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S.THARUN

19MID0031

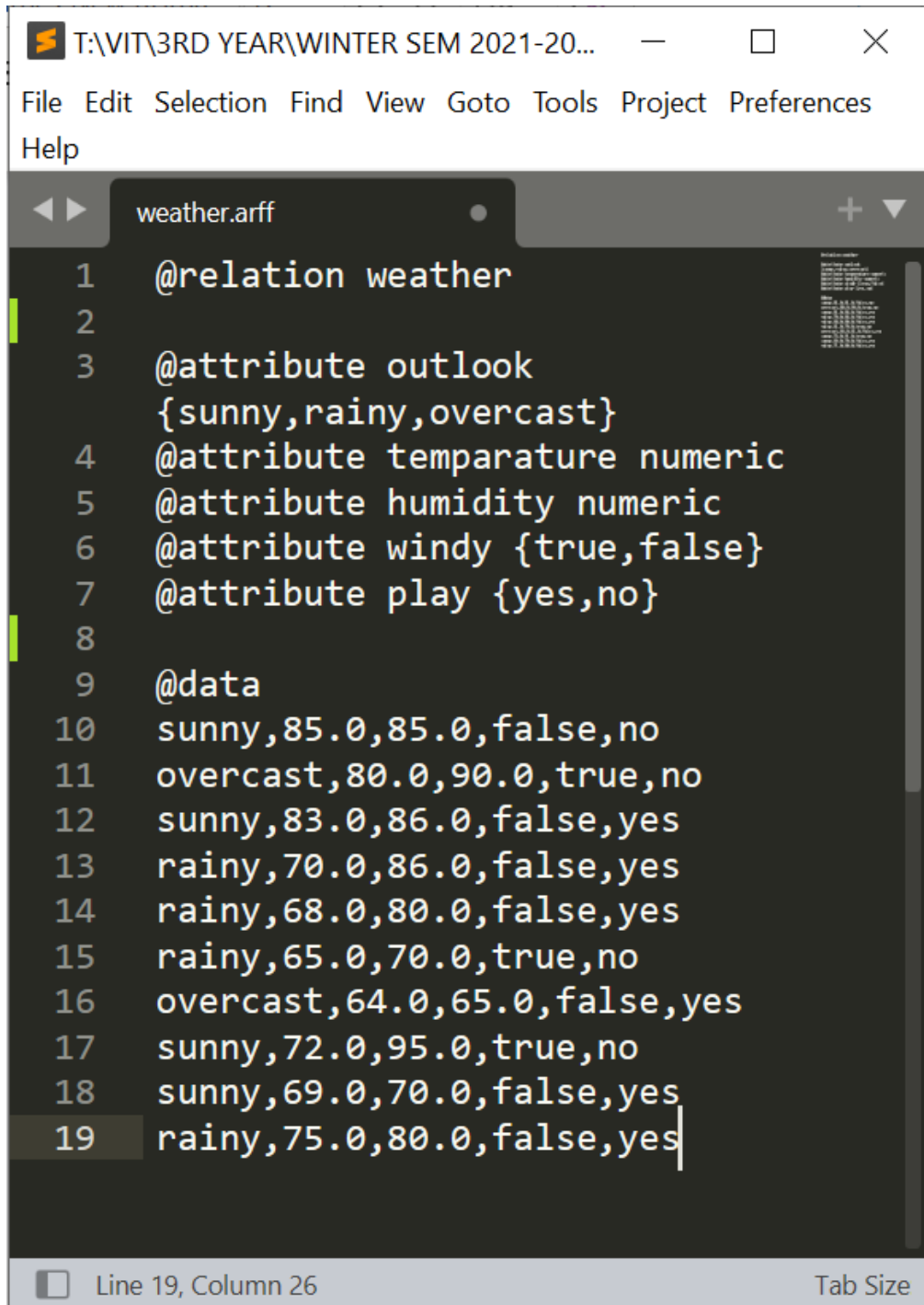
CSI3010 – DATA WAREHOUSING AND DATA MINING

FACULTY : CHELLATAMILAN T

PRE-PROCESSING TECHNIQUES USING
WEKA

CREATING WEATHER DATASET IN .ARFF FORMAT

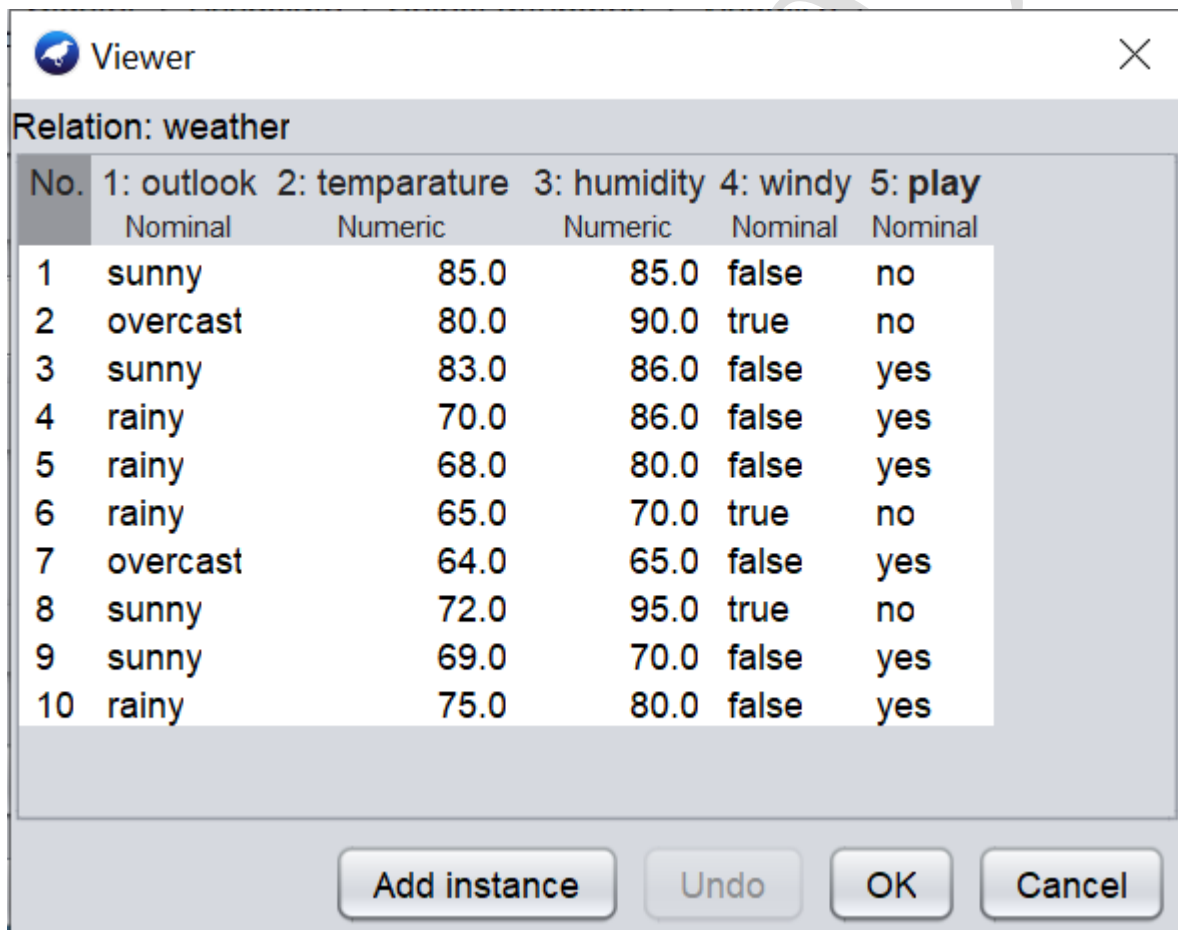
- 1) Open Start ->Programs -> Accessories ->Notepad
- 2) **Type the following** training data set with the help of Notepad for Weather Table.



```
1  @relation weather
2
3  @attribute outlook
   {sunny,rainy,overcast}
4  @attribute temperature numeric
5  @attribute humidity numeric
6  @attribute windy {true,false}
7  @attribute play {yes,no}
8
9  @data
10 sunny,85.0,85.0,false,no
11 overcast,80.0,90.0,true,no
12 sunny,83.0,86.0,false,yes
13 rainy,70.0,86.0,false,yes
14 rainy,68.0,80.0,false,yes
15 rainy,65.0,70.0,true,no
16 overcast,64.0,65.0,false,yes
17 sunny,72.0,95.0,true,no
18 sunny,69.0,70.0,false,yes
19 rainy,75.0,80.0,false,yes
```

