

Getting Started with SAS Intelligent Decisioning

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Exercise Description

Are you interested in using SAS Viya to automate your business decisions and drive real-time customer interactions, but don't know where to begin? In this hands-on workshop, you'll learn how to create a decision step-by-step. Use the SAS Intelligent Decisioning interface to create rule sets and other decision elements, arrange decision objects in a workflow, and test completed decisions for accuracy.



Log in to SAS Viya

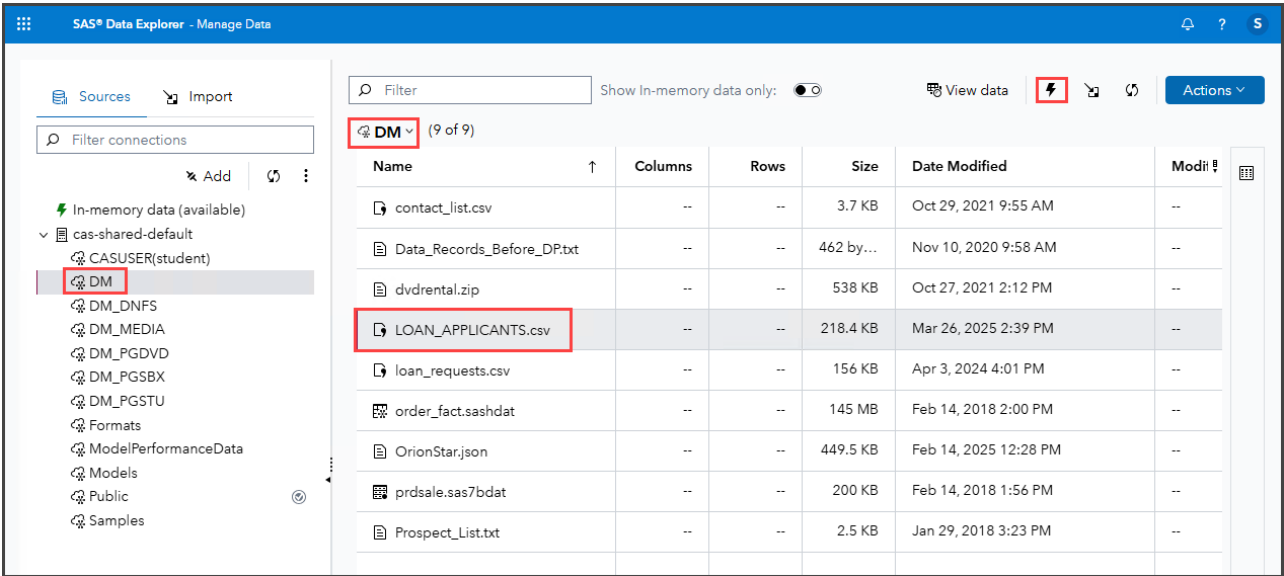
Open a new window in the *Google Chrome* browser and select the **SAS Viya** bookmark.

- ID: **student**
- Password: **Metadata0**

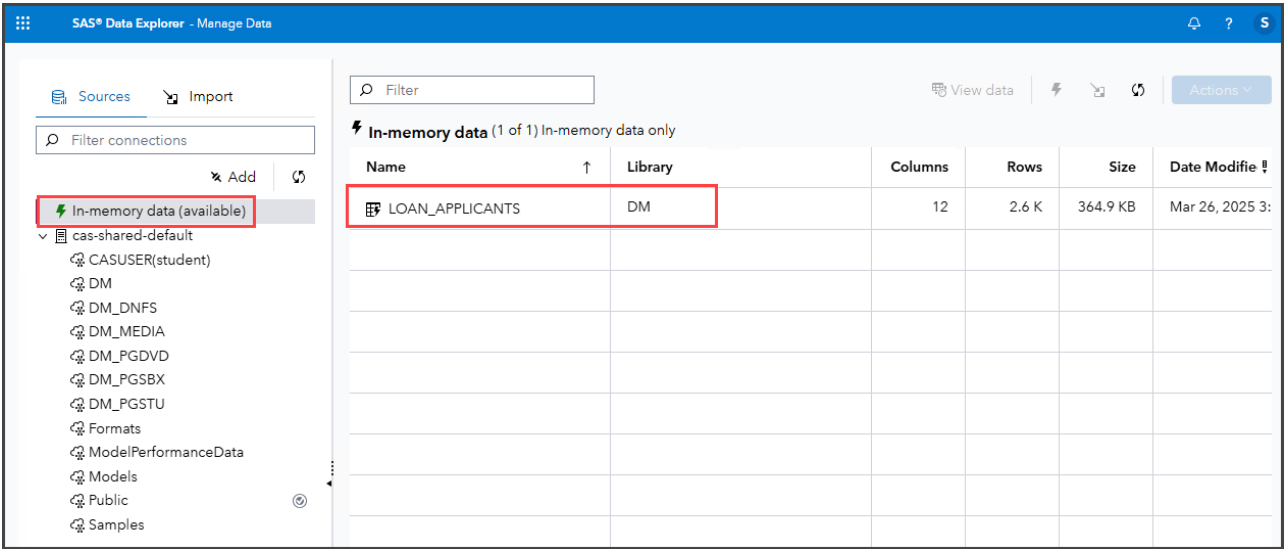
Select **No** when prompted about accepting *Admin* privileges.

Load CAS Data In-Memory

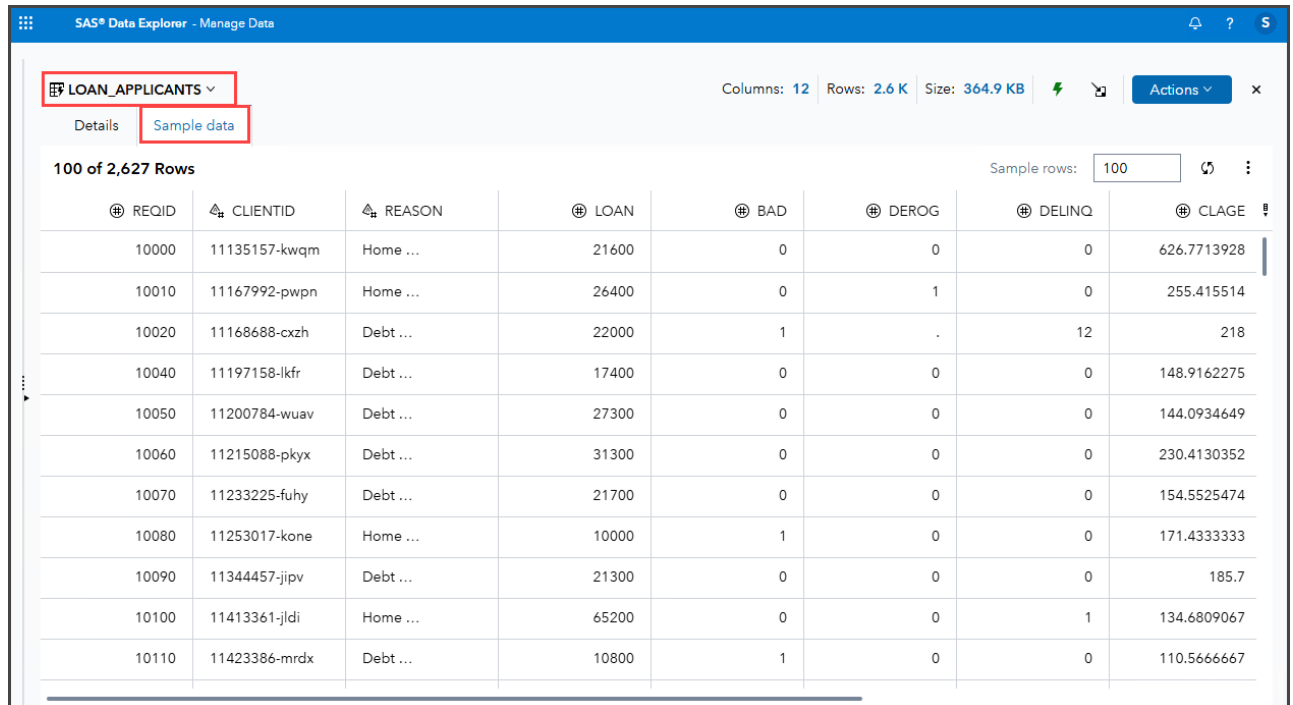
1. Select  → **Manage Data** to open *SAS Data Explorer*.
2. Expand the **cas-shared-default** server to view the listing of CAS libraries.
3. Select the **DM** CAS library to view its contents.
4. Select the **LOAN_APPLICANTS.csv** table and click  to load the table into memory.



5. Select the **In-memory data (available)** source to confirm the **LOAN_APPLICANTS** table is now listed there.





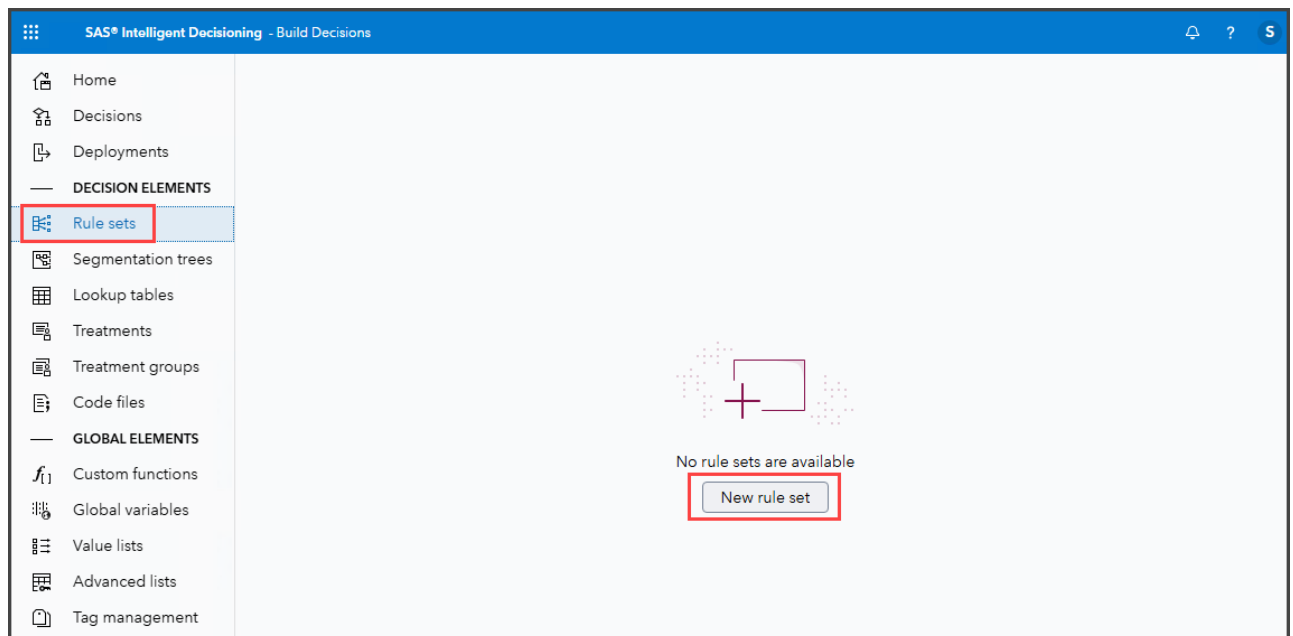
- 6. Select the **LOAN_APPLICANTS** table hyperlink to view its *Details*.
- 7. Select the **Sample data** tab to view a sample of the data set.
- 8. Click the **x** in the right-corner of the window to close the table.



REQID	CLIENTID	REASON	LOAN	BAD	DEROG	DELINQ	CLAGE
10000	11135157-kwqm	Home ...	21600	0	0	0	626.7713928
10010	11167992-pwpn	Home ...	26400	0	1	0	255.415514
10020	11168688-cxzh	Debt ...	22000	1	.	12	218
10040	11197158-lkfr	Debt ...	17400	0	0	0	148.9162275
10050	11200784-wuav	Debt ...	27300	0	0	0	144.0934649
10060	11215088-pkyx	Debt ...	31300	0	0	0	230.4130352
10070	11233225-fuhy	Debt ...	21700	0	0	0	154.5525474
10080	11253017-kone	Home ...	10000	1	0	0	171.4333333
10090	11344457-jipv	Debt ...	21300	0	0	0	185.7
10100	11413361-jldi	Home ...	65200	0	0	1	134.6809067
10110	11423386-mrdx	Debt ...	10800	1	0	0	110.5666667

Create and Test an Assignment Rule Set



1. Select  → **Build Decisions** to open *SAS Intelligent Decisioning*.
2. Select  to open the **Rule sets** page.
3. Click **New rule set** to create a new rule set.

