



Experiment - 5

Programme	: B.Tech. CSE AI & ML	Semester	: Winter 2023-24
Course Title	: Internet of Things Lab	Code	: BECE352E
		Slot	: L23-24
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Faculty (s)	: Dr. Manimaran P	Date	: 13 th April 2024

AIM

To perform Unsupervised and Supervised Machine Learning on the Knime Analytics Platform.

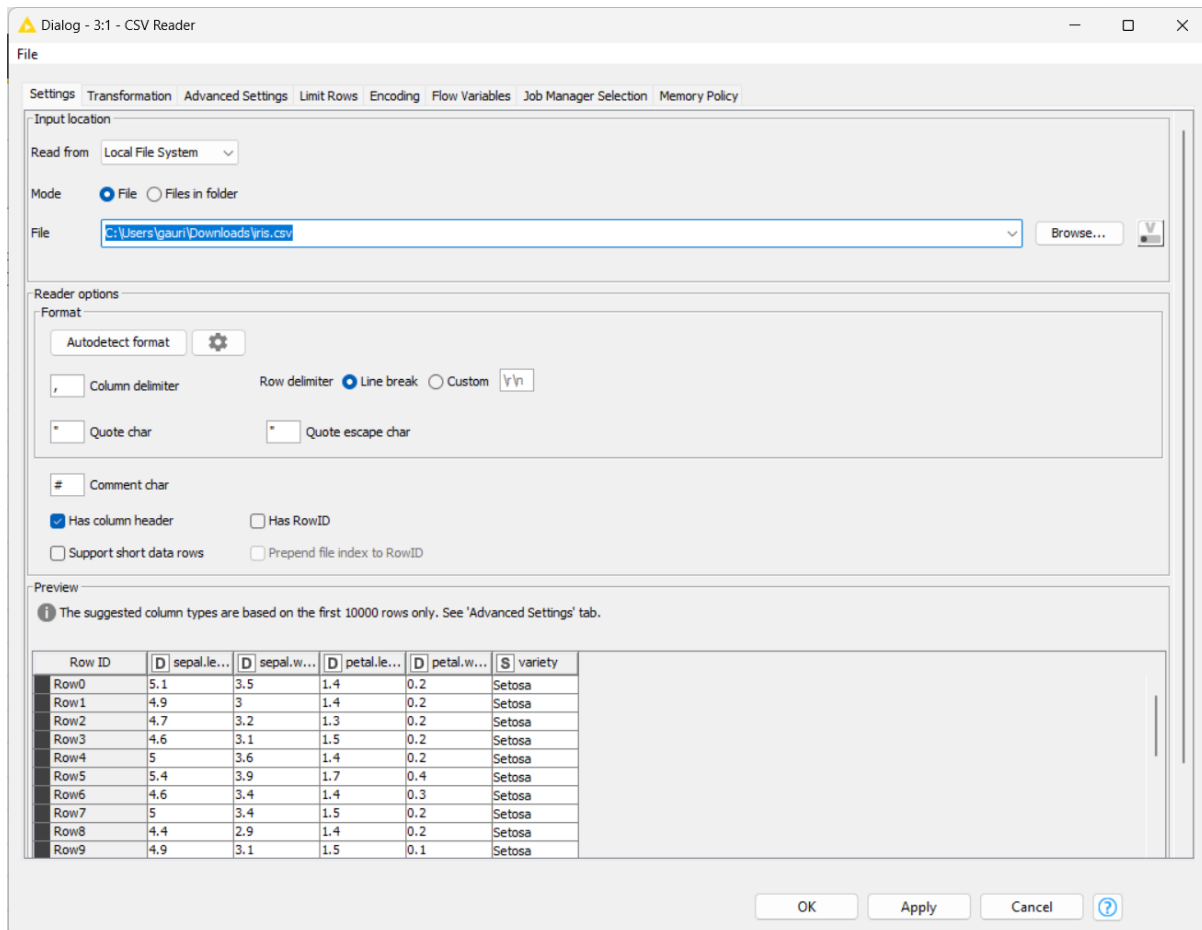
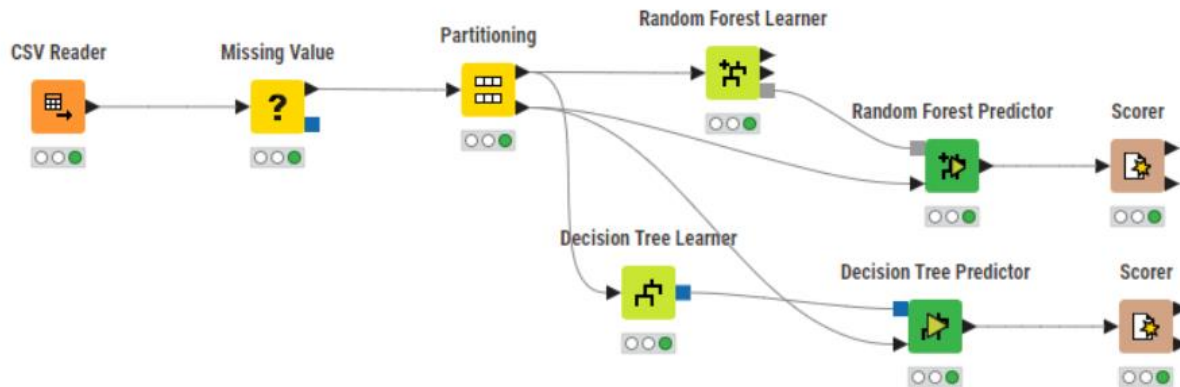
Steps to Follow