LOAD AND VIEW DATA

- 3) After that the file is saved with .arff file format.
- 4) Minimize the arff -3-4.
- 5) Click on weka-3-4, then Weka dialog box is displayed on the screen.
- 6) In that dialog box there are four modes, click on explorer.
- 7) Explorer shows many options. In that click on 'open file' and select the arff file
- 8) **Click on edit button which shows weather table on weka**



The screenshot shows the 'Viewer' window in Weka. The title bar says 'Viewer' with a close button. The main area is titled 'Relation: weather'. Below this is a table with 6 columns: 'No.', '1: outlook', '2: temparature', '3: humidity', '4: windy', and '5: play'. Each column has a data type listed below it: 'Nominal', 'Numeric', 'Numeric', 'Nominal', and 'Nominal' respectively. The table contains 10 rows of data. At the bottom of the window are four buttons: 'Add instance', 'Undo', 'OK', and 'Cancel'.

No.	1: outlook Nominal	2: temparature Numeric	3: humidity Numeric	4: windy Nominal	5: play Nominal
1	sunny	85.0	85.0	false	no
2	overcast	80.0	90.0	true	no
3	sunny	83.0	86.0	false	yes
4	rainy	70.0	86.0	false	yes
5	rainy	68.0	80.0	false	yes
6	rainy	65.0	70.0	true	no
7	overcast	64.0	65.0	false	yes
8	sunny	72.0	95.0	true	no
9	sunny	69.0	70.0	false	yes
10	rainy	75.0	80.0	false	yes

ADD ATTRIBUTE

- 1) Click “Choose” in filter
- 2) Select weka.filters.unsupervised.attribute.Add
- 3) Enter details as given below and give “ok” and then apply the filter

weka.gui.GenericObjectEditor

weka.filters.unsupervised.attribute.Add

About

An instance filter that adds a new attribute to the dataset.

More

Capabilities

attributeIndex: 5

attributeName: Newly added attribute

attributeType: Nominal attribute

dateFormat: yyyy-MM-dd'T'HH:mm:ss

debug: False

doNotCheckCapabilities: False

nominalLabels: yes,no

weight: 1.0

Open... Save... OK Cancel

ENTERING EACH INSTANCE VALUES MANUALLY

Viewer

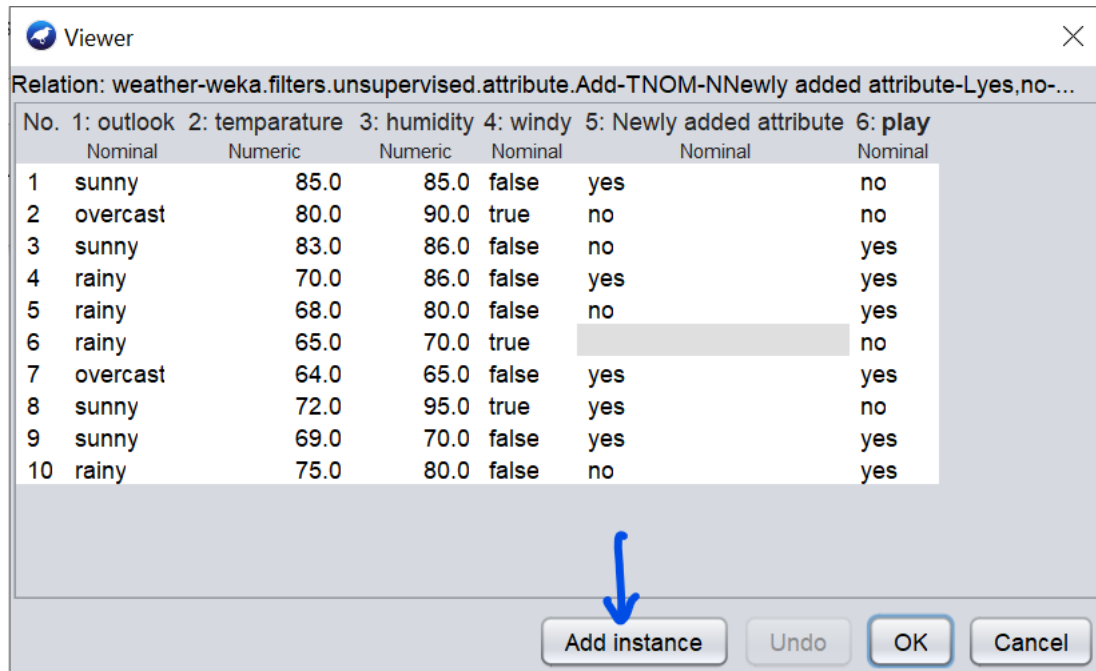
Relation: weather-weka.filters.unsupervised.attribute.Add-TNOM-NNewly added attribute-L...

No.	1: outlook Nominal	2: temperature Numeric	3: humidity Numeric	4: windy Nominal	5: Newly added attribute Nominal	6: play Nominal
1	sunny	85.0	85.0	false		no
2	overcast	80.0	90.0	true		no
3	sunny	83.0	86.0	false		yes
4	rainy	70.0	86.0	false		yes
5	rainy	68.0	80.0	false		yes
6	rainy	65.0	70.0	true		no
7	overcast	64.0	65.0	false		yes
8	sunny	72.0	95.0	true		no
9	sunny	69.0	70.0	false		yes
10	rainy	75.0	80.0	false		yes