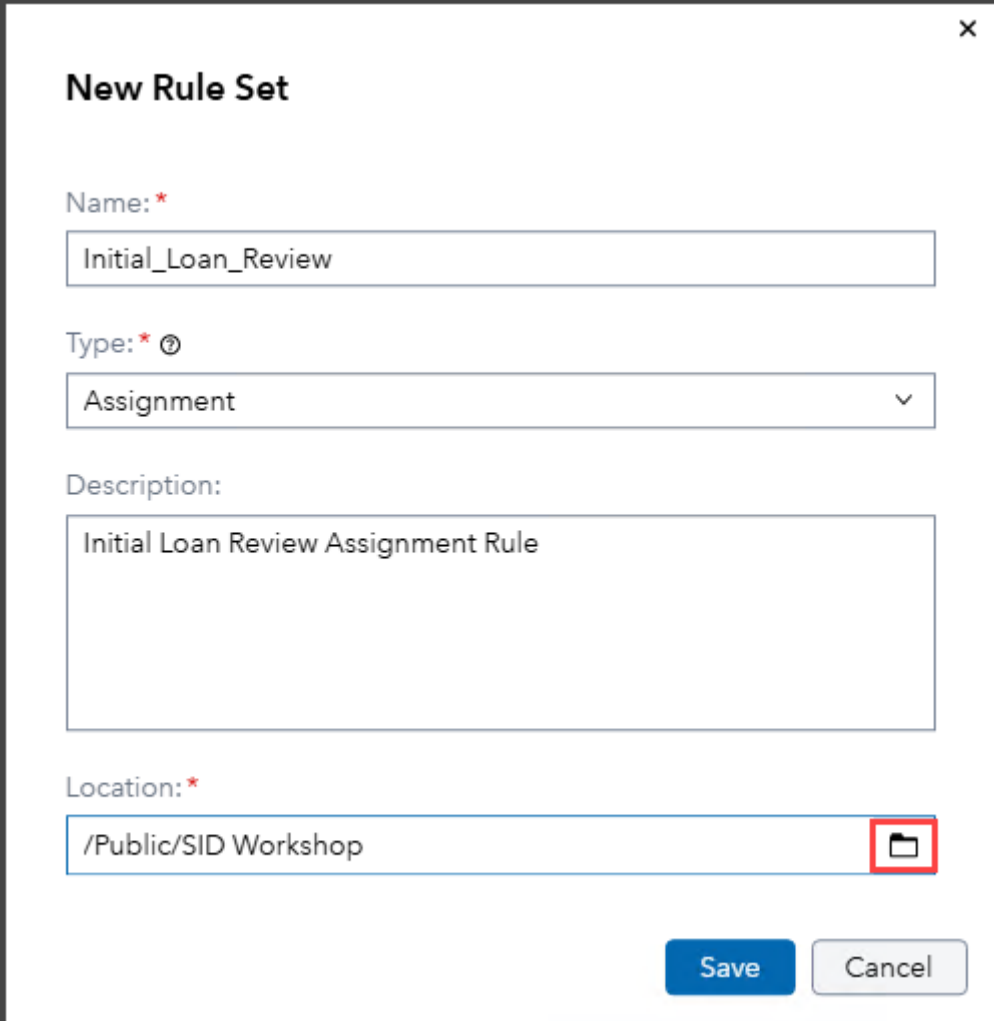


4. Enter the following information for the new rule set:

- Name: **Initial_Loan_Review**
- Type: **Assignment**
- Description: **Initial Loan Review Assignment Rule**

- Location: **/Public/SID Workshop**

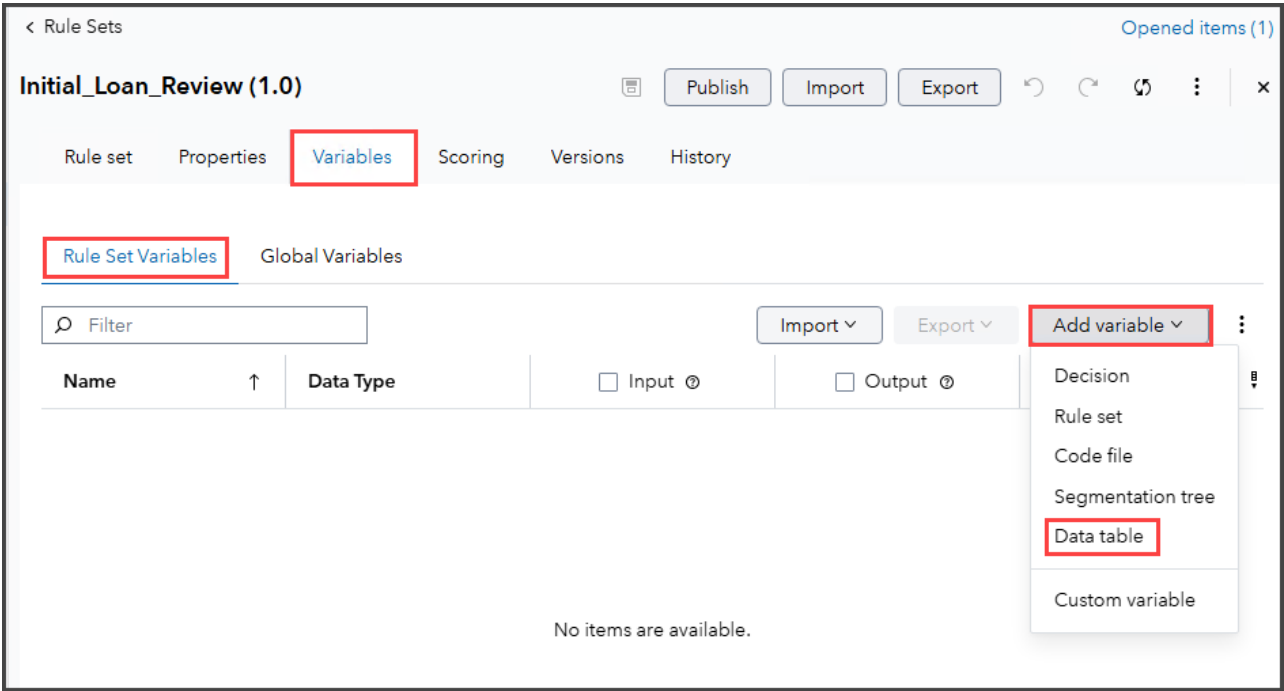
Select  to navigate to *SAS Content/Public*, then select  → **Folder** to create a new folder named *SID Workshop* if the workshop folder does not already exist.



The image shows a 'New Rule Set' dialog box with the following fields and controls:

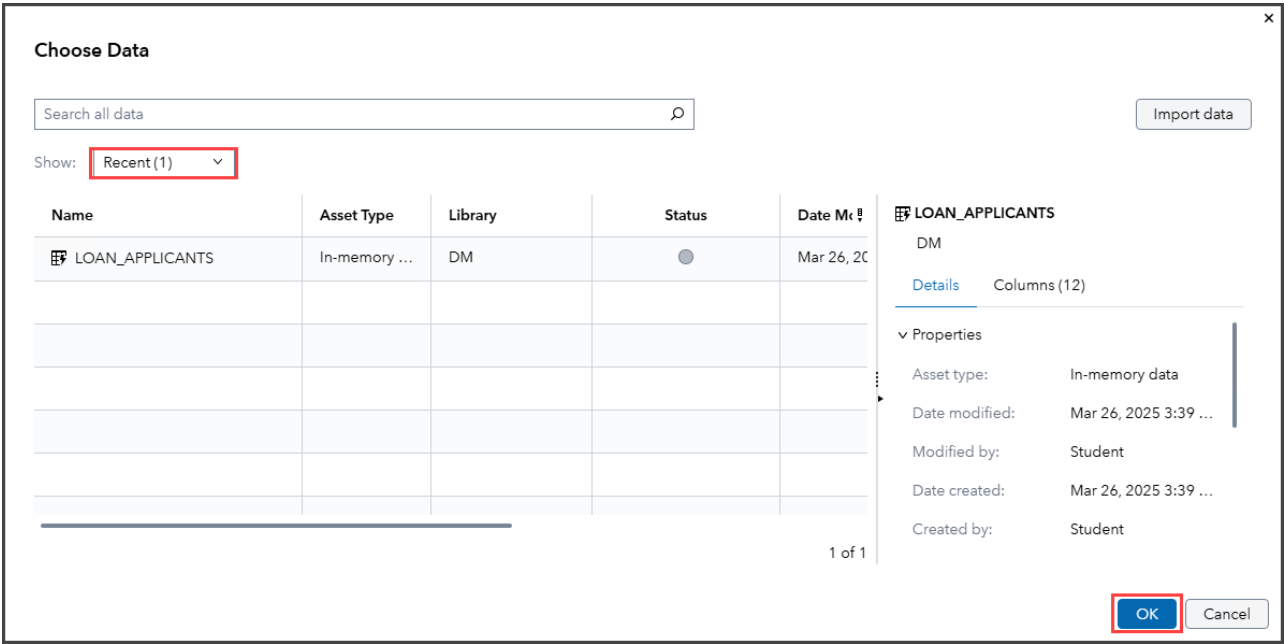
- Name:** * Initial_Loan_Review
- Type:** * Assignment (dropdown menu)
- Description:** Initial Loan Review Assignment Rule
- Location:** * /Public/SID Workshop (text field with a folder icon button to the right)
- Buttons:** Save (blue), Cancel (grey)


5. Click **Save** to create the rule set.
6. On the **Variables** tab, ensure that the **Rule Set Variables** sub-tab is selected.
7. Select **Add variable** → **Data table** to add variables from an *in-memory* table.

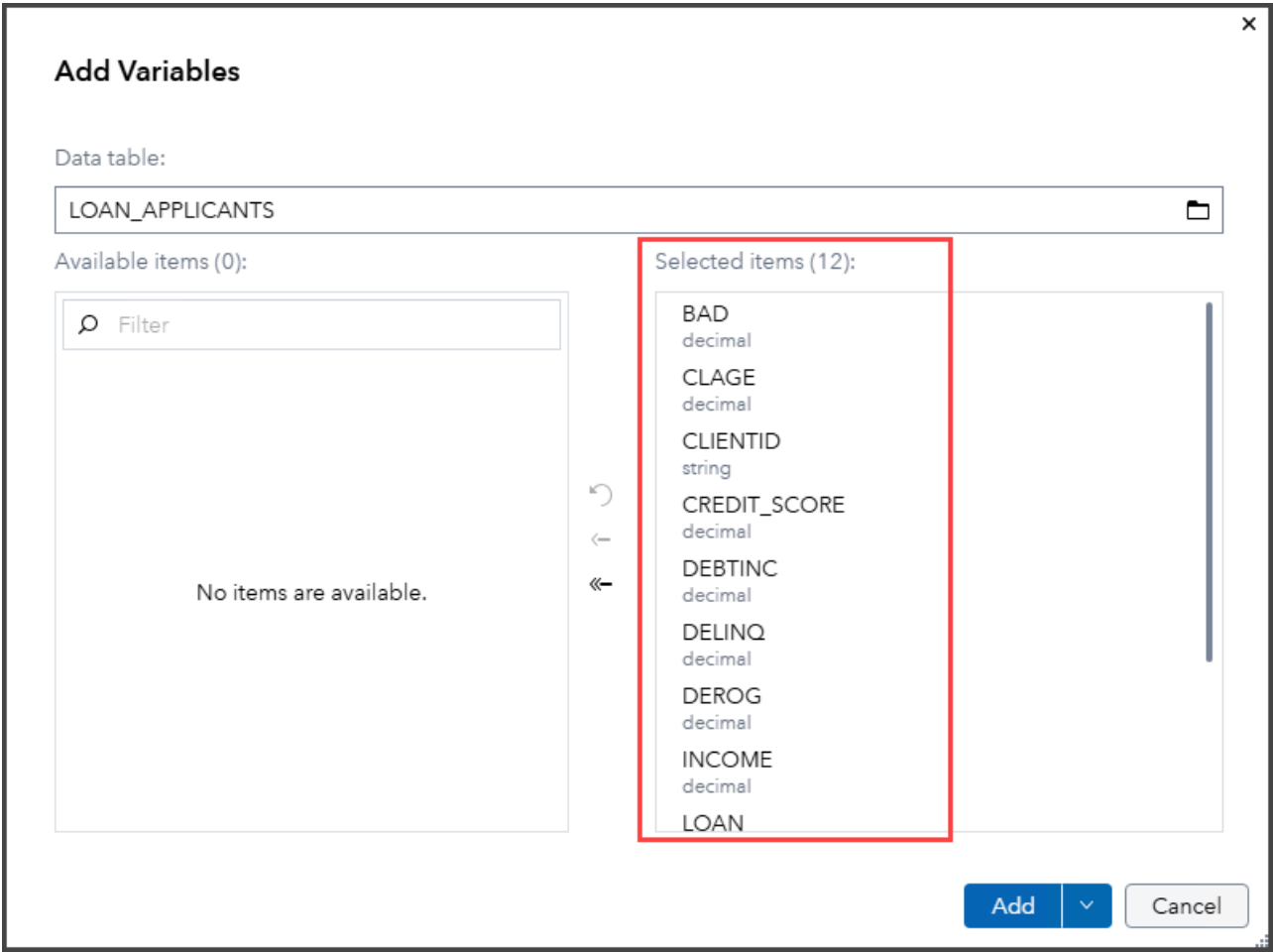


8. Select  in the **Data table** selection.

9. In the *Choose Data* dialog, select *Recent* from the drop-down menu next to *Show*, then select **LOAN_APPLICANTS** from the available data list and click **OK**.