Import the Sales Dataset

1. Download and Launch the Kmine Analytics Application.
2. Download data and create new workflow.
3. Drag and drop CSV file into the workbench editor.
4. Filter data with the Column Filter node.
5. Exclude "unknown" values with the Row Filter node.
6. Visualize your data with Stacked Area Chart & Pie Chart.
7. Execute and open output visualization.

Now Import the Iris Dataset and perform the above operations.

Workflow Screenshots for Supervised Learning



Dialog - 3:3 - Partitioning

File

First partition | Flow Variables | Job Manager Selection | Memory Policy

Choose size of first partition

☐ Absolute 100

☒ Relative[%] sp

☐ Take from top

☐ Linear sampling

☒ Draw randomly

☐ Stratified sampling S variety

☐ Use random seed 1,713,018,698,6

OK Apply Cancel ?

Dialog - 3:9 - Decision Tree Learner

File

Options | PMMLSettings | Flow Variables | Job Manager Selection

General

Class column S variety

Quality measure Gini index

Pruning method No pruning

☒ Reduced Error Pruning

Min number records per node 2

Number records to store for view 10,000

☒ Average split point

Number threads 4

☒ Skip nominal columns without domain information

Root split

☐ Force root split column

Root split column D petal.width

Binary nominal splits

☐ Binary nominal splits

Max #nominal 10

☐ Filter invalid attribute values in child nodes

OK Apply Cancel ?

Dialog - 3:4 - Random Forest Learner

File

Options | Flow Variables | Job Manager Selection | Memory Policy

Target Column: [S] variety

Attribute Selection

☐ Use fingerprint attribute [F] <no valid fingerprint input>

☒ Use column attributes

☒ Manual Selection ☐ Wildcard/Regex Selection

Exclude

Filter

No columns in this list

☒ Enforce exclusion

Include

Filter

D sepal.length
D sepal.width
D petal.length
D petal.width

☐ Enforce inclusion

Misc Options

☐ Enable Hilighting (#patterns to store) 2,000

☐ Save target distribution in tree nodes (memory expensive - only important for tree view and PMML export)

Tree Options

Split Criterion: [Gini Index]

☐ Limit number of levels (tree depth) 10

☐ Minimum node size 1

Forest Options

OK Apply Cancel ?