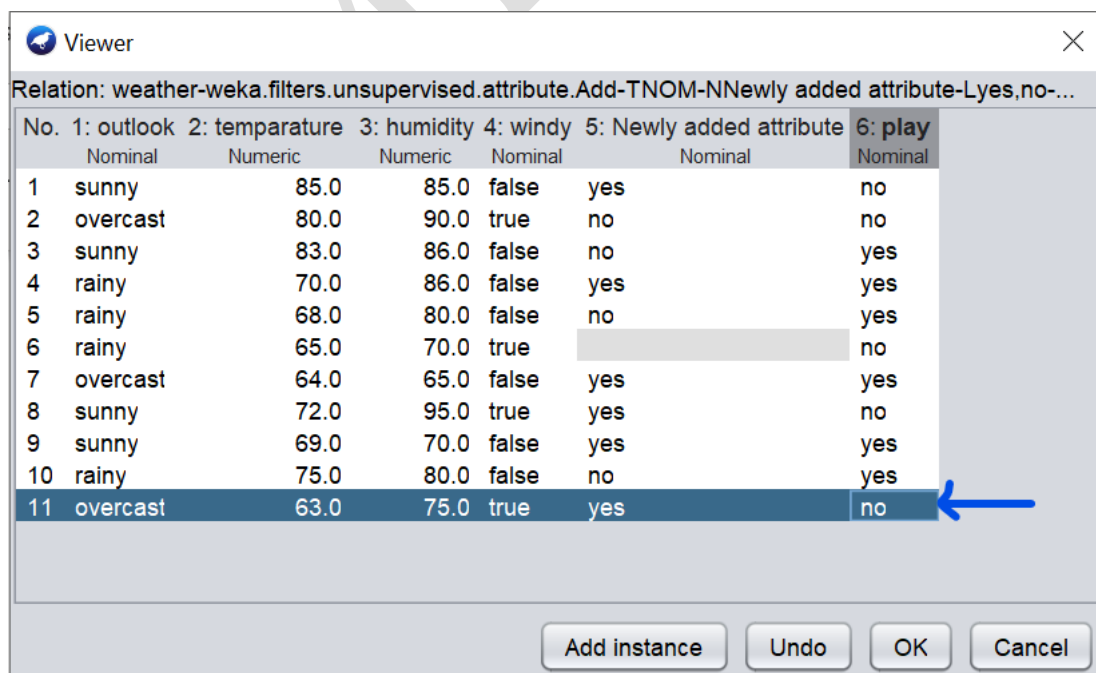
Add instance Undo OK Cancel

ADD INSTANCES

1. Click “Edit”
2. Click “Add Instance”

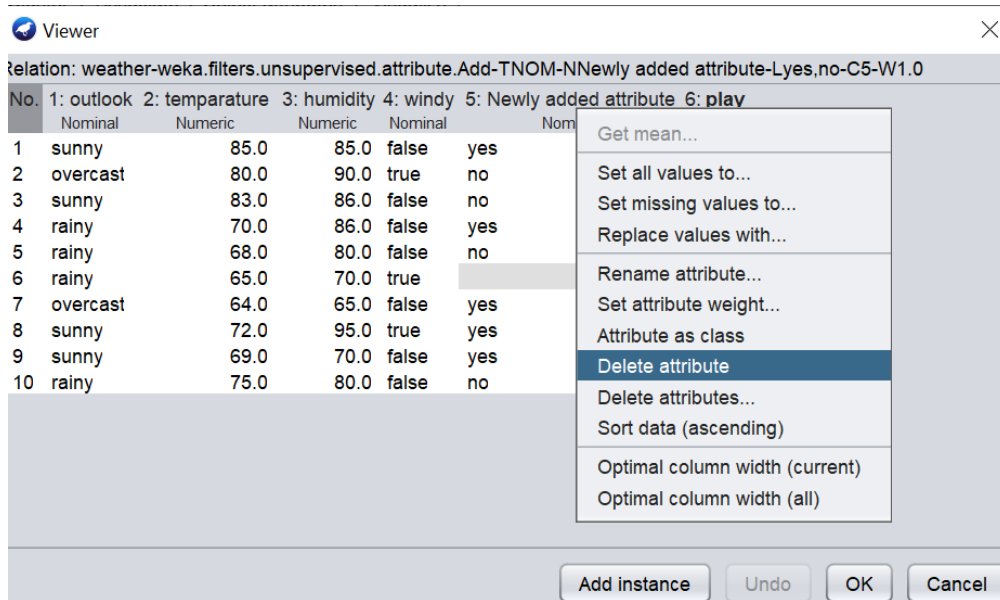


3. Another instance automatically adds in the view
4. Modify instance value accordingly

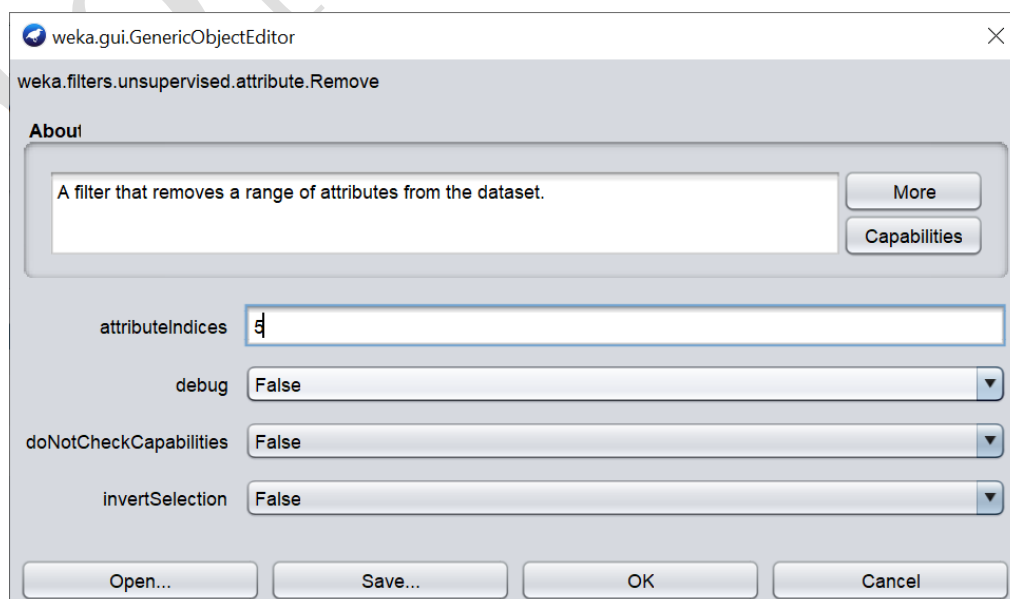


REMOVE ATTRIBUTE

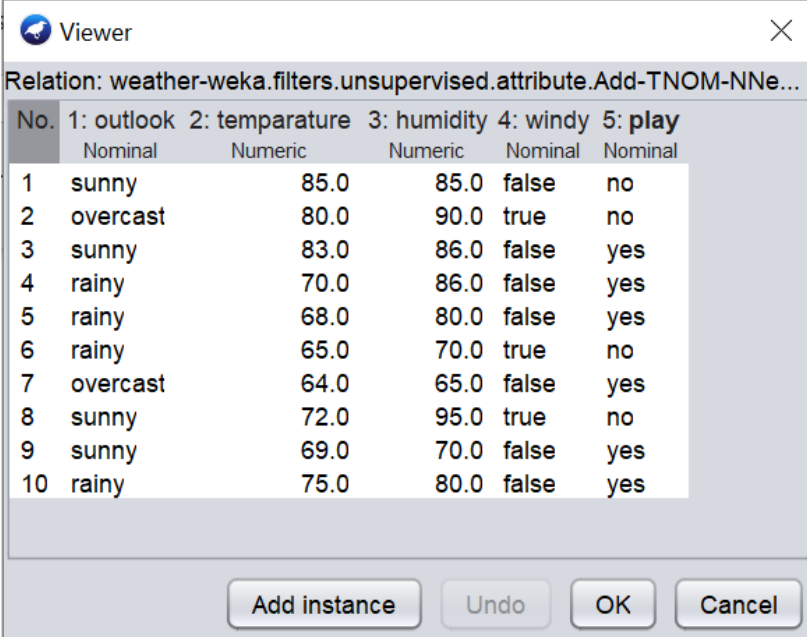
1. Click “Edit”
2. Right click the attribute which you want to delete
3. Select delete attribute



4. We can also do this by filters. Click “Choose” in filters
5. Select weka.filters.unsupervised.attribute.Remove
6. Give the index of the column to be deleted
7. Click “OK” and then click “Apply” in filter



DATA AFTER REMOVING ATTRIBUTE



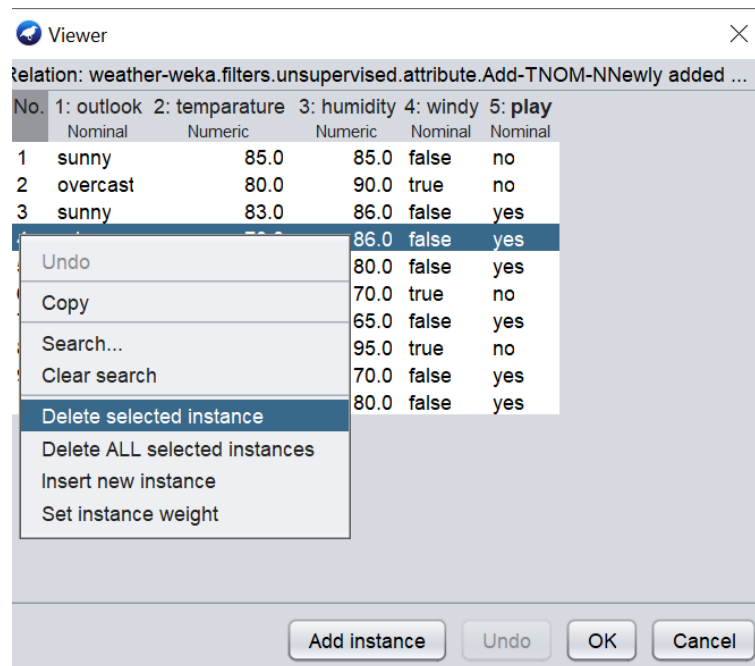
Relation: weather-weka.filters.unsupervised.attribute.Add-TNOM-NNe...