10. Click  to select all the columns from the table and add them to the selected items side.



11. Click **Add** to add the selected items as variables for the rule set.

< Rule Sets Opened items (1)

*** Initial_Loan_Review (1.0)** Publish Import Export ↺ ↻ ↺ ⋮ ×

Rule set Properties **Variables** Scoring Versions History

Rule Set Variables Global Variables

Filter Import Export Add variable ⋮

<input type="checkbox"/>	Name ↑	Data Type	<input checked="" type="checkbox"/> Input ⓘ	<input checked="" type="checkbox"/> Output ⓘ	Initial Value
<input type="checkbox"/>	BAD	⊕ Decimal	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
<input type="checkbox"/>	CLAGE	⊕ Decimal	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
<input type="checkbox"/>	CLIENTID	⚠ Character	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
<input type="checkbox"/>	CREDIT_SCORE	⊕ Decimal	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
<input type="checkbox"/>	DEBTINC	⊕ Decimal	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
<input type="checkbox"/>	DELINQ	⊕ Decimal	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
<input type="checkbox"/>	DEROG	⊕ Decimal	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
<input type="checkbox"/>	INCOME	⊕ Decimal	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
<input type="checkbox"/>	LOAN	⊕ Decimal	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
<input type="checkbox"/>	NINQ	⊕ Decimal	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
<input type="checkbox"/>	REASON	⚠ Character	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
<input type="checkbox"/>	REQID	⊕ Decimal	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	

✎ The variables are automatically added as both *Input* and *Output* variables. You can uncheck those selections as appropriate for your rule set.

12. To add some output custom variables, select **Add variable → Custom variable**.

13. Expand the **Optional** section.

14. Enter the following:

- Name: **STATUS**
- Data type: **Character**
- Description: **Loan Status**
- Length: **8**

Add Variables

Name: *

STATUS

Data type: *

Character

Optional

Description:

Loan Status

Initial value:

Length:

8

Maximum row count: ⓘ

Add

Name	Data Type	<input type="checkbox"/> Input ⓘ	<input type="checkbox"/> Output ⓘ	Length	Initial Value	Descr
------	-----------	----------------------------------	-----------------------------------	--------	---------------	-------

OK

Cancel

15. Click **Add**.

16. Uncheck **Input**.

Add Variables

Name: *

Data type: *

Character

Optional

Description:

Initial value:

Length:

Maximum row count: ⓘ

Add

Name	Data Type	<input type="checkbox"/> Input ⓘ	<input checked="" type="checkbox"/> Output ⓘ	Length	Initial Value	Description
STATUS	Character	<input type="checkbox"/>	<input checked="" type="checkbox"/>	8		Loan Status

OK

Cancel

17. Repeat steps 13-15 to add the following additional output custom variables:

Name	Data type	Input	Output	Length	Initial Value	Description
JUSTIFICATION	Character	checked		50	UNDER REVIEW	Justification for Loan Approval Status

Name	Data type	Input	Output	Length	Initial Value	Description
OFFER_RATE	Decimal		checked			Interest Rate to Offer with Loan Approval

Add Variables

Name: *

Data type: *

Decimal

Optional

Description:

Initial value:

Length:

Maximum row count: ⓘ

Add

Name	Data Type	<input type="checkbox"/> Input ⓘ	<input checked="" type="checkbox"/> Output ⓘ	Length	Initial Value	Description
STATUS	Character	<input type="checkbox"/>	<input checked="" type="checkbox"/>	8		Loan Status
JUSTIFICATION	Character	<input type="checkbox"/>	<input checked="" type="checkbox"/>	50	UNDER REVIEW	Justification for
OFFER_RATE	Decimal	<input type="checkbox"/>	<input checked="" type="checkbox"/>			Interest Rate to

OK

Cancel

1. Click **OK** to add the custom variables to the rule set.

2. Click  to save the rule set.

< Rule Sets

Opened items (1)

Initial_Loan_Review (1.0)

Publish

Import

Export

Rule set

Properties

Variables

Scoring

Versions

History

Rule Set Variables

Global Variables

Filter

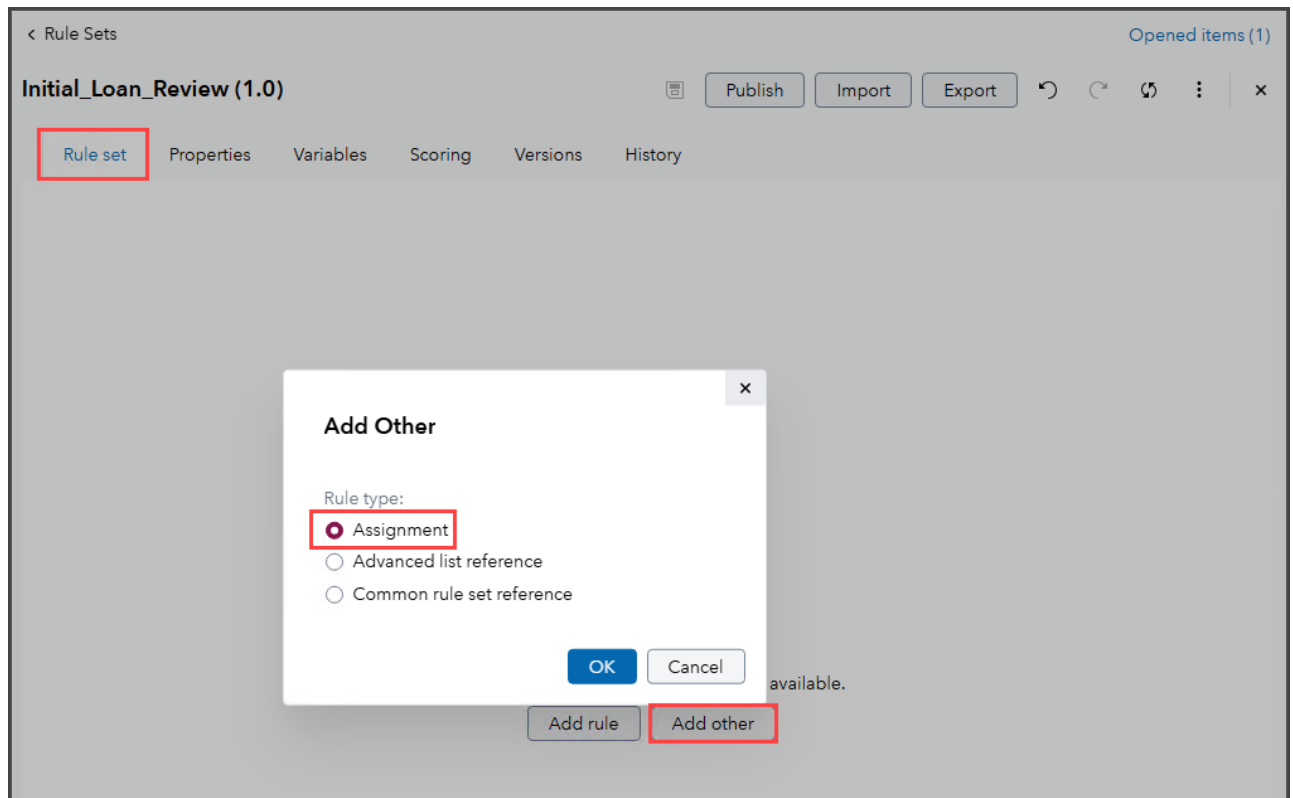
Import

Export

Add variable

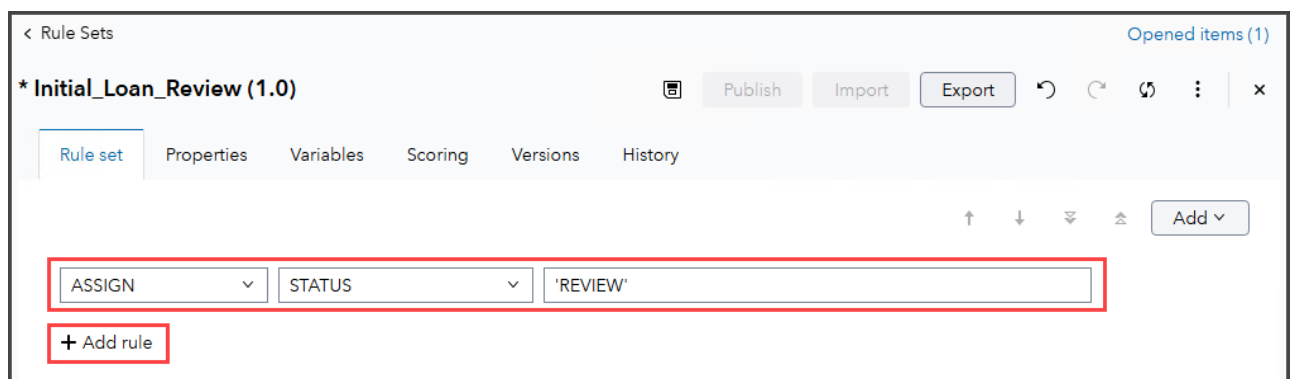
<input type="checkbox"/>	Name	Data Type	<input type="checkbox"/> Input	<input checked="" type="checkbox"/> Output	Initial Value
<input type="checkbox"/>	CLIENTID	Character	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
<input type="checkbox"/>	CREDIT_SCORE	Decimal	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
<input type="checkbox"/>	DEBTINC	Decimal	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
<input type="checkbox"/>	DELINQ	Decimal	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
<input type="checkbox"/>	DEROG	Decimal	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
<input type="checkbox"/>	INCOME	Decimal	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
<input type="checkbox"/>	JUSTIFICATION	Character	<input type="checkbox"/>	<input checked="" type="checkbox"/>	UNDER REVIEW
<input type="checkbox"/>	LOAN	Decimal	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
<input type="checkbox"/>	NINQ	Decimal	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
<input type="checkbox"/>	OFFER_RATE	Decimal	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
<input type="checkbox"/>	REASON	Character	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
<input type="checkbox"/>	REQID	Decimal	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
<input type="checkbox"/>	STATUS	Character	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

3. Select the **Rule set** tab.
4. Click **Add other**.
5. Select **Assignment** for the *rule type* and click **OK**.

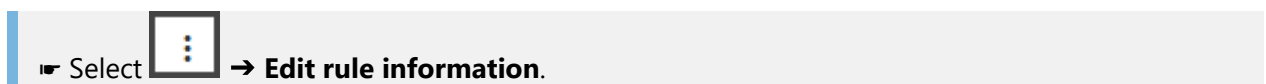


6. For the action assignment, select **ASSIGN STATUS 'REVIEW'**.

7. Click **+ Add Rule** to add a rule block.



8. Name the rule **Automatic Loan Denial or Approval**.

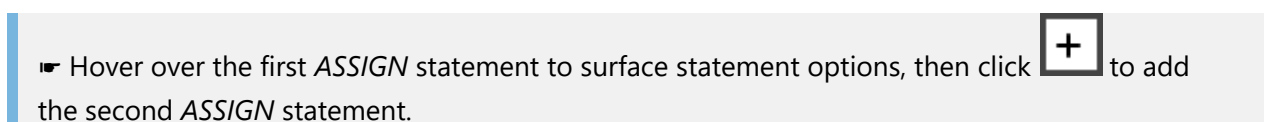


9. Select the following for the rule:

IF BAD = 1

THEN ASSIGN STATUS 'DENIED'

ASSIGN JUSTIFICATION 'AUTOMATIC DENIAL CRITERIA MET'



Hover over the first *ASSIGN* statement to surface statement options, then click **+** to add the second *ASSIGN* statement.

< Rule Sets Opened items (1)

*** Initial_Loan_Review (1.0)** Publish Import Export ↺ ↻ ↺ ⋮ ×

Rule set Properties Variables Scoring Versions History

↑ ↓ ↕ ⚙ Add v

ASSIGN STATUS 'REVIEW'

Automatic Loan Denial or Approval ☒ Record rule fired data Ⓞ ⋮


IF BAD = 1

THEN ASSIGN STATUS 'DENIED' ✎ 🗑️ **+**

THEN ASSIGN JUSTIFICATION 'AUTOMATIC DENIAL CRITERIA MET'

+ Add rule



10. Click  to save the rule set.


11. Click **+ Add Rule** to add a new rule block.

12. Use the drop-down menu to change the **IF** to an **OR** to add an **OR** condition to the existing rule block.

13. Select the following for the **OR** condition:

OR DEBTINC > 50.0

AND DEROG >= 2

Hover over the **OR** statement to surface statement options, then click  to add the **AND** statement.

