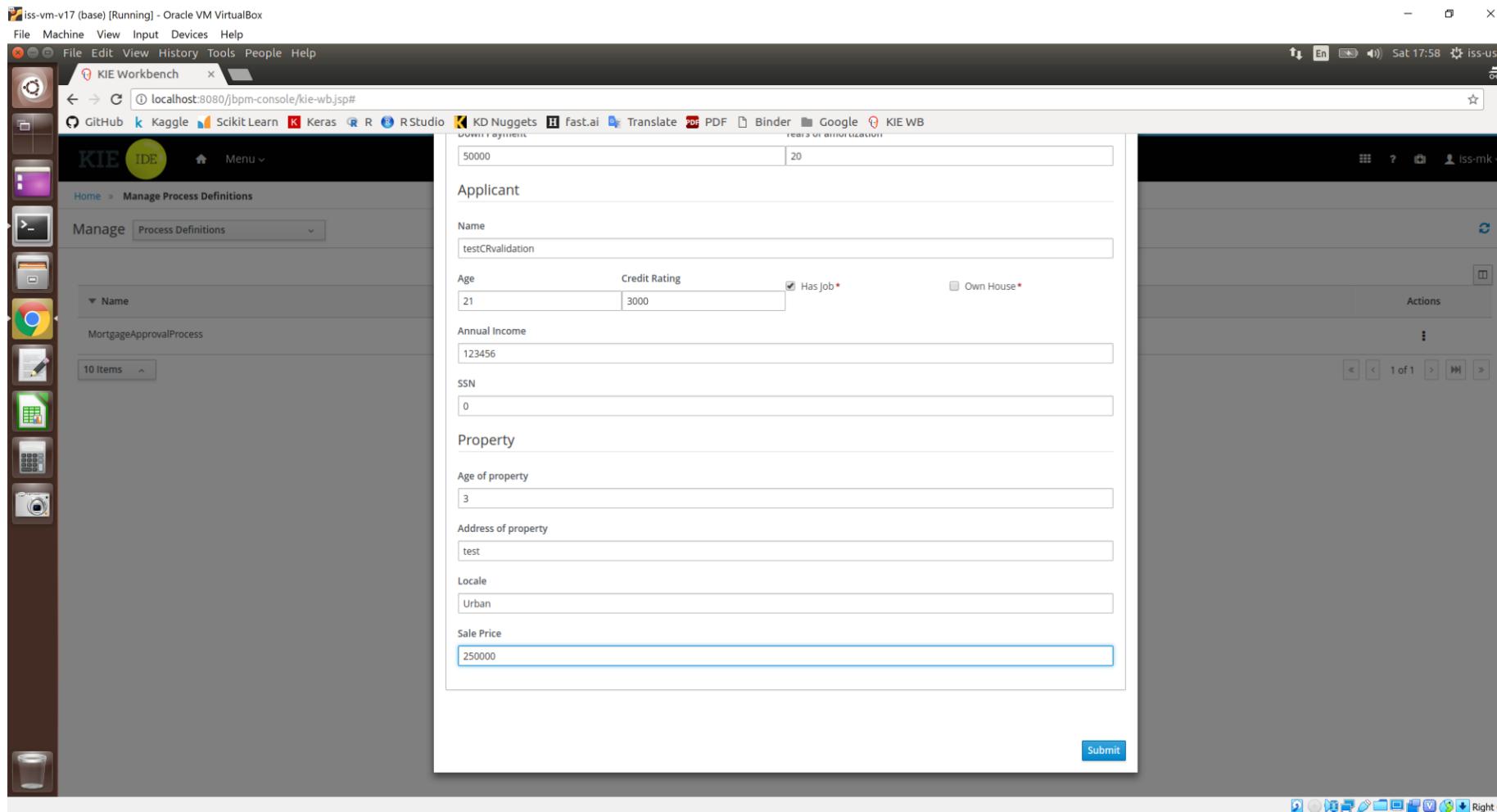
# After: Validate Credit Rating Guided Rule added