No.	1: outlook	2: temperature	3: humidity	4: windy	5: play
	Nominal	Numeric	Numeric	Nominal	Nominal
1	sunny	85.0	85.0	false	no
2	overcast	80.0	90.0	true	no
3	sunny	83.0	86.0	false	yes
4	rainy	70.0	86.0	false	yes
5	rainy	68.0	80.0	false	yes
6	rainy	65.0	70.0	true	no
7	overcast	64.0	65.0	false	yes
8	sunny	72.0	95.0	true	no
9	sunny	69.0	70.0	false	yes
10	rainy	75.0	80.0	false	yes

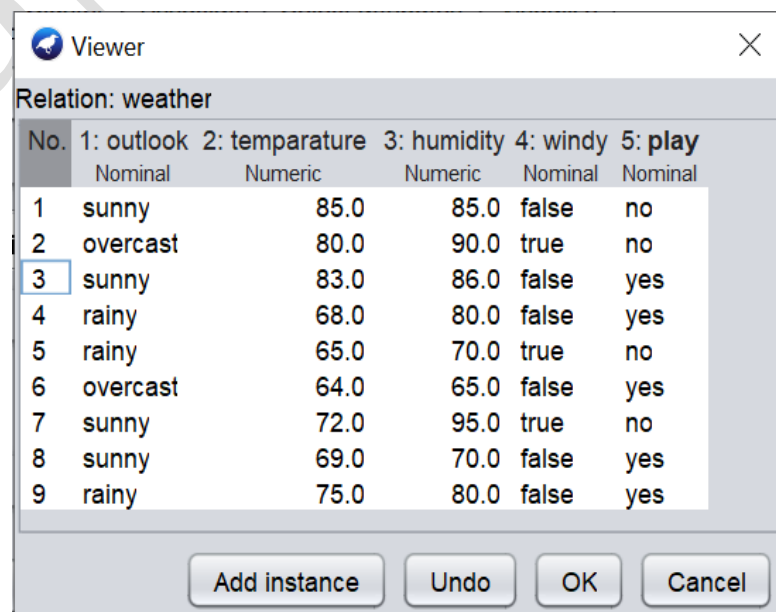
Buttons: Add instance, Undo, OK, Cancel

REMOVING INSTANCE

1. Click Edit and select the instance to be deleted
2. Right click the instance and select “Delete selected Instance”



4TH ATTRIBUTE REMOVED



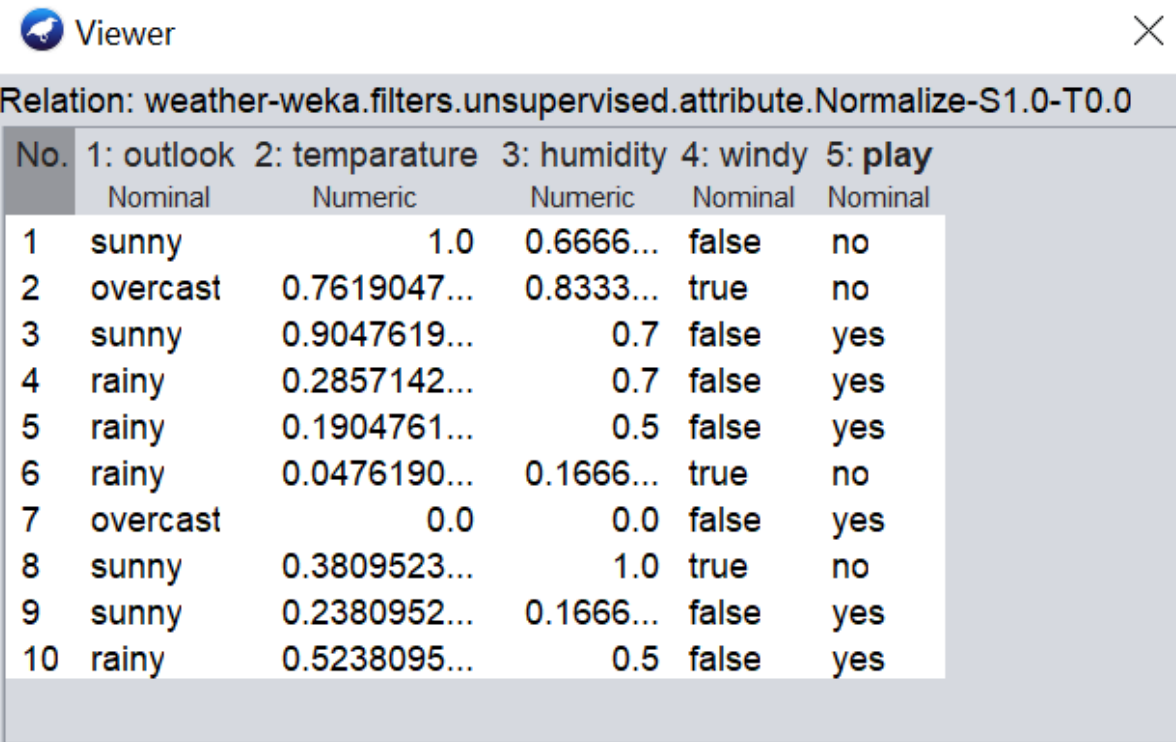
NORMALIZE

Normalize → Pre-Processing Technique:

Procedure:

- 1) Start → Programs → Weka-3-4 → Weka-3-4
- 2) Click on **explorer**.
- 3) Click on **open file**.
- 4) Select **Weather.arff** file and click on open.
- 5) Click on **Choose button** and select the **Filters** option.
- 6) In Filters, we have **Supervised** and **Unsupervised data**.
- 7) Click on **Unsupervised data**.
- 8) Select the attribute **Normalize**.
- 9) Select the attributes **temparature**, **humidity** to Normalize.
- 10) Click on **Apply button** and then **Save**.
- 11) Click on the **Edit button**, it shows a new Weather Table with normalized values on Weka.

OUTPUT WINDOW



No.	1: outlook	2: temparature	3: humidity	4: windy	5: play
	Nominal	Numeric	Numeric	Nominal	Nominal
1	sunny	1.0	0.6666...	false	no
2	overcast	0.7619047...	0.8333...	true	no
3	sunny	0.9047619...	0.7	false	yes
4	rainy	0.2857142...	0.7	false	yes
5	rainy	0.1904761...	0.5	false	yes
6	rainy	0.0476190...	0.1666...	true	no
7	overcast	0.0	0.0	false	yes
8	sunny	0.3809523...	1.0	true	no
9	sunny	0.2380952...	0.1666...	false	yes
10	rainy	0.5238095...	0.5	false	yes