< Rule Sets Opened items (1)

*** Initial_Loan_Review (1.0)** Publish Import Export ↺ ↻ ↺ ⋮ ×

Rule set Properties Variables Scoring Versions History

↑ ↓ ↕ ⚙ Add v

ASSIGN STATUS 'REVIEW'

Automatic Loan Denial or Approval ☐ Record rule fired data Ⓞ ⋮

IF BAD = 1

OR DEBTINC > 50.0 ✎ 🗑️ **+**

AND DEROG >= 2

THEN ASSIGN STATUS 'DENIED'

THEN ASSIGN JUSTIFICATION 'AUTOMATIC DENIAL CRITERIA MET'

+ Add rule

14. Click **+ Add Rule** to add a new rule block.

15. Change the **IF** to an **ELSE** to add an *ELSE IF* condition to the existing rule block.

16. Select the following for the *ELSE* condition:

ELSE BAD = 0


AND LOAN <= 15000

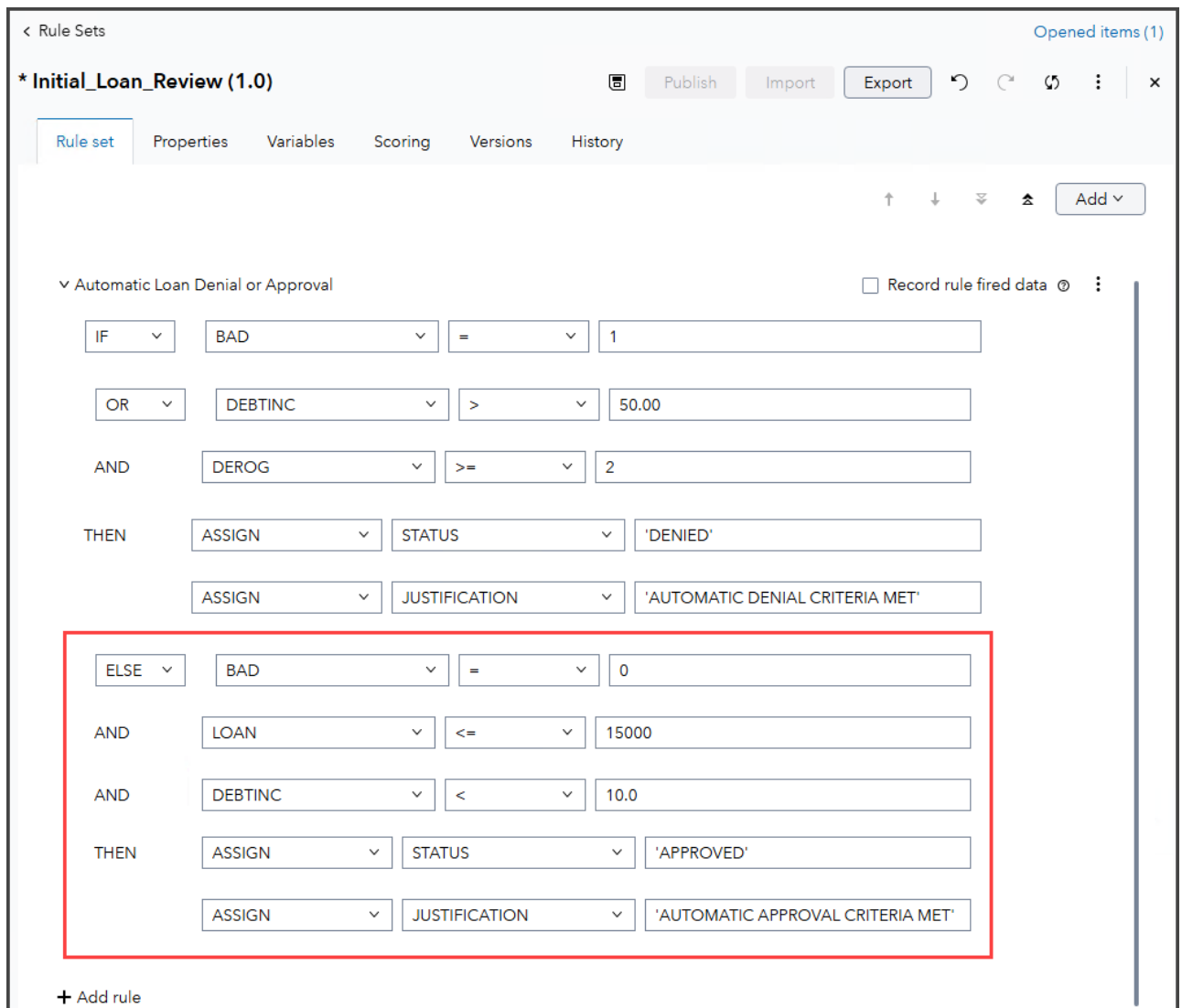
AND DEBTINC < 10.0

THEN ASSIGN STATUS 'APPROVED'

ASSIGN JUSTIFICATION 'AUTOMATIC APPROVAL CRITERIA MET'

ASSIGN OFFER_RATE 2.75

Click  to add the *AND* statements and additional *ASSIGN* statements.



< Rule Sets Opened items (1)

*** Initial_Loan_Review (1.0)** Publish Import Export

Rule set Properties Variables Scoring Versions History

Automatic Loan Denial or Approval ☐ Record rule fired data

IF BAD = 1

OR DEBTINC > 50.00

AND DEROG >= 2

THEN ASSIGN STATUS 'DENIED'

ASSIGN JUSTIFICATION 'AUTOMATIC DENIAL CRITERIA MET'

ELSE BAD = 0

AND LOAN <= 15000

AND DEBTINC < 10.0

THEN ASSIGN STATUS 'APPROVED'

ASSIGN JUSTIFICATION 'AUTOMATIC APPROVAL CRITERIA MET'

+ Add rule

17. Click  to save the rule set.



18. To test the rule set, select the **Scoring** tab.

19. On the **Tests** sub-tab, click **New Test**.

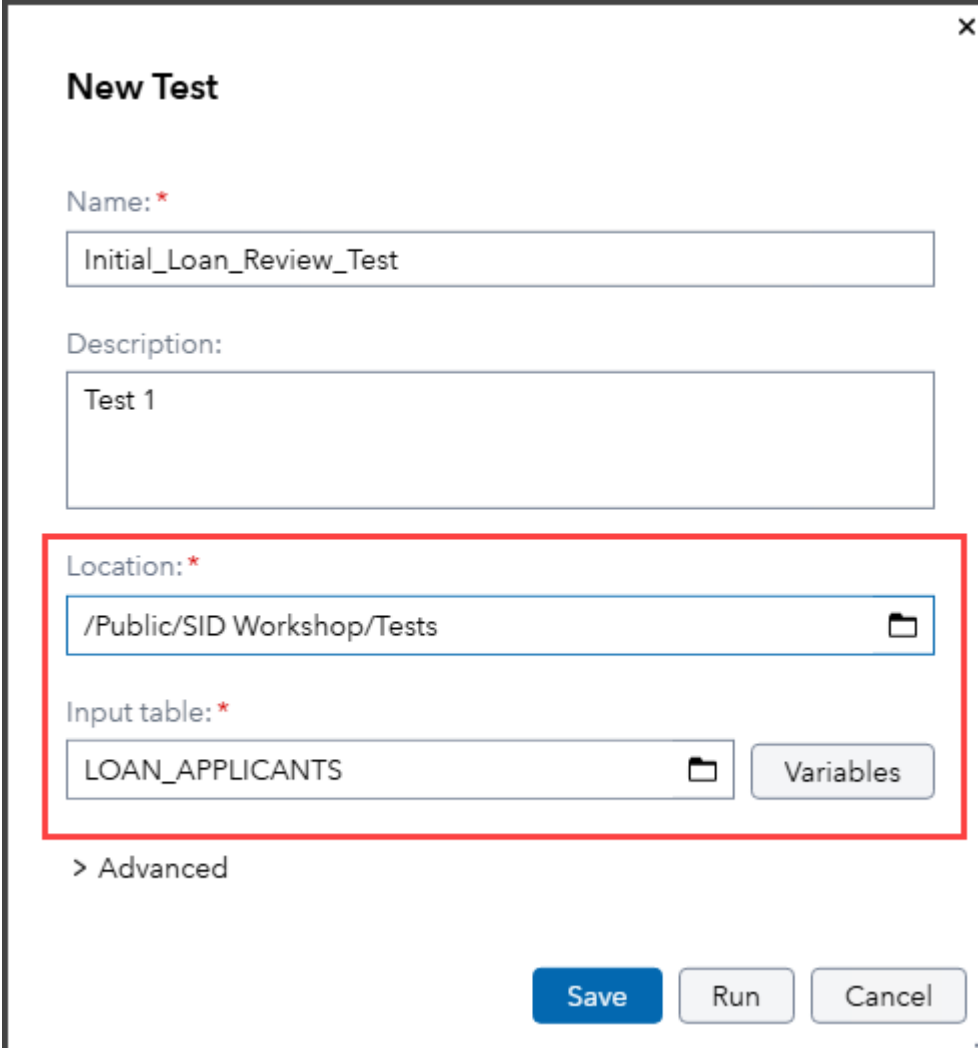
20. Enter the following information:

- Name: **Initial_Loan_Review_Test**

- Description: **Test 1**
- Location: **/Public/SID Workshop/Tests**

Select  to navigate to *SAS Content/SID Workshop*, then select  → **Folder** to create a new folder named *Tests* if the test folder does not exist already.

- Input table: **LOAN_APPLICANTS**.



New Test

Name: *

Initial_Loan_Review_Test

Description:

Test 1

Location: *

/Public/SID Workshop/Tests

Input table: *

LOAN_APPLICANTS

Variables

> Advanced

Save Run Cancel

21. Click **Variables** to view the variables mapping between the input table and the rule set variables.

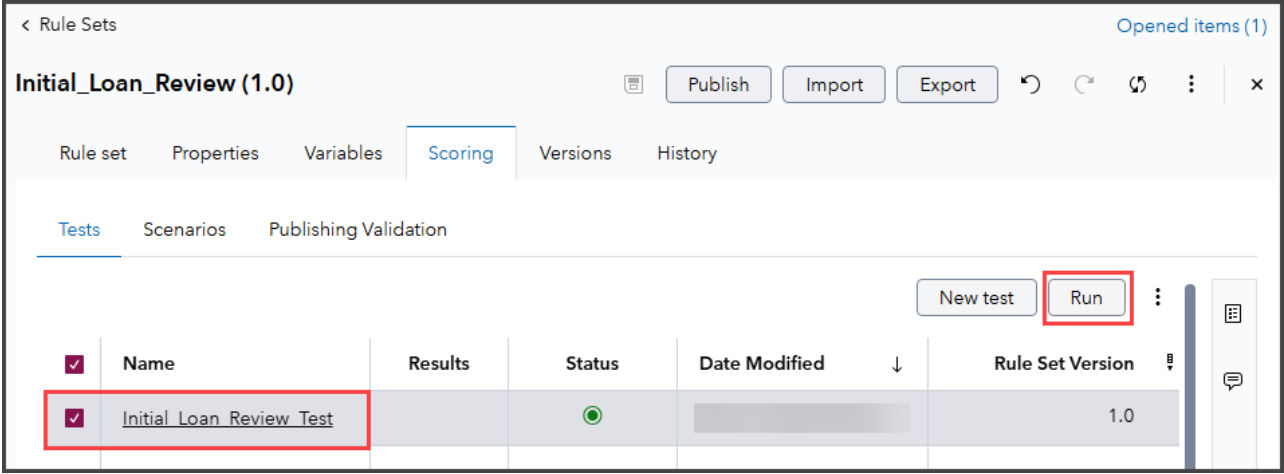
✎ All the variables are automatically mapped since the variable names on the rule set match the names on the input table.


22. Click **OK** to close the *Variable Mappings* dialog.

23. Click **Save** to save this test to the rule set.

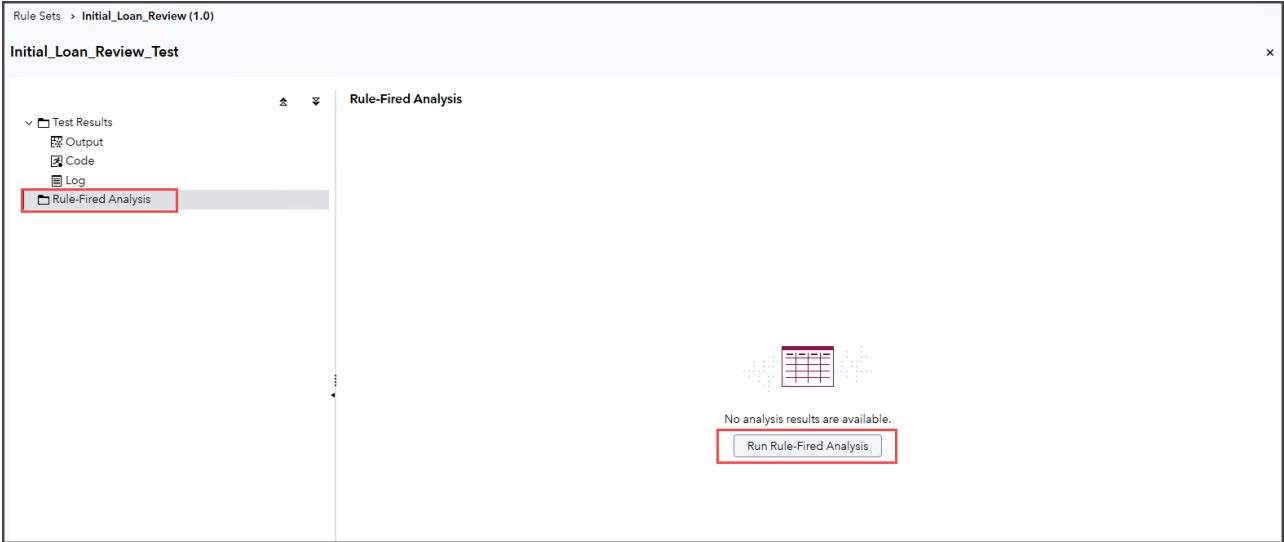
✎ If you do not select **Save** and simply select **Run**, then the test is run; however, the test is not saved to the rule set and if your session is closed, you will need to set up the test again to run it in the future.