Output for Supervised Learning

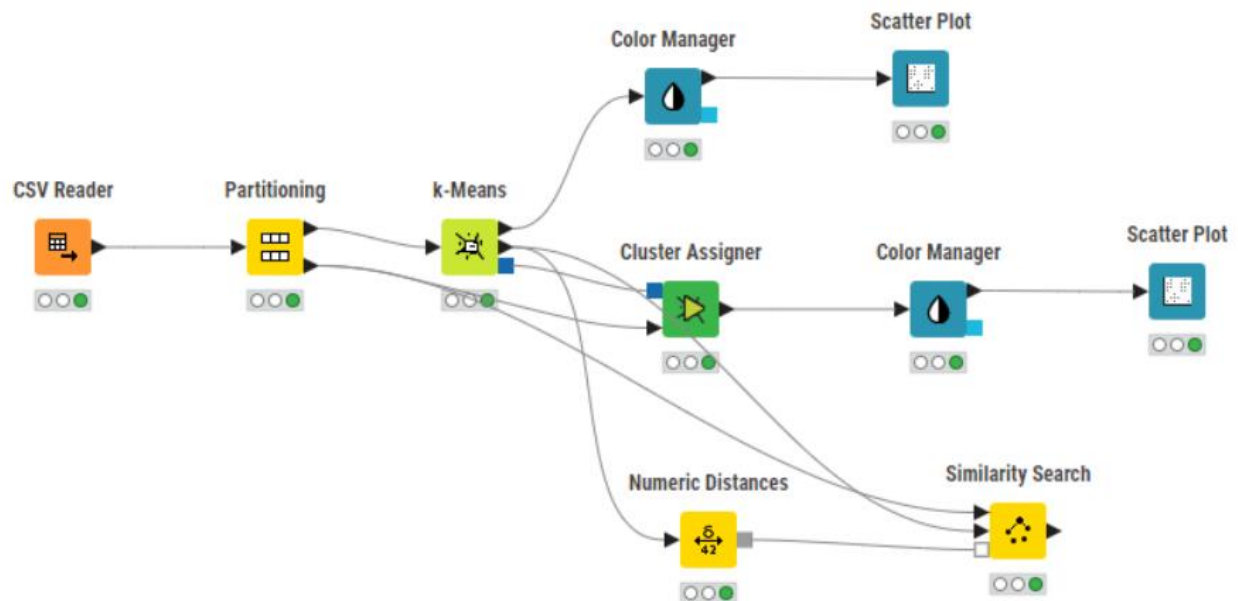
► 1: Confusion matrix ► 2: Accuracy statistics ☒ Flow Variables

Rows: 3 | Columns: 3

Table ☒ Statistics ☐

#	RowID	Setosa Number (integer)	Versicolor Number (integer)	Virginica Number (integer)
1	Setosa	8	0	0
2	Versicolor	0	8	1
3	Virginica	0	1	12

Workflow Screenshots for Unsupervised Learning



Dialog - 3:1 - CSV Reader

File

Settings Transformation Advanced Settings Limit Rows Encoding Flow Variables Job Manager Selection Memory Policy

Input location

Read from Local File System

Mode ☒ File ☐ Files in folder

File C:\Users\gaun\Downloads\iris.csv Browse...

Reader options

Format

Autodetect format

Column delimiter , Row delimiter ☒ Line break ☐ Custom \r\n

Quote char " Quote escape char \"