Buttons: Add instance, Undo, OK, Cancel

HANDLING MISSING VALUES

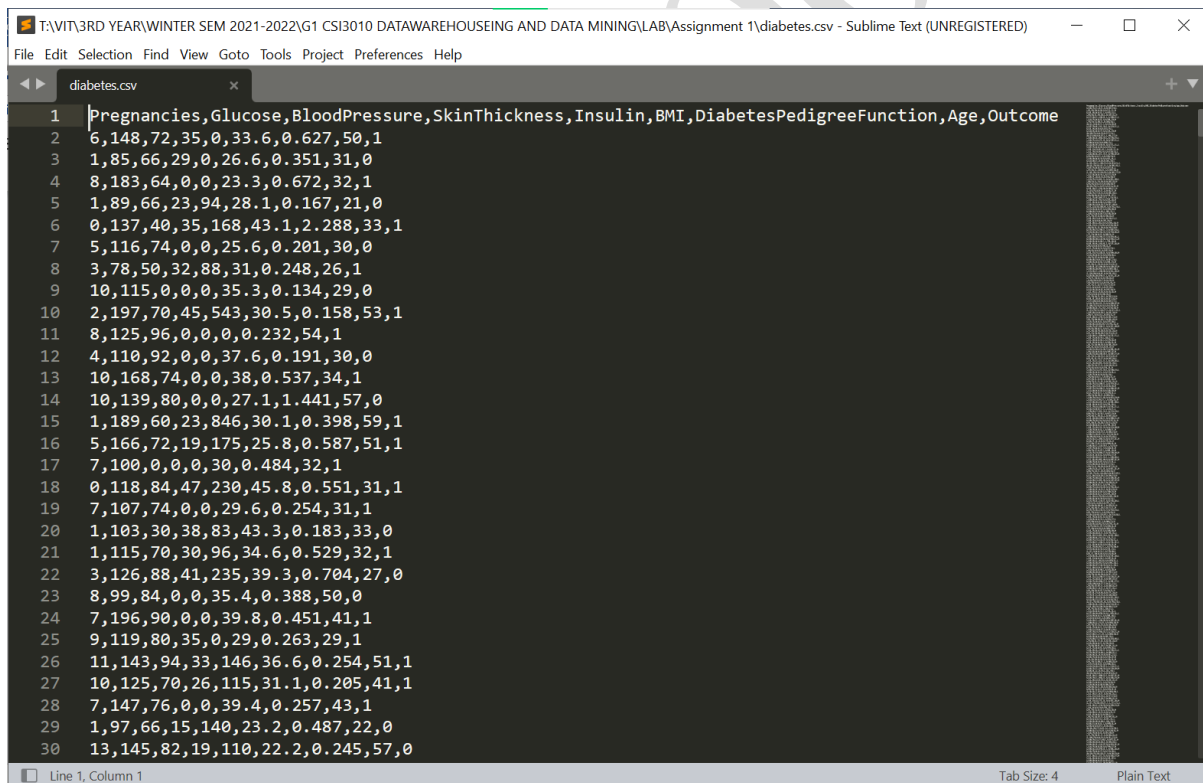
4) Handling of missing values

- Mark Missing Values
- Remove instances with Missing Data
- Impute Missing Values (replace the missing values with some other value)

STEP 1: Download the Pima Indians onset of diabetes dataset

<https://www.kaggle.com/uciml/pima-indians-diabetes-database>

THE ORIGINAL .CSV FILE



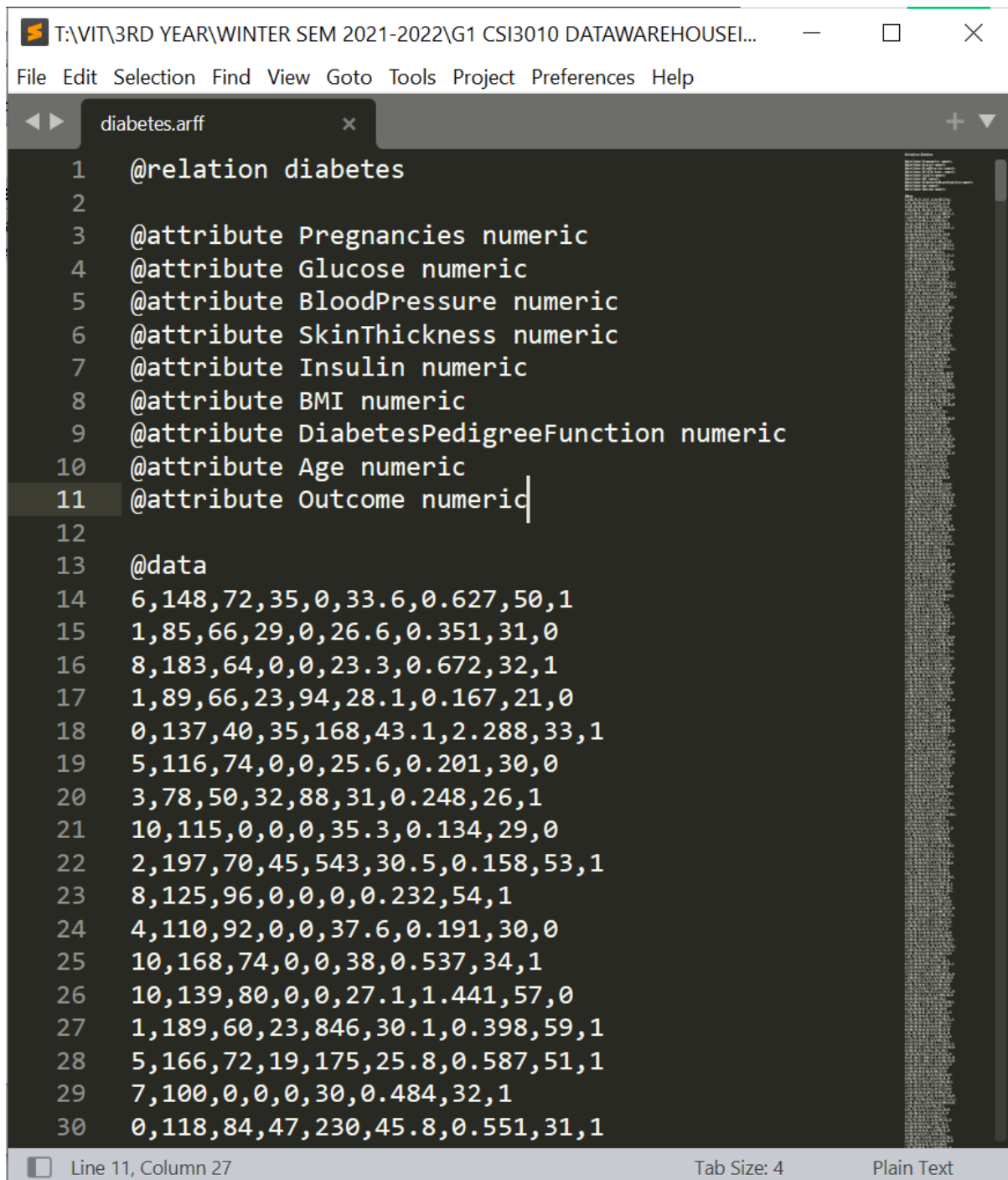
```
T:\VIT\3RD YEAR\WINTER SEM 2021-2022\G1 CSI3010 DATAWAREHOUSEING AND DATA MINING\LAB\Assignment 1\diabetes.csv - Sublime Text (UNREGISTERED)
File Edit Selection Find View Goto Tools Project Preferences Help

diabetes.csv
1 Pregnancies,Glucose,BloodPressure,SkinThickness,Insulin,BMI,DiabetesPedigreeFunction,Age,Outcome
2 6,148,72,35,0,33.6,0.627,50,1
3 1,85,66,29,0,26.6,0.351,31,0
4 8,183,64,0,0,23.3,0.672,32,1
5 1,89,66,23,94,28.1,0.167,21,0
6 0,137,40,35,168,43.1,2.288,33,1
7 5,116,74,0,0,25.6,0.201,30,0
8 3,78,50,32,88,31,0.248,26,1
9 10,115,0,0,0,35.3,0.134,29,0
10 2,197,70,45,543,30.5,0.158,53,1
11 8,125,96,0,0,0,0.232,54,1
12 4,110,92,0,0,37.6,0.191,30,0
13 10,168,74,0,0,38,0.537,34,1
14 10,139,80,0,0,27.1,1.441,57,0
15 1,189,60,23,846,30.1,0.398,59,1
16 5,166,72,19,175,25.8,0.587,51,1
17 7,100,0,0,0,30,0.484,32,1
18 0,118,84,47,230,45.8,0.551,31,1
19 7,107,74,0,0,29.6,0.254,31,1
20 1,103,30,38,83,43.3,0.183,33,0
21 1,115,70,30,96,34.6,0.529,32,1
22 3,126,88,41,235,39.3,0.704,27,0
23 8,99,84,0,0,35.4,0.388,50,0
24 7,196,90,0,0,39.8,0.451,41,1
25 9,119,80,35,0,29,0.263,29,1
26 11,143,94,33,146,36.6,0.254,51,1
27 10,125,70,26,115,31.1,0.205,41,1
28 7,147,76,0,0,39.4,0.257,43,1
29 1,97,66,15,140,23.2,0.487,22,0
30 13,145,82,19,110,22.2,0.245,57,0

Line 1, Column 1 Tab Size: 4 Plain Text
```

Step 2: Convert the CSV File into a ARFF formatted File and then use the ARFF file for handling of missing values.