24. Check the newly created test and click **Run** to run the specified test.



It may take a few seconds for the test to complete. You can select  to refresh the test status.

25. Once the test run is complete, select  to view the test results.
26. Click **Rule-Fired Analysis** and **Run Rule-Fired Analysis** to view which records triggered a rule.



27. Once the rule-fired analysis has run, review the results on the *Analysis* tab.

Rule Sets > Initial_Loan_Review (1.0)

Initial_Loan_Review_Test

Test Results

Output

Code

Log

Rule-Fired Analysis

Analysis

Plot

Log



Analysis

Output Records

Rules Fired Count	JUSTIFICATION	OFFER_RATE	STATUS	BAD	CLAGE	CREDIT_SCORE
1	AUTOMATIC DENIAL CRITERIA MET		DENIED	1	218	512
1	AUTOMATIC DENIAL CRITERIA MET		DENIED	1	171.4333333	608
1	AUTOMATIC DENIAL CRITERIA MET		DENIED	1	110.5666667	827
1	AUTOMATIC APPROVAL CRITERIA MET	2.75	APPROVED	0	73.0333333	601
1	AUTOMATIC APPROVAL CRITERIA MET	2.75	APPROVED	0	178.6	598
1	AUTOMATIC DENIAL CRITERIA MET		DENIED	1	181.9333333	651
1	AUTOMATIC DENIAL CRITERIA MET		DENIED	1	95.9	685
1	AUTOMATIC DENIAL CRITERIA MET		DENIED	1	167.6579808	510
1	AUTOMATIC DENIAL CRITERIA MET		DENIED	1	124.1333333	487
1	AUTOMATIC DENIAL CRITERIA MET		DENIED	1	111.2350118	540
1	AUTOMATIC DENIAL CRITERIA MET		DENIED	1	229.3	609
1	AUTOMATIC DENIAL CRITERIA MET		DENIED	1	302.3587095	665
1	AUTOMATIC DENIAL CRITERIA MET		DENIED	1	298.131564	694
1	AUTOMATIC DENIAL CRITERIA MET		DENIED	1	73.46963001	764
1	AUTOMATIC DENIAL CRITERIA MET		DENIED	1	137.7840036	788

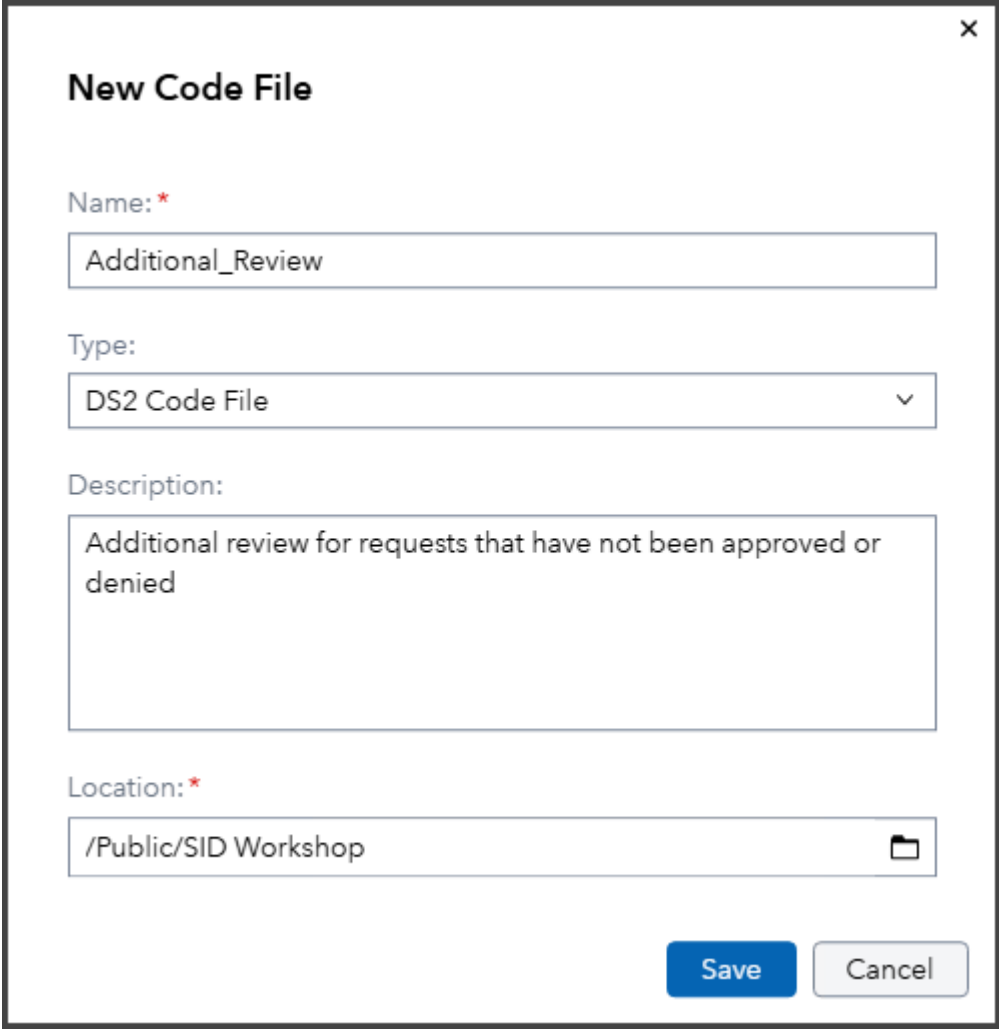
28. Click **x** to close the test results and the rule set.

Create and Test a DS2 Code File

- 
1. Select  to open the **Code files** page.

2. Click **New code file** to create a new code file.

3. Enter the following information:
 - Name: **Additional_Review**
 - Type: **DS2 Code File** (default selection)
 - Description: **Additional review for requests that have not been approved or denied**
 - Location: **/Public/SID Workshop**



The image shows a 'New Code File' dialog box with a close button (X) in the top right corner. It contains four input fields: 'Name:' with the text 'Additional_Review', 'Type:' with a dropdown menu showing 'DS2 Code File', 'Description:' with the text 'Additional review for requests that have not been approved or denied', and 'Location:' with the text '/Public/SID Workshop' and a folder icon. At the bottom right are 'Save' and 'Cancel' buttons.

New Code File

Name: *
Additional_Review

Type:
DS2 Code File

Description:
Additional review for requests that have not been approved or denied

Location: *
/Public/SID Workshop

Save Cancel

4. Click **Save** to create the DS2 Code file.
5. Replace the default code with the code block below:

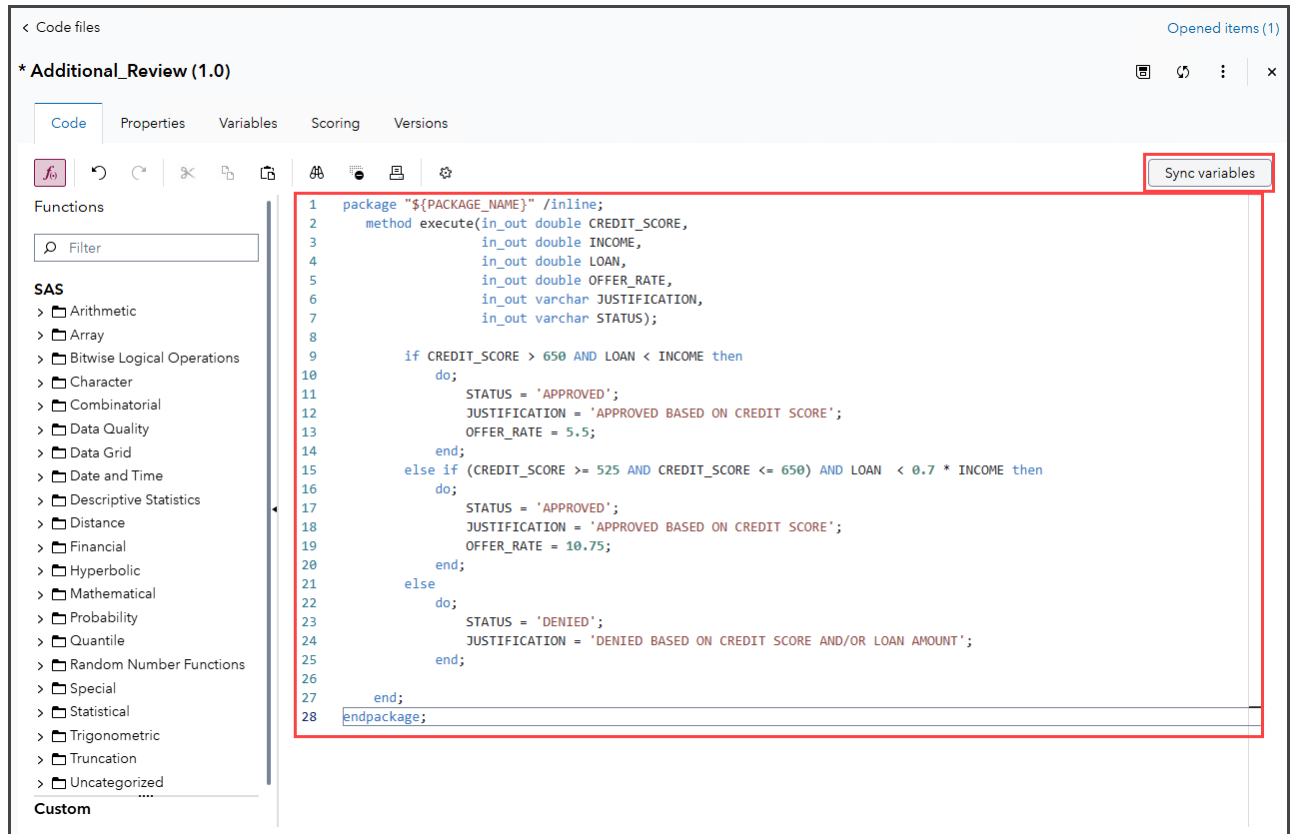
```
package "${PACKAGE_NAME}" /inline;
method execute(in_out double CREDIT_SCORE,
               in_out double INCOME,
               in_out double LOAN,
               in_out double OFFER_RATE,
               in_out varchar JUSTIFICATION,
               in_out varchar STATUS);

    if CREDIT_SCORE > 650 AND LOAN < INCOME then
        do;
            STATUS = 'APPROVED';
            JUSTIFICATION = 'APPROVED BASED ON CREDIT SCORE';
            OFFER_RATE = 5.5;
        end;
    else if (CREDIT_SCORE >= 525 AND CREDIT_SCORE <= 650) AND LOAN <
0.7 * INCOME then
        do;
            STATUS = 'APPROVED';
            JUSTIFICATION = 'APPROVED BASED ON CREDIT SCORE';
            OFFER_RATE = 10.75;
        end;
```

```

else
do;
    STATUS = 'DENIED';
    JUSTIFICATION = 'DENIED BASED ON CREDIT SCORE AND/OR LOAN
AMOUNT';
end;
end;
endpackage;

```



6. Click  to save the code file.

7. Click **Sync variables** to add the variables declared in the DS2 code to the *Variables* tab for for the code file.

8. Select the **Variables** tab to confirm the variables were added.

< Code files

Opened items (1)

Additional_Review (1.0)

Code

Properties

Variables

Scoring

Versions

Filter

Import

Export

Add variable

Sync to code


<input type="checkbox"/>	Name	Data Type	<input checked="" type="checkbox"/> Input	<input checked="" type="checkbox"/> Output	Initial Value
<input type="checkbox"/>	CREDIT_SCORE	Decimal	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
<input type="checkbox"/>	INCOME	Decimal	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
<input type="checkbox"/>	JUSTIFICATION	Character	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
<input type="checkbox"/>	LOAN	Decimal	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
<input type="checkbox"/>	OFFER_RATE	Decimal	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
<input type="checkbox"/>	STATUS	Character	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	

9. To test the code file, select the **Scoring** tab.

10. On the **Tests** sub-tab, click **New Test**.

11. Enter the following information:

- Name: **Additional_Review_Test**
- Description: **Test 1**
- Location: **/Public/SID Workshop/Tests**

Select  to navigate to *SAS Content/SID Workshop/Tests*.

- Input table: **LOAN_APPLICANTS**.

×

New Test

Name: *

Additional_Review_Test

Description:

Test 1

Location: *

/Public/SID Workshop/Tests

📁

Input table: *

LOAN_APPLICANTS

📁

Variables

⚠️ Input variables must be mapped to table columns.

×

> Advanced

Save

Run

Cancel

12. Click **Variables** to resolve the input variable mapping.

13. Enter the following information for unmapped variables:

Variable	Type	Table Column	Value
OFFER_RATE	Decimal	Use value	0
JUSTIFICATION	Character	Use value	UNDER REVIEW
STATUS	Character	Use value	REVIEW

Variable Mappings

Table:

LOAN_APPLICANTS

Mapped:

6

Unmapped:

0

☐ Show unmapped variables

Variable	Type	Table Column	Value
CREDIT_SCORE	Decimal	CREDIT_SCORE	
INCOME	Decimal	INCOME	
LOAN	Decimal	LOAN	
OFFER_RATE	Decimal	Use value	0
JUSTIFICATION	Character	Use value	UNDER REVIEW
STATUS	Character	Use value	REVIEW

OK

Cancel

14. Click **OK** to close the *Variable Mappings* dialog.
15. Click **Save** to save this test to the code file.
16. Check the newly created test and click **Run** to run the specified test.