Comment char #

☒ Has column header ☐ Has RowID

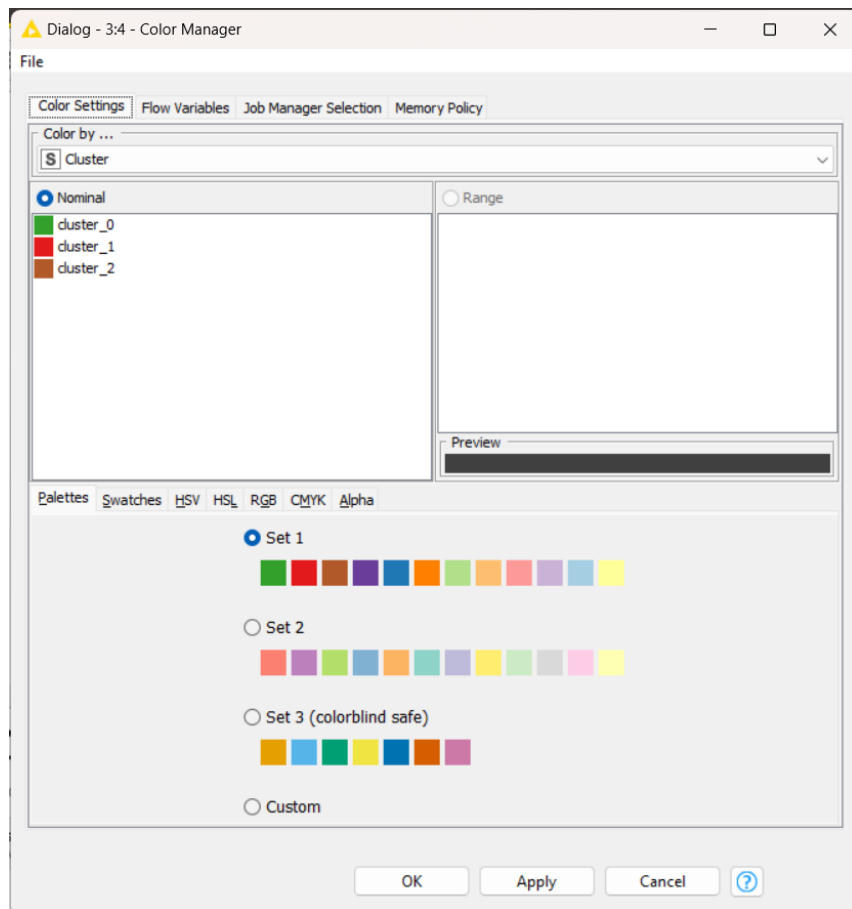
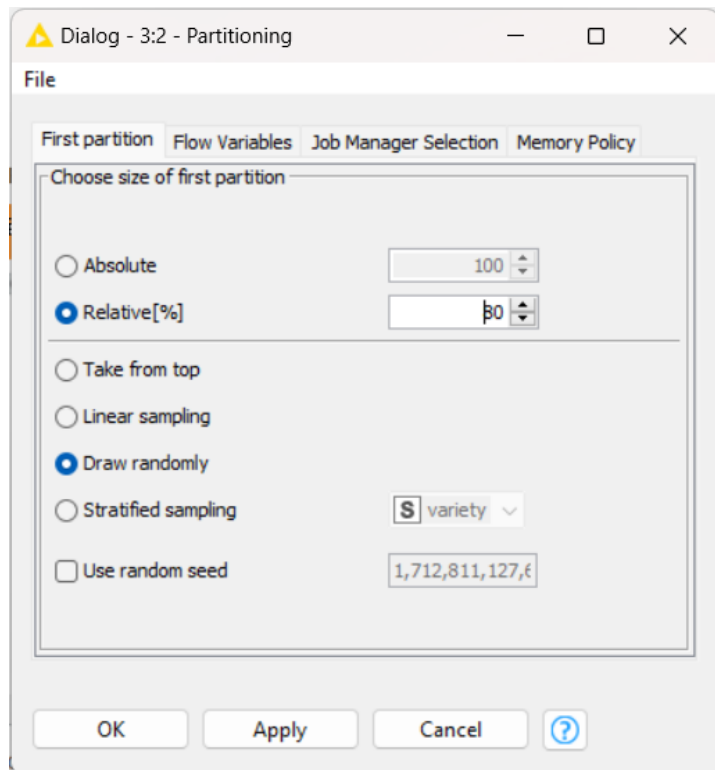
☐ Support short data rows ☐ Prepend file index to RowID