ALTERED WEATHER .CSV FILE



```
1  @relation diabetes
2
3  @attribute Pregnancies numeric
4  @attribute Glucose numeric
5  @attribute BloodPressure numeric
6  @attribute SkinThickness numeric
7  @attribute Insulin numeric
8  @attribute BMI numeric
9  @attribute DiabetesPedigreeFunction numeric
10 @attribute Age numeric
11 @attribute Outcome numeric
12
13 @data
14 6,148,72,35,0,33.6,0.627,50,1
15 1,85,66,29,0,26.6,0.351,31,0
16 8,183,64,0,0,23.3,0.672,32,1
17 1,89,66,23,94,28.1,0.167,21,0
18 0,137,40,35,168,43.1,2.288,33,1
19 5,116,74,0,0,25.6,0.201,30,0
20 3,78,50,32,88,31,0.248,26,1
21 10,115,0,0,0,35.3,0.134,29,0
22 2,197,70,45,543,30.5,0.158,53,1
23 8,125,96,0,0,0,0.232,54,1
24 4,110,92,0,0,37.6,0.191,30,0
25 10,168,74,0,0,38,0.537,34,1
26 10,139,80,0,0,27.1,1.441,57,0
27 1,189,60,23,846,30.1,0.398,59,1
28 5,166,72,19,175,25.8,0.587,51,1
29 7,100,0,0,0,30,0.484,32,1
30 0,118,84,47,230,45.8,0.551,31,1
```

Line 11, Column 27 Tab Size: 4 Plain Text

Step 3:

Mark Missing Values

Mark Missing Values

The Pima Indians dataset is a good basis for exploring missing data. Some attributes such as blood pressure (pres) and Body Mass Index (mass) have values of zero, which are impossible. These are examples of corrupt or missing data that must be marked manually. You can mark missing values in Weka using the NumericalCleaner filter. The recipe below shows you how to use this filter to mark the 11 missing values on the Body Mass Index (mass) attribute.

1. Open the Weka Explorer.
2. Load the Pima Indians onset of diabetes dataset.
3. Click the "Choose" button for the Filter and select NumericalCleaner, it is under unsupervised.attribute.NumericalCleaner.
4. Click on the filter to configure it.
5. Set the attributeIndices to 6, the index of the mass attribute.
6. Set minThreshold to 0.1E-8 (close to zero), which is the minimum value allowed for the attribute.
7. Set minDefault to NaN, which is unknown and will replace values below the threshold.
8. Click the "OK" button on the filter configuration.

ZERO VALUES IN BMI COLUMN

Viewer										
Relation: diabetes										
No.	1: Pregnancies	2: Glucose	3: BloodPressure	4: SkinThickness	5: Insulin	6: BMI	7: DiabetesPedigreeFunction	8: Age	9: Outcome	
	Numeric	Numeric	Numeric	Numeric	Numeric	Numeric	Numeric	Numeric	Numeric	
1	6.0	148.0	72.0	35.0	0.0	33.6	0.627	50.0	1.0	
2	1.0	85.0	66.0	29.0	0.0	26.6	0.351	31.0	0.0	
3	8.0	183.0	64.0	0.0	0.0	23.3	0.672	32.0	1.0	
4	1.0	89.0	66.0	23.0	94.0	28.1	0.167	21.0	0.0	
5	0.0	137.0	40.0	35.0	168.0	43.1	2.288	33.0	1.0	
6	5.0	116.0	74.0	0.0	0.0	25.6	0.201	30.0	0.0	
7	3.0	78.0	50.0	32.0	88.0	31.0	0.248	26.0	1.0	
8	10.0	115.0	0.0	0.0	0.0	35.3	0.134	29.0	0.0	
9	2.0	197.0	70.0	45.0	543.0	30.5	0.158	53.0	1.0	
10	8.0	125.0	96.0	0.0	0.0	0.0	0.232	54.0	1.0	
11	4.0	110.0	92.0	0.0	0.0	37.6	0.191	30.0	0.0	
12	10.0	168.0	74.0	0.0	0.0	38.0	0.537	34.0	1.0	
13	10.0	139.0	80.0	0.0	0.0	27.1	1.441	57.0	0.0	
14	1.0	189.0	60.0	23.0	846.0	30.1	0.398	59.0	1.0	
15	5.0	166.0	72.0	19.0	175.0	25.8	0.587	51.0	1.0	

Add instance

Undo

OK

Cancel

NUMERICAL CLEANER FILTER

The screenshot shows the 'weka.gui.GenericObjectEditor' window for the 'weka.filters.unsupervised.attribute.NumericCleaner' filter. The window has a title bar with a close button. Below the title bar, the filter's name is displayed. A description box states: 'A filter that 'cleanses' the numeric data from values that are too small, too big or very close to a certain value, and sets these values to a pre-defined default.' To the right of the description are 'More' and 'Capabilities' buttons. The main area contains several configuration fields: 'attributeIndices' (text input with 'd'), 'closeTo' (text input with '0.0'), 'closeToDefault' (text input with '0.0'), 'closeToTolerance' (text input with '1.0E-6'), 'debug' (dropdown menu with 'False'), 'decimals' (text input with '-1'), 'doNotCheckCapabilities' (dropdown menu with 'False'), 'includeClass' (dropdown menu with 'False'), 'invertSelection' (dropdown menu with 'False'), 'maxDefault' (text input with '1.7976931348623157E308'), 'maxThreshold' (text input with '1.7976931348623157E308'), 'minDefault' (text input with 'NaN'), and 'minThreshold' (text input with '1.0E-9'). At the bottom are 'Open...', 'Save...', 'OK', and 'Cancel' buttons. A vertical scrollbar is on the right side of the configuration area.

weka.gui.GenericObjectEditor

weka.filters.unsupervised.attribute.NumericCleaner

A filter that 'cleanses' the numeric data from values that are too small, too big or very close to a certain value, and sets these values to a pre-defined default.

More

Capabilities

attributeIndices d

closeTo 0.0

closeToDefault 0.0

closeToTolerance 1.0E-6

debug False

decimals -1

doNotCheckCapabilities False

includeClass False

invertSelection False

maxDefault 1.7976931348623157E308

maxThreshold 1.7976931348623157E308

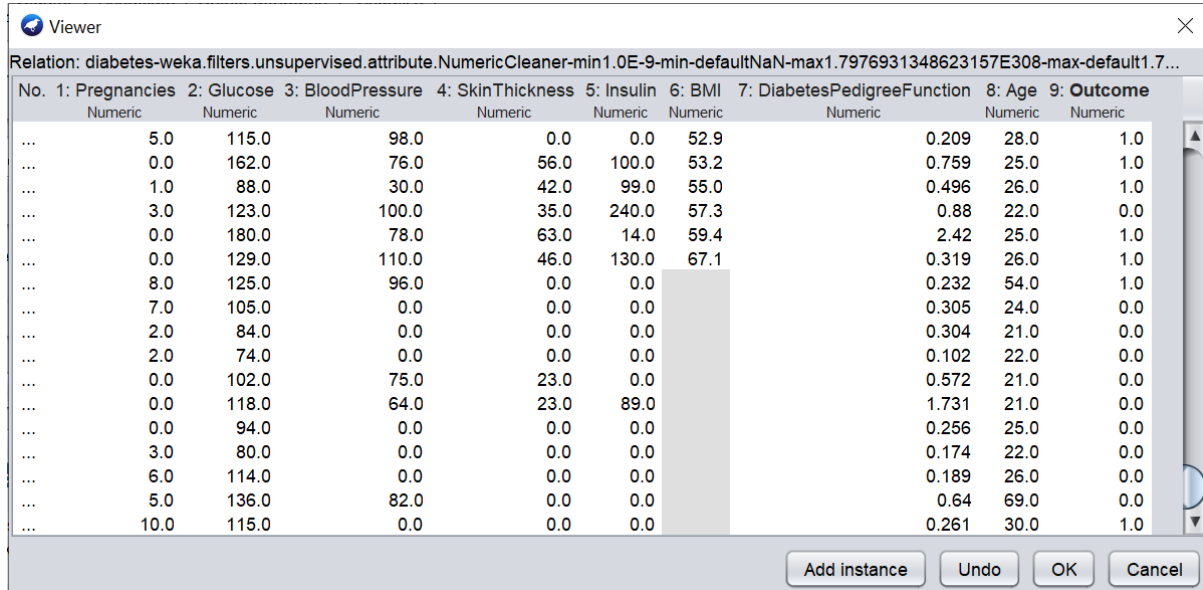
minDefault NaN

minThreshold 1.0E-9

Open... Save... OK Cancel

CLICKED BMI COLUMN TO SORT IN ASCENDING ORDER

(Nan values are placed at last in ascending order)