< Rule Sets

Opened items (1)

Initial_Loan_Review (1.0)

Publish

Import

Export

Rule set

Properties

Variables

Scoring

Versions

History

Tests

Scenarios

Publishing Validation

New test

Run

<input checked="" type="checkbox"/>	Name	Results	Status	Date Modified	Rule Set Version
<input checked="" type="checkbox"/>	Initial_Loan_Review_Test				1.0

It may take a few seconds for the test to complete. You can select to refresh the test status.

17. Once the test run is complete, select to view the test results.
18. Review the results on the *Output* tab.

Code files > Additional_Review (1.0)

Additional_Review_Test

Test Results

Output

Code


Log

Output Table

CREDIT_SCORE	INCOME	JUSTIFICATION	LOAN	OFFER_RATE	STATUS
761	178040	APPROVED BASED ON CREDIT SCORE	21600	5.5	APPROVED
827	123255	APPROVED BASED ON CREDIT SCORE	26400	5.5	APPROVED
512	102975	DENIED BASED ON CREDIT SCORE...	22000	0	DENIED
608	52110	APPROVED BASED ON CREDIT SCORE	17400	10.75	APPROVED
417	61960	DENIED BASED ON CREDIT SCORE...	27300	0	DENIED
574	45475	APPROVED BASED ON CREDIT SCORE	31300	10.75	APPROVED
543	52660	APPROVED BASED ON CREDIT SCORE	21700	10.75	APPROVED
608	61495	APPROVED BASED ON CREDIT SCORE	10000	10.75	APPROVED
564	43615	APPROVED BASED ON CREDIT SCORE	21300	10.75	APPROVED
765	61895	DENIED BASED ON CREDIT SCORE...	65200	0	DENIED
827	61550	APPROVED BASED ON CREDIT SCORE	10800	5.5	APPROVED
635	61870	APPROVED BASED ON CREDIT SCORE	4700	10.75	APPROVED
642	46285	APPROVED BASED ON CREDIT SCORE	19200	10.75	APPROVED
867	44250	APPROVED BASED ON CREDIT SCORE	16500	5.5	APPROVED
726	46670	APPROVED BASED ON CREDIT SCORE	12000	5.5	APPROVED

19. Click **x** to close the test results and the code file.


Create and Test a Decision


1. Select  to open the **Decisions** page.

2. Click **New decision** to create a new decision.

3. Enter the following information for the new decision:

- Name: **Loan_Request_Review**
- Description: **Loan request review process for ABC Bank.**
- Location: **/Public/SID Workshop**



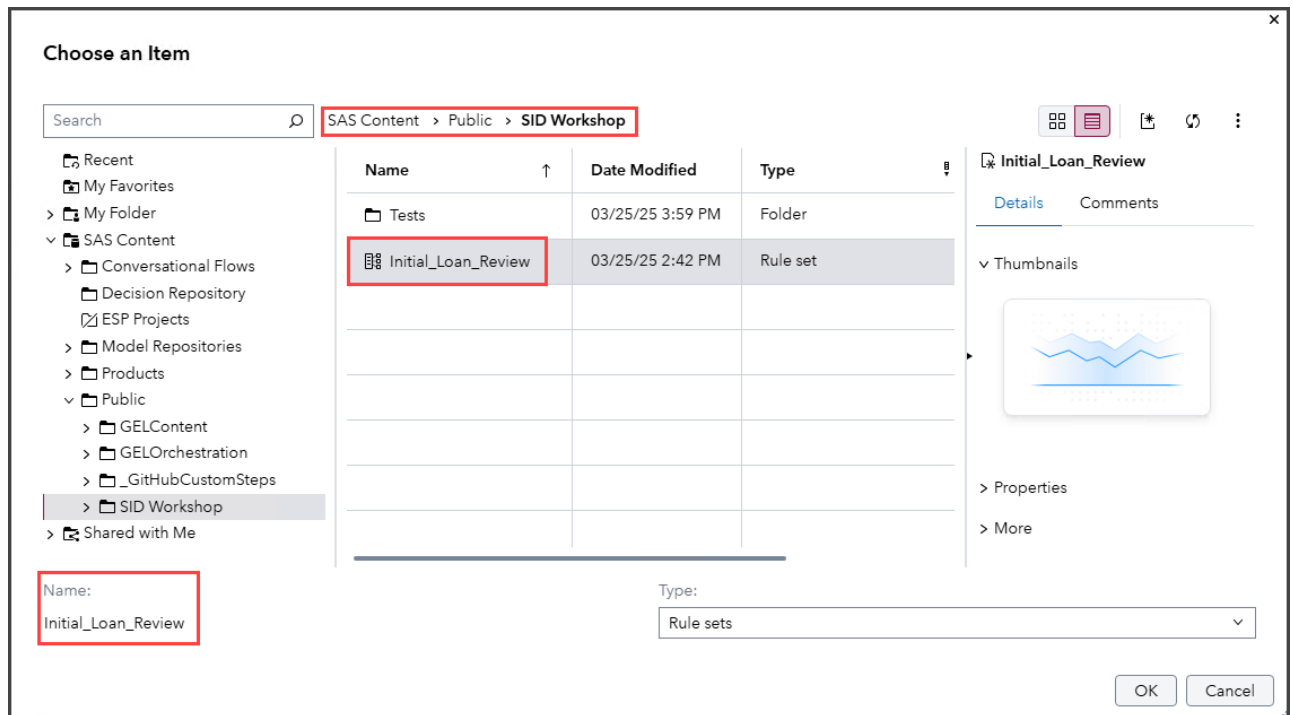
Select  to navigate to this folder in *SAS Content*.

22 / 31

4. Click **Save** to create the decision.



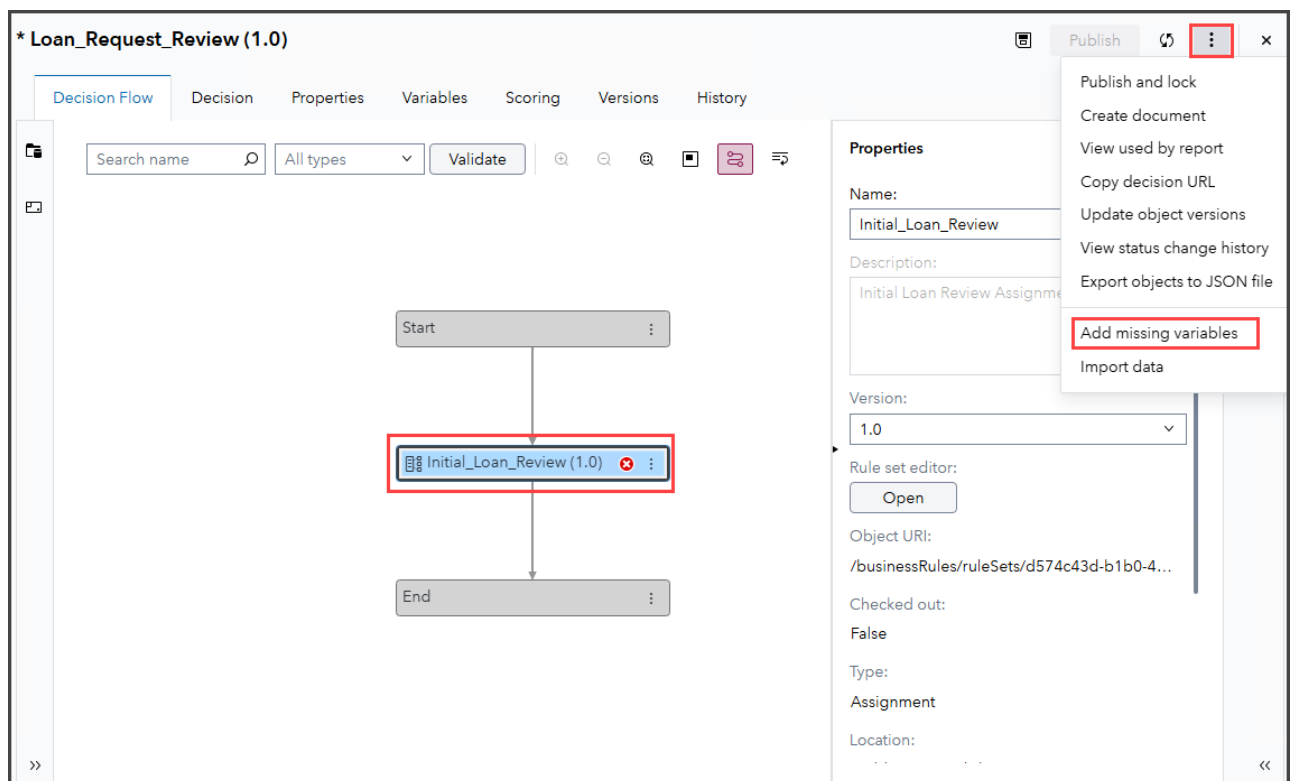
23 / 31



8. Click **OK** to add the selected rule set to the decision.

There is an error since the variables from the rule set are not part of the decision.

9. Select  → **Add missing variables**.



10. Click **Add** to add all the missing variables to the decision.

11. Click  to save the decision.

12. Select the **Variables** tab to review the added variables.

Loan_Request_Review (1.0)