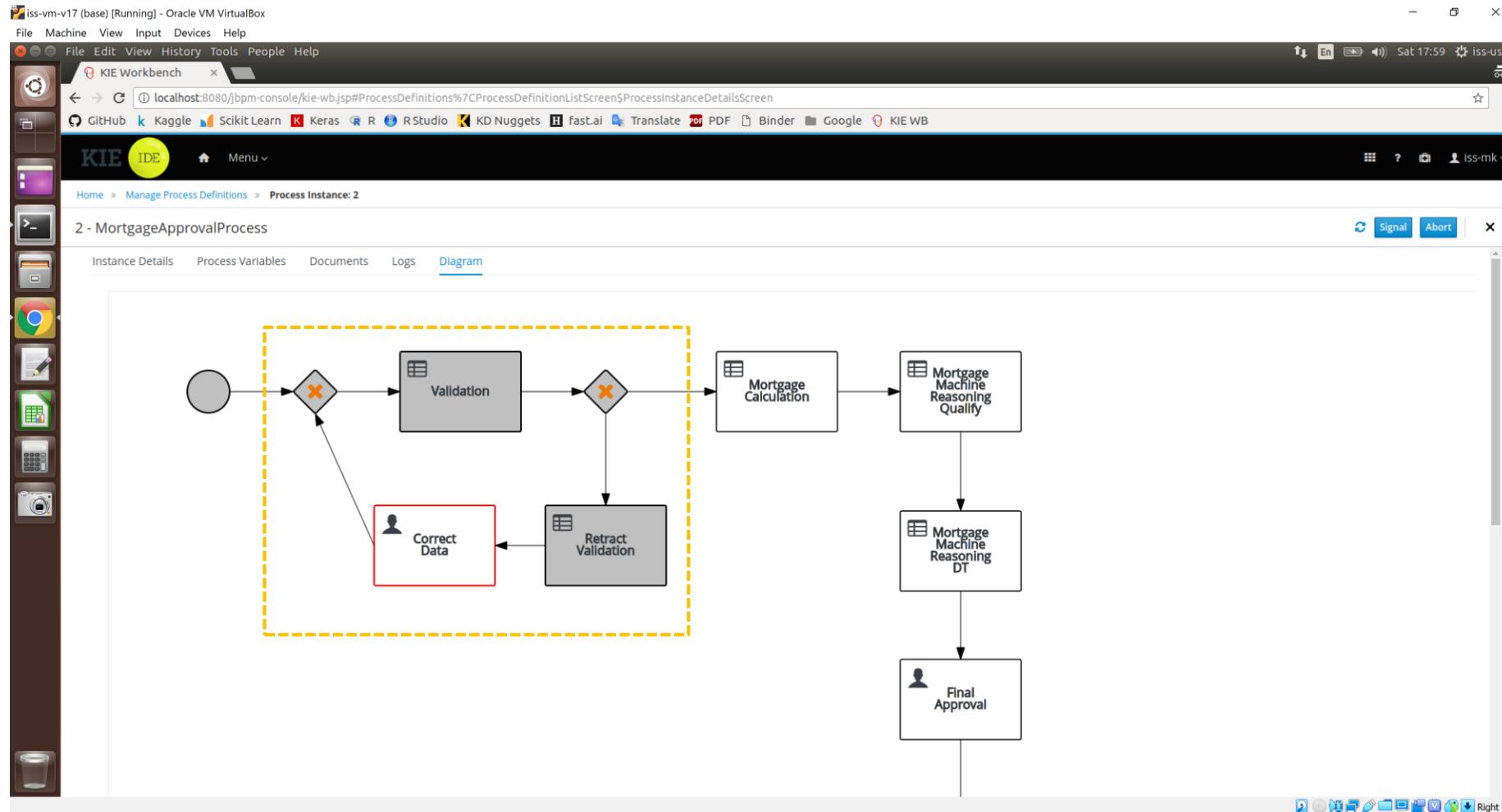
# Validation of Invalid Credit Rating (1)



# Validation of Invalid Credit Rating (2)



# Validation of Invalid Credit Rating (3)



# Validation of Invalid Credit Rating (4)

The screenshot shows a KIE Workbench interface running in a virtual machine. The main window displays a task titled "2 - Correct Data". The "Work" tab is selected. In the "Outputs" section, there is a link to "Application". Below it, the "Error details" section contains a box labeled "Error and cause" with the message "Credit Rating must be between 1000 and 2000". This error box is highlighted with a yellow dashed border. The "Down Payment" field contains "50000" and the "Years of amortization" field contains "20". In the "Applicant" section, the "Name" field contains "testOrValidation". Under "Annual Income", the value "123456" is entered. The "Age" field has "21" and the "Credit Rating" field has "3000". A checkbox for "Has Job\*" is checked, while "Own House\*" is unchecked. The "SSN" field contains "0". The "Property" section is currently empty.