Relation: diabetes-weka.filters.unsupervised.attribute.NumericCleaner-min1.0E-9-min-defaultNaN-max1.7976931348623157E308-max-default1.7...

No.	1: Pregnancies	2: Glucose	3: BloodPressure	4: SkinThickness	5: Insulin	6: BMI	7: DiabetesPedigreeFunction	8: Age	9: Outcome
	Numeric	Numeric	Numeric	Numeric	Numeric	Numeric	Numeric	Numeric	Numeric
...	5.0	115.0	98.0	0.0	0.0	52.9	0.209	28.0	1.0
...	0.0	162.0	76.0	56.0	100.0	53.2	0.759	25.0	1.0
...	1.0	88.0	30.0	42.0	99.0	55.0	0.496	26.0	1.0
...	3.0	123.0	100.0	35.0	240.0	57.3	0.88	22.0	0.0
...	0.0	180.0	78.0	63.0	14.0	59.4	2.42	25.0	1.0
...	0.0	129.0	110.0	46.0	130.0	67.1	0.319	26.0	1.0
...	8.0	125.0	96.0	0.0	0.0		0.232	54.0	1.0
...	7.0	105.0	0.0	0.0	0.0		0.305	24.0	0.0
...	2.0	84.0	0.0	0.0	0.0		0.304	21.0	0.0
...	2.0	74.0	0.0	0.0	0.0		0.102	22.0	0.0
...	0.0	102.0	75.0	23.0	0.0		0.572	21.0	0.0
...	0.0	118.0	64.0	23.0	89.0		1.731	21.0	0.0
...	0.0	94.0	0.0	0.0	0.0		0.256	25.0	0.0
...	3.0	80.0	0.0	0.0	0.0		0.174	22.0	0.0
...	6.0	114.0	0.0	0.0	0.0		0.189	26.0	0.0
...	5.0	136.0	82.0	0.0	0.0		0.64	69.0	0.0
...	10.0	115.0	0.0	0.0	0.0		0.261	30.0	1.0

Buttons: Add instance, Undo, OK, Cancel

Remove Missing Data:

Now that you know how to mark missing values in your data, you need to learn how to handle them. A simple way to handle missing data is to remove those instances that have one or more missing values. You can do this in Weka using the RemoveWithValues filter.

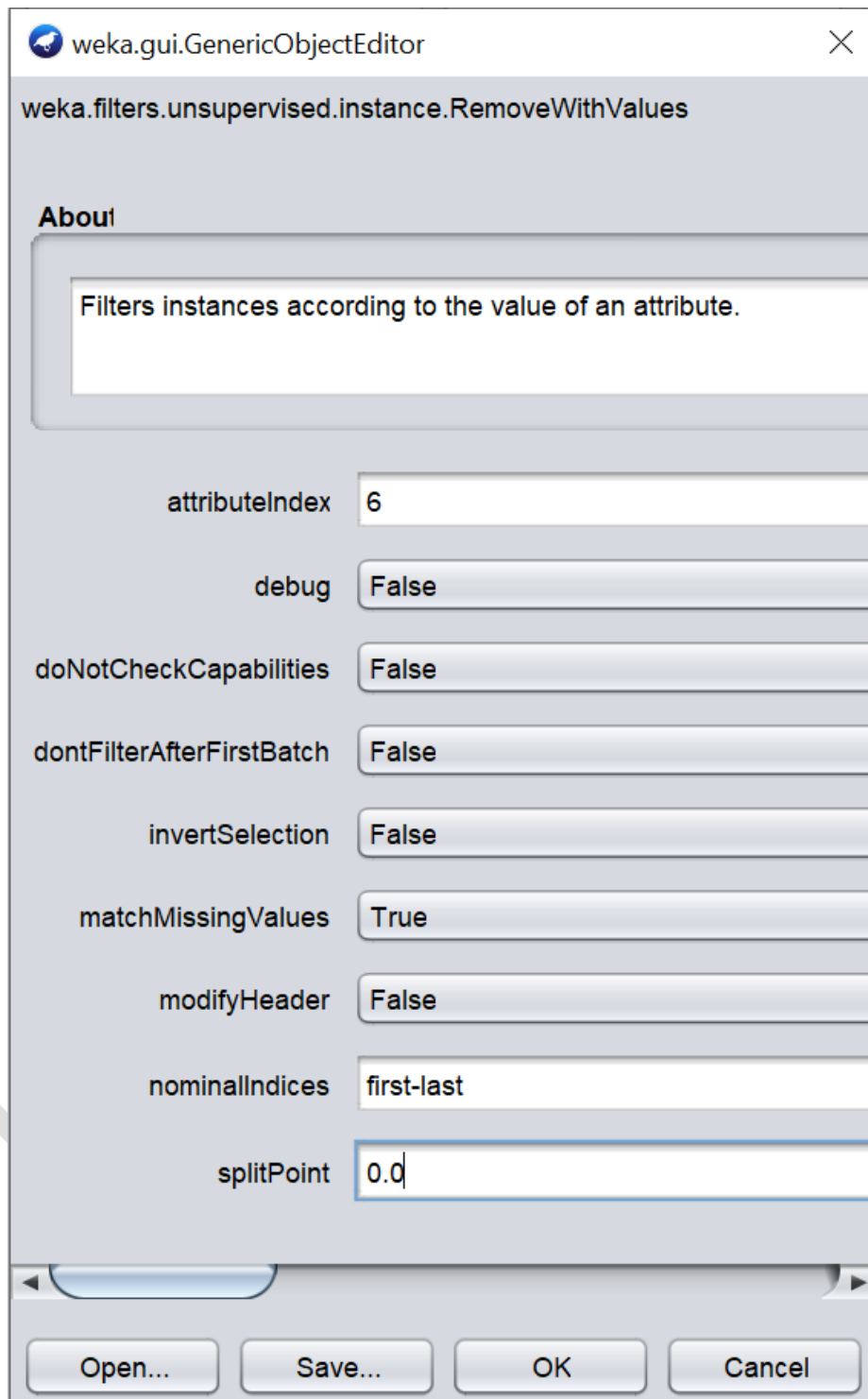
Continuing on from the above recipe to mark missing values, you can remove missing values as follows:

1. Click the "Choose" button for the Filter and select RemoveWithValues, it is under unsupervised.instance.RemoveWithValues.
2. Click on the filter to configure it.
3. Set the attributeIndices to 6, the index of the mass attribute.
4. Set matchMissingValues to "True".
5. Click the "OK" button to use the configuration for the filter.
6. Click the "Apply" button to apply the filter.

Click "mass" in the "attributes" section and review the details of the "selected attribute".