Decision Flow

Decision

Properties

Variables

Scoring

Versions

History

Decision Variables

Global Variables

Filter

Object type: All objects

Object: Select an item


Import

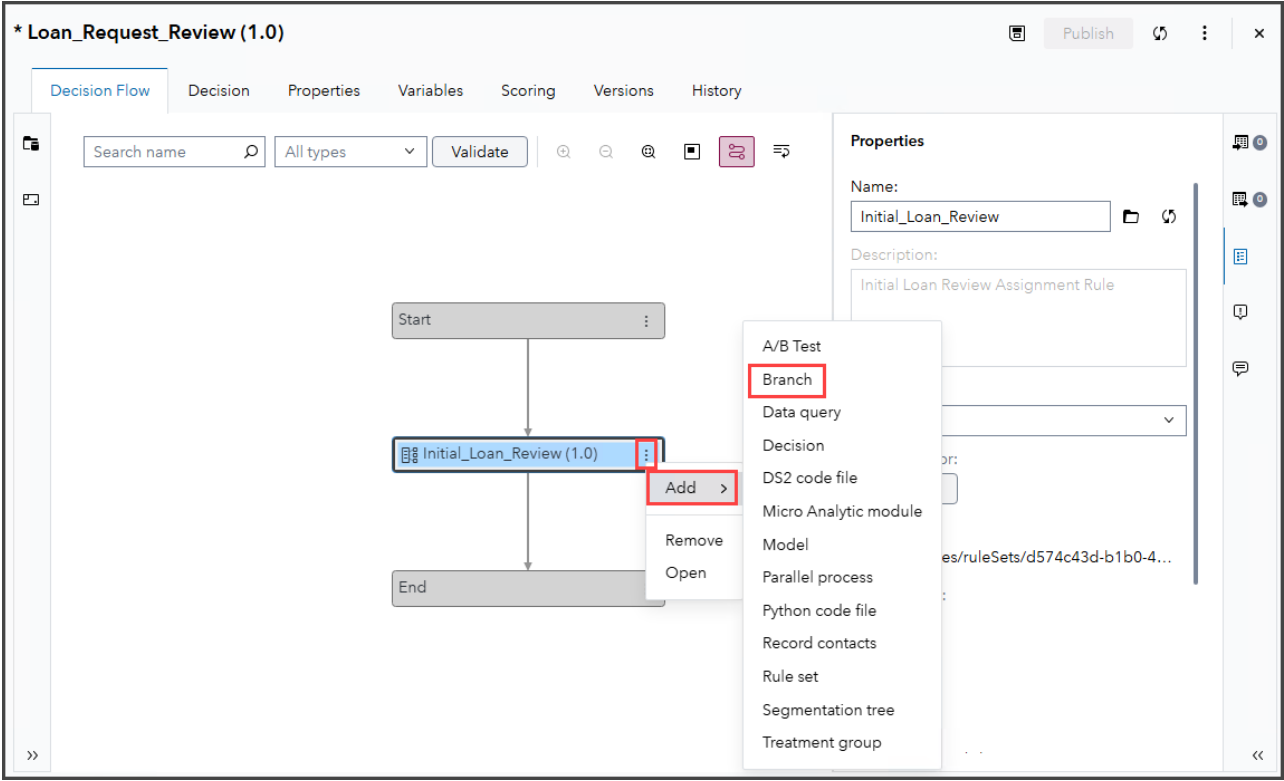
Export

Add variable

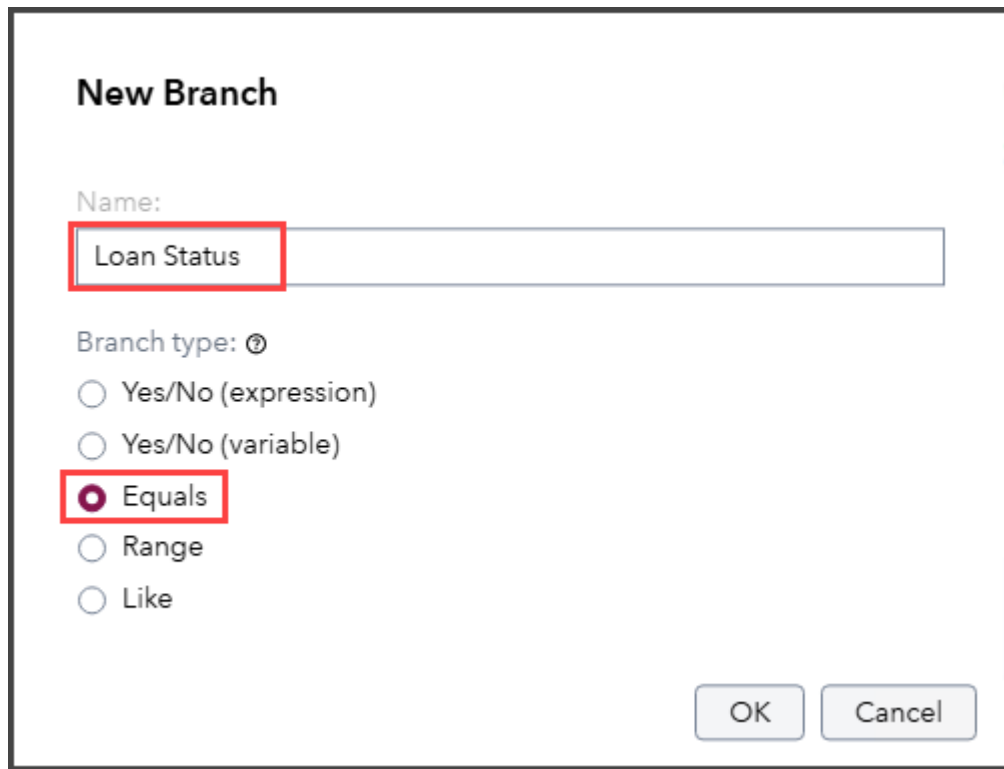
<input type="checkbox"/>	Name	Data Type	<input type="checkbox"/> Input	<input checked="" type="checkbox"/> Output	Initial Value
<input type="checkbox"/>	BAD	⊕ Decimal	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
<input type="checkbox"/>	CHECKING	⊕ Decimal	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
<input type="checkbox"/>	CLAGE	⊕ Decimal	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
<input type="checkbox"/>	CLIENTID	△ Character	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
<input type="checkbox"/>	CREDIT_SCORE	⊕ Decimal	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
<input type="checkbox"/>	DEBTINC	⊕ Decimal	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
<input type="checkbox"/>	DELINQ	⊕ Decimal	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
<input type="checkbox"/>	DEROG	⊕ Decimal	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
<input type="checkbox"/>	INCOME	⊕ Decimal	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
<input type="checkbox"/>	INVEST	⊕ Decimal	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	

13. Select the **Decision Flow** tab.

14. On the *Initial_Loan_Review* node, select  → **Add** → **Branch**.




15. Enter the name **Loan Status** and select **Equals** for the branch type.



New Branch

Name:

Branch type: 

☐ Yes/No (expression)

☐ Yes/No (variable)

☒ Equals


☐ Range

☐ Like

16. Click **OK** to create the branch.

17. In the *Properties* section, select the **STATUS** variable for the *Branch expression*.

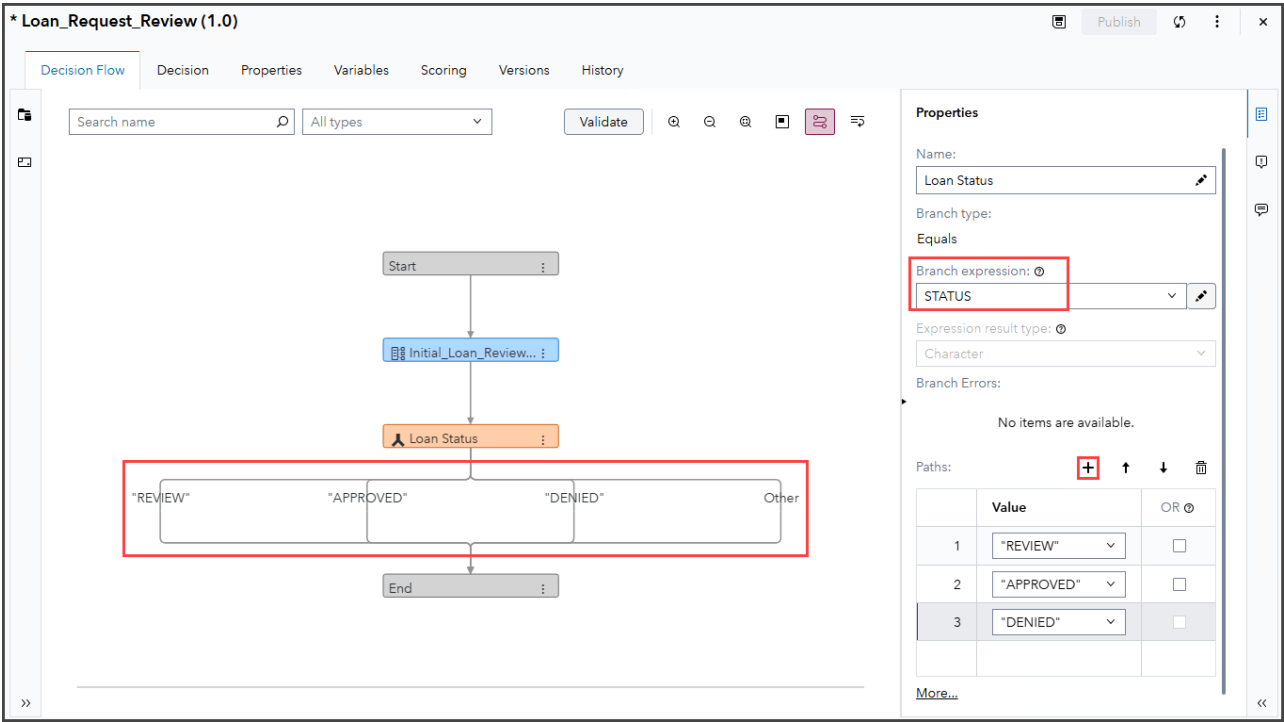
☛ Select the drop-down menu under *Branch expression* to view the full list of variables.

18. Click  to add the following *paths*:

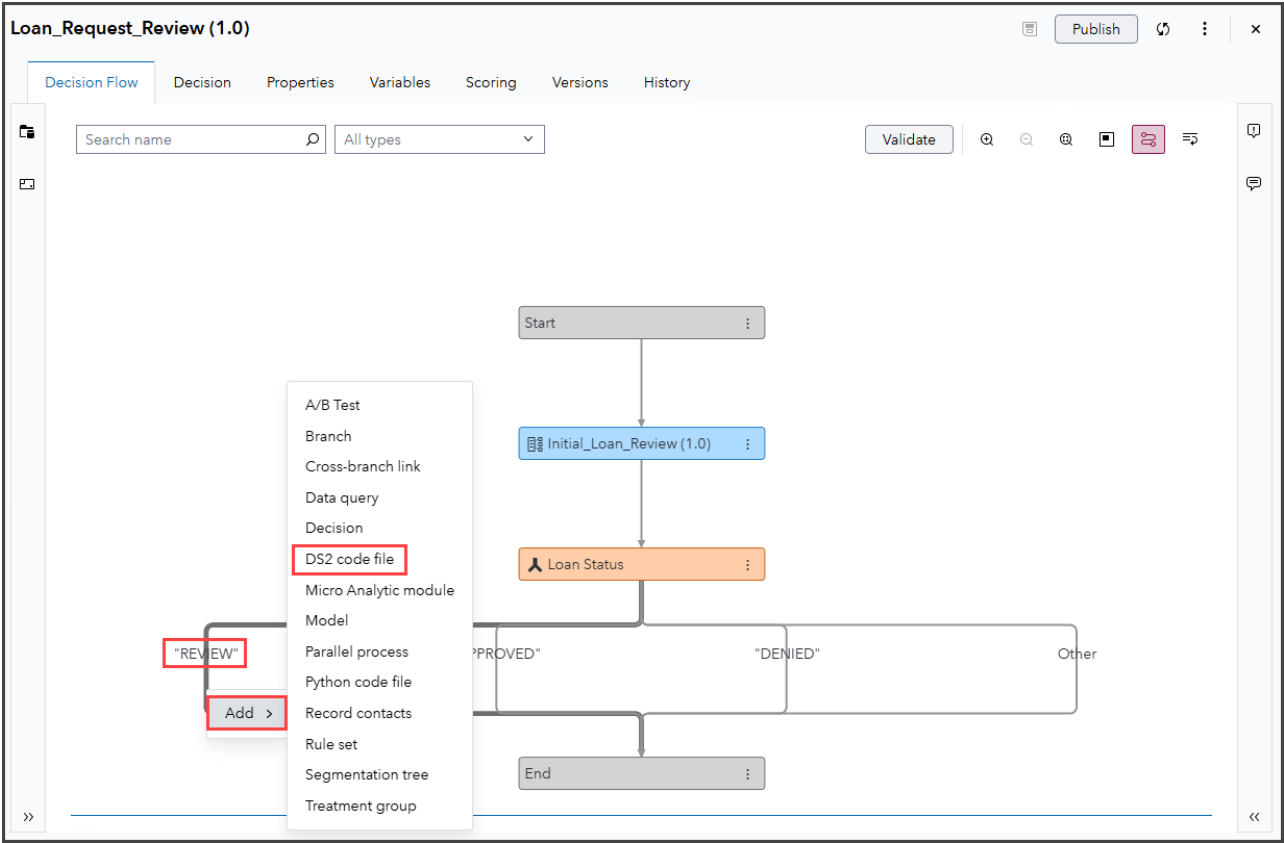
- **"REVIEW"**
- **"APPROVED"**
- **"DENIED"**.

☛ The *Other* path is automatically added for this branch type.