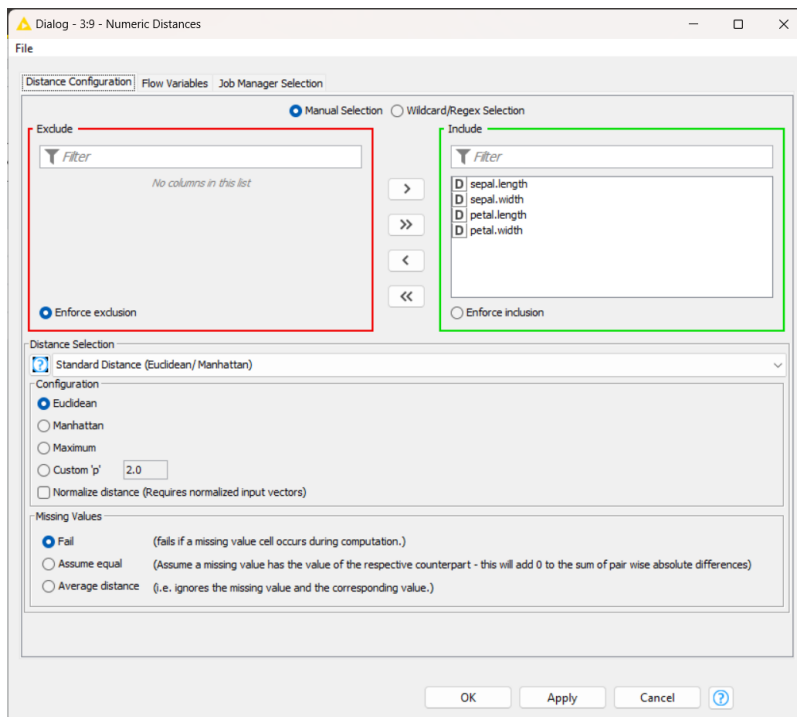
Preview

The suggested column types are based on the first 10000 rows only. See 'Advanced Settings' tab.

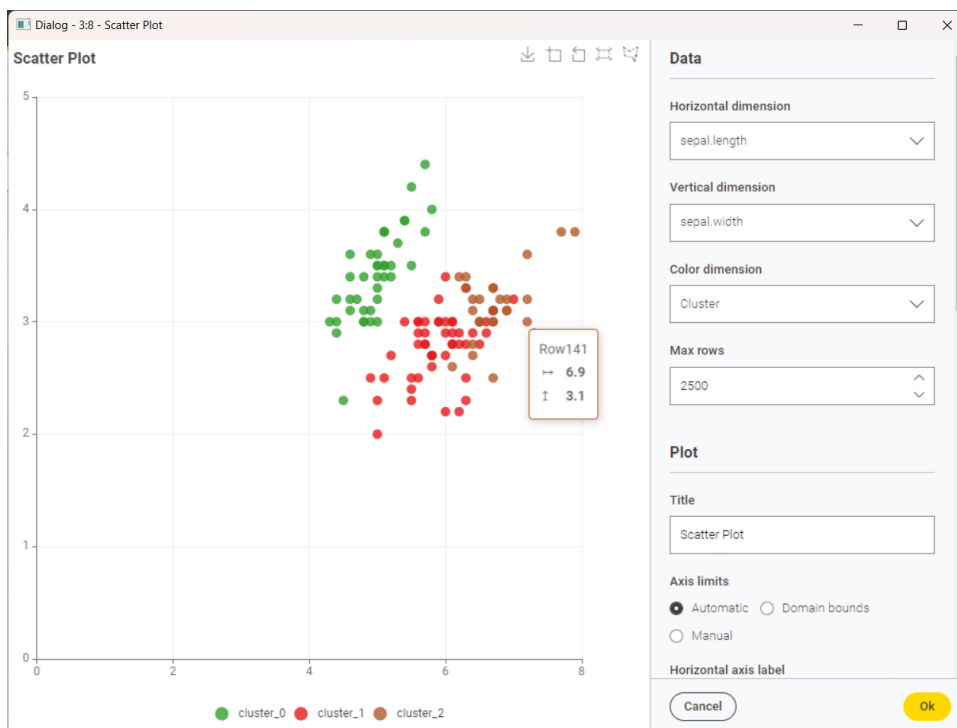
Row ID	D sepal.le...	D sepal.w...	D petal.le...	D petal.w...	S variety
Row0	5.1	3.5	1.4	0.2	Setosa
Row1	4.9	3	1.4	0.2	Setosa
Row2	4.7	3.2	1.3	0.2	Setosa
Row3	4.6	3.1	1.5	0.2	Setosa
Row4	5	3.6	1.4	0.2	Setosa
Row5	5.4	3.9	1.7	0.4	Setosa
Row6	4.6	3.4	1.4	0.3	Setosa
Row7	5	3.4	1.5	0.2	Setosa
Row8	4.4	2.9	1.4	0.2	Setosa
Row9	4.9	3.1	1.5	0.1	Setosa

OK Apply Cancel ?





Output for Unsupervised Learning



Results

Thus, we have performed Supervised Machine Learning and Unsupervised Machine Learning with the help of the Knime Application.