Notice that the 11 attribute values that were marked Missing have been removed from the dataset

REMOVEWITHVALUES FILTER



The screenshot shows the 'weka.gui.GenericObjectEditor' window for the 'weka.filters.unsupervised.instance.RemoveWithValues' filter. The window has a title bar with a close button. Below the title bar, the filter's name is displayed. An 'About' section contains a text box stating 'Filters instances according to the value of an attribute.' Below this, there are several configuration options, each with a label and a corresponding input field or button. The 'attributeIndex' is set to '6'. The 'debug', 'doNotCheckCapabilities', 'dontFilterAfterFirstBatch', 'invertSelection', and 'modifyHeader' options are set to 'False'. The 'matchMissingValues' option is set to 'True'. The 'nominalIndices' option is set to 'first-last'. The 'splitPoint' is set to '0.0'. At the bottom of the window, there are four buttons: 'Open...', 'Save...', 'OK', and 'Cancel'.

weka.gui.GenericObjectEditor

weka.filters.unsupervised.instance.RemoveWithValues

About

Filters instances according to the value of an attribute.

attributeIndex 6

debug False

doNotCheckCapabilities False

dontFilterAfterFirstBatch False

invertSelection False

matchMissingValues True

modifyHeader False

nominalIndices first-last

splitPoint 0.0

Open... Save... OK Cancel

BMI COLUMN SORTED IN ASCENDING ORDER

(But no missing values left)

Viewer

Relation: diabetes-weka.filters.unsupervised.attribute.NumericCleaner-min1.0E-9-min-defaultNaN-max1.7976931348623157E308-max-default1.7...

No. 1: Pregnancies	2: Glucose	3: BloodPressure	4: SkinThickness	5: Insulin	6: BMI	7: DiabetesPedigreeFunction	8: Age	9: Outcome
Numeric	Numeric	Numeric	Numeric	Numeric	Numeric	Numeric	Numeric	Numeric
...	11.0	111.0	84.0	40.0	0.0	46.8	0.925	45.0
...	8.0	188.0	78.0	0.0	0.0	47.9	0.137	43.0
...	0.0	165.0	76.0	43.0	255.0	47.9	0.259	26.0
...	4.0	156.0	75.0	0.0	0.0	48.3	0.238	32.0
...	5.0	137.0	108.0	0.0	0.0	48.8	0.227	37.0
...	1.0	147.0	94.0	41.0	0.0	49.3	0.358	27.0
...	0.0	162.0	76.0	36.0	0.0	49.6	0.364	26.0
...	1.0	122.0	90.0	51.0	220.0	49.7	0.325	31.0
...	7.0	152.0	88.0	44.0	0.0	50.0	0.337	36.0
...	11.0	135.0	0.0	0.0	0.0	52.3	0.578	40.0
...	0.0	165.0	90.0	33.0	680.0	52.3	0.427	23.0
...	5.0	115.0	98.0	0.0	0.0	52.9	0.209	28.0
...	0.0	162.0	76.0	56.0	100.0	53.2	0.759	25.0
...	1.0	88.0	30.0	42.0	99.0	55.0	0.496	26.0
...	3.0	123.0	100.0	35.0	240.0	57.3	0.88	22.0
...	0.0	180.0	78.0	63.0	14.0	59.4	2.42	25.0
...	0.0	129.0	110.0	46.0	130.0	67.1	0.319	26.0

Add instance Undo OK Cancel

BEFORE REMOVING

Weka Explorer

Preprocess Classify Cluster Associate Select attributes Visualize

Open fil... Open ... Open ... Genera... Undo Edit... Save...

Filter: Choose RemoveWithValues -S 0.0 -C 6 -L first-last -M Apply Stop

Current relation: Relation: diabetes Instances: 768 Attributes: 9 Sum of weights: 768

Selected attribute: Name: Pregnancies Type: Num Class: Outcome (Num) Visualize All

Status: OK Log x 0

AFTER REMOVING

Weka Explorer

Preprocess Classify Cluster Associate Select attributes Visualize

Open fil... Open U... Open D... Genera... Undo Edit... Save...

Filter: Choose RemoveWithValues -S 0.0 -C 6 -L first-last -M Apply Stop

Current relation: Relation: diabetes-... Instances: 757 Attributes: 9 Sum of weights: 757

Selected attribute: Name: Pregnancies Type: Num Class: Outcome (Num) Visualize All

Status: OK Log x 0

Impute Missing Values

Instances with missing values do not have to be removed, you can replace the missing values with some other value.

This is called imputing missing values.

It is common to impute missing values with the mean of the numerical distribution. You can do this easily in Weka using the ReplaceMissingValues filter.

Continuing on from the first recipe above to mark missing values, you can impute the missing values as follows:

1. Click the "Choose" button for the Filter and select ReplaceMissingValues, it is under unsupervised.attribute.ReplaceMissingValues
2. Click the "Apply" button to apply the filter to your dataset.

Click "mass" in the "attributes" section and review the details of the "selected attribute".

Notice that the 11 attribute values that were marked Missing have been set to the mean value of the distribution.

REPLACED NAN INSTANCES WITH MEAN

Relation: diabetes-weka.filters.unsupervised.attribute.NumericCleaner-min1.0E-9-min-defaultNaN-max1.7976931348623157E308-max-default1.7976931348623157E3...										
No.	1: Pregnancies	2: Glucose	3: BloodPressure	4: SkinThickness	5: Insulin	6: BMI	7: DiabetesPedigreeFunction	8: Age	9: Outcome	
	Numeric	Numeric	Numeric	Numeric	Numeric	Numeric	Numeric	Numeric	Numeric	
43	7.0	106.0	92.0	18.0	0.0		22.7	0.235	48.0	0.0
44	9.0	171.0	110.0	24.0	240.0		45.4	0.721	54.0	1.0
45	7.0	159.0	64.0	0.0	0.0		27.4	0.294	40.0	0.0
46	0.0	180.0	66.0	39.0	0.0		42.0	1.893	25.0	1.0
47	1.0	146.0	56.0	0.0	0.0		29.7	0.564	29.0	0.0
48	2.0	71.0	70.0	27.0	0.0		28.0	0.586	22.0	0.0
49	7.0	103.0	66.0	32.0	0.0		39.1	0.344	31.0	1.0
50	7.0	105.0	0.0	0.0	0.0	32.45746367239099		0.305	24.0	0.0
51	1.0	103.0	80.0	11.0	82.0	19.4		0.491	22.0	0.0
52	1.0	101.0	50.0	15.0	36.0	24.2		0.526	26.0	0.0
53	5.0	88.0	66.0	21.0	23.0	24.4		0.342	30.0	0.0
54	8.0	176.0	90.0	34.0	300.0	33.7		0.467	58.0	1.0
55	7.0	150.0	66.0	42.0	342.0	34.7		0.718	42.0	0.0
56	1.0	73.0	50.0	10.0	0.0	23.0		0.248	21.0	0.0
57	7.0	187.0	68.0	39.0	304.0	37.7		0.254	41.0	1.0
58	0.0	100.0	88.0	60.0	110.0	46.8		0.962	31.0	0.0
59	0.0	146.0	82.0	0.0	0.0	40.5		1.781	44.0	0.0
60	0.0	105.0	64.0	41.0	142.0	41.5		0.173	22.0	0.0
61	2.0	84.0	0.0	0.0	0.0	32.45746367239099		0.304	21.0	0.0
62	8.0	133.0	72.0	0.0	0.0	32.9		0.27	39.0	1.0
63	5.0	44.0	62.0	0.0	0.0	25.0		0.587	36.0	0.0
64	2.0	141.0	58.0	34.0	128.0	25.4		0.699	24.0	0.0
65	7.0	114.0	66.0	0.0	0.0	32.8		0.258	42.0	1.0
66	5.0	99.0	74.0	27.0	0.0	29.0		0.203	32.0	0.0
67	0.0	109.0	88.0	30.0	0.0	32.5		0.855	38.0	1.0
68	2.0	109.0	92.0	0.0	0.0	42.7		0.845	54.0	0.0
69	1.0	95.0	66.0	13.0	38.0	19.6		0.334	25.0	0.0
70	4.0	146.0	85.0	27.0	100.0	28.9		0.189	27.0	0.0
71	2.0	100.0	66.0	20.0	90.0	32.9		0.867	28.0	1.0
72	5.0	139.0	64.0	35.0	140.0	28.6		0.411	26.0	0.0