19. Click  to save the decision.

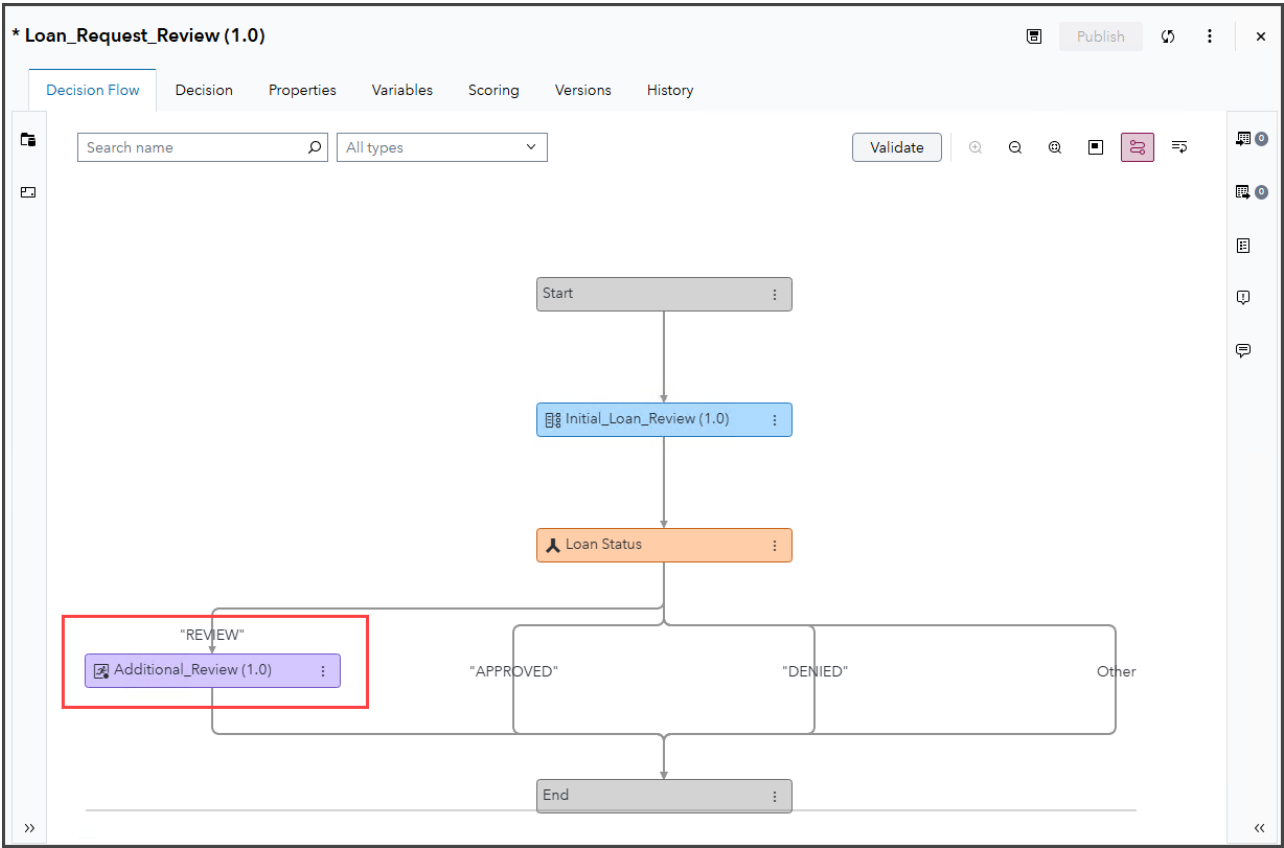


20. Right-click the path with the "REVIEW" branch and select → **Add** → **DS2 code file**.



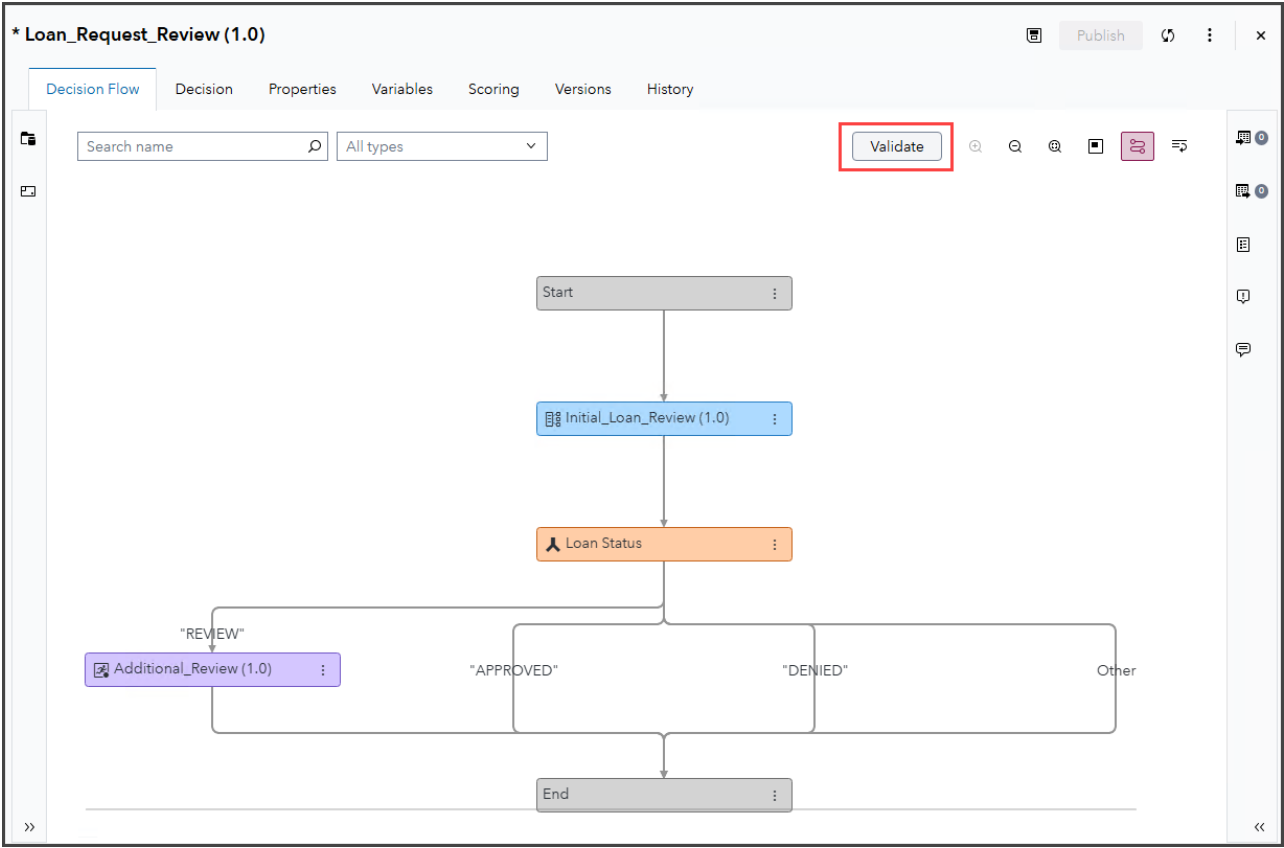
21. Navigate to the **SAS Content** → **Public** → **SID Workshop** folder.


22. Select the **Additional_Review** DS2 code file and click **OK** to add the selected file to the decision.

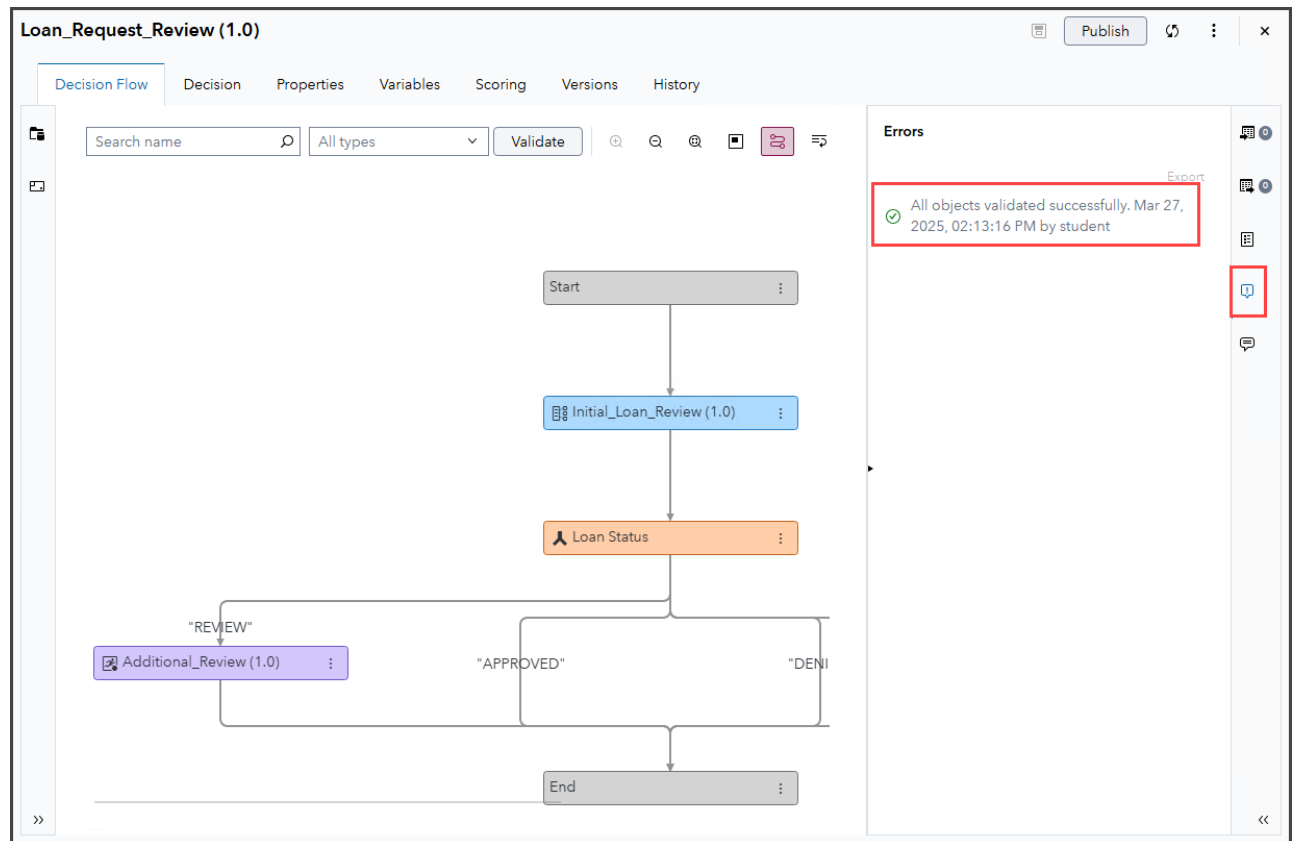


23. Click **Save** to save the decision.

24. Click **Validate** to validate the decision.



25. Select  on the right pane to confirm if the decision was validated successfully.




26. To test the decision, select the **Scoring** tab.

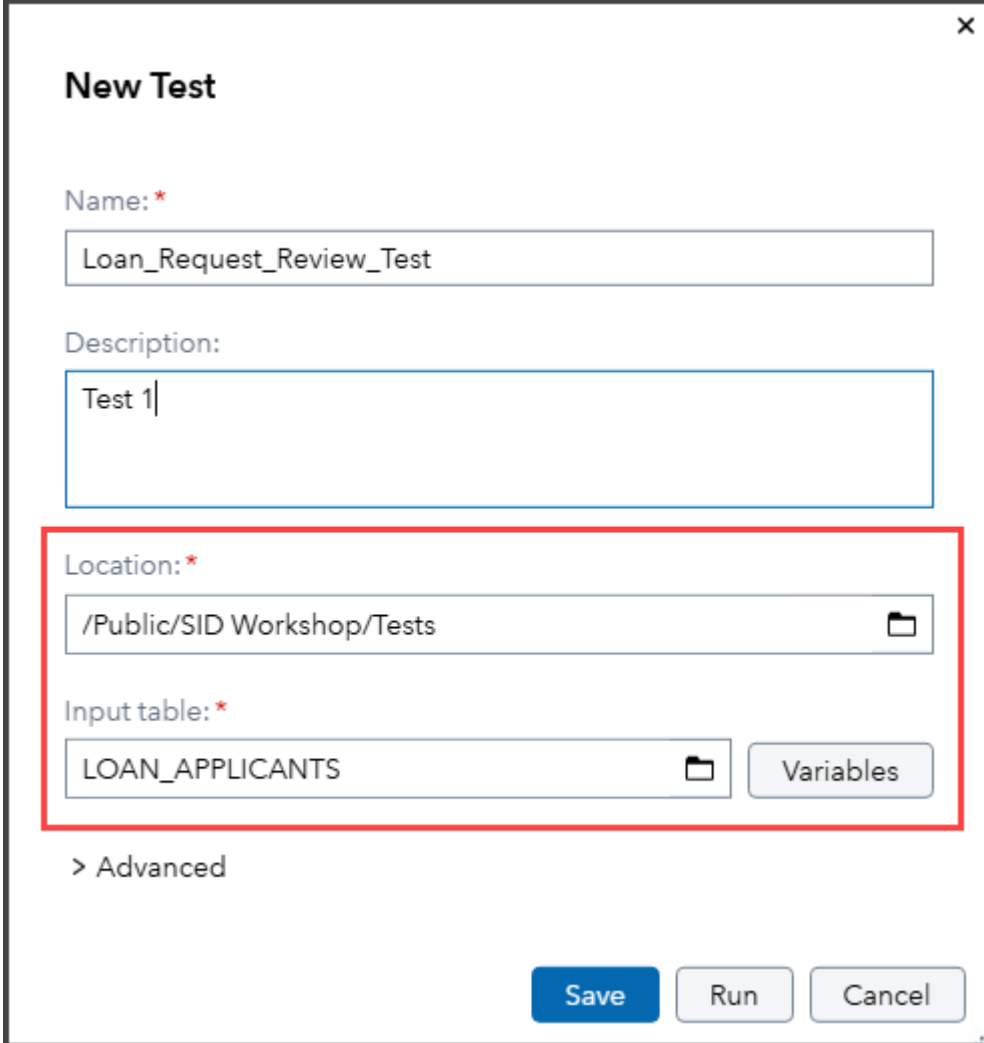
27. On the **Tests** sub-tab, click **New Test**.

28. Enter the following information:

- Name: **Loan_Request_Review_Test**
- Description: **Test 1**
- Location: **/Public/SID Workshop/Tests**

Select  to navigate to *SAS Content/SID Workshop/Tests*.

- Input table: **LOAN_APPLICANTS**.



New Test

Name: *
Loan_Request_Review_Test


Description:
Test 1

Location: *
/Public/SID Workshop/Tests

Input table: *
LOAN_APPLICANTS Variables

> Advanced

Save Run Cancel

29. Click **Save** to save this test to the rule set.
30. Check the newly created test and click **Run** to run the specified test.
31. Once the test run is complete, select  to view the test results.
32. Review the results on the *Output* tab.

Decisions > Loan_Request_Review (1.0)

Loan_Request_Review_Test

Test Results

Output

Code

Log

Rule-Fired Analysis

Decision Path Tracking

Output Table

Rules Fired C...	JUSTIFICATION	OFFER_RATE	STATUS	BAD	CLAGE
0	APPROVED...	10.75	APPROVED	0	138.3373521
0	APPROVED...	10.75	APPROVED	0	185.3724624
0	DENIED BASED...		DENIED	0	152.7826478
0	APPROVED...	10.75	APPROVED	0	126.8
0	APPROVED...	5.5	APPROVED	0	179.6482736
0	APPROVED...	10.75	APPROVED	0	238.794891
0	APPROVED...	10.75	APPROVED	0	303.9519145
0	DENIED BASED...		DENIED	0	91.93263226
0	APPROVED...	5.5	APPROVED	0	240.4666667
0	APPROVED...	10.75	APPROVED	0	154.8992783
0	DENIED BASED...		DENIED	0	206.2470947
0	APPROVED...	5.5	APPROVED	0	74.57642698
0	DENIED BASED...		DENIED	0	252.6333333
0	APPROVED...	5.5	APPROVED	0	132.0936343
0	DENIED BASED...		DENIED	0	101.6362349

33. Click **x** to close the test results and the rule set.

Exercise Completed

You have completed the exercise on getting started with SAS Intelligent Decisioning!

THANK YOU FOR ATTENDING THIS WORKSHOP!