Software Engineering Tools Lab

Assignment No-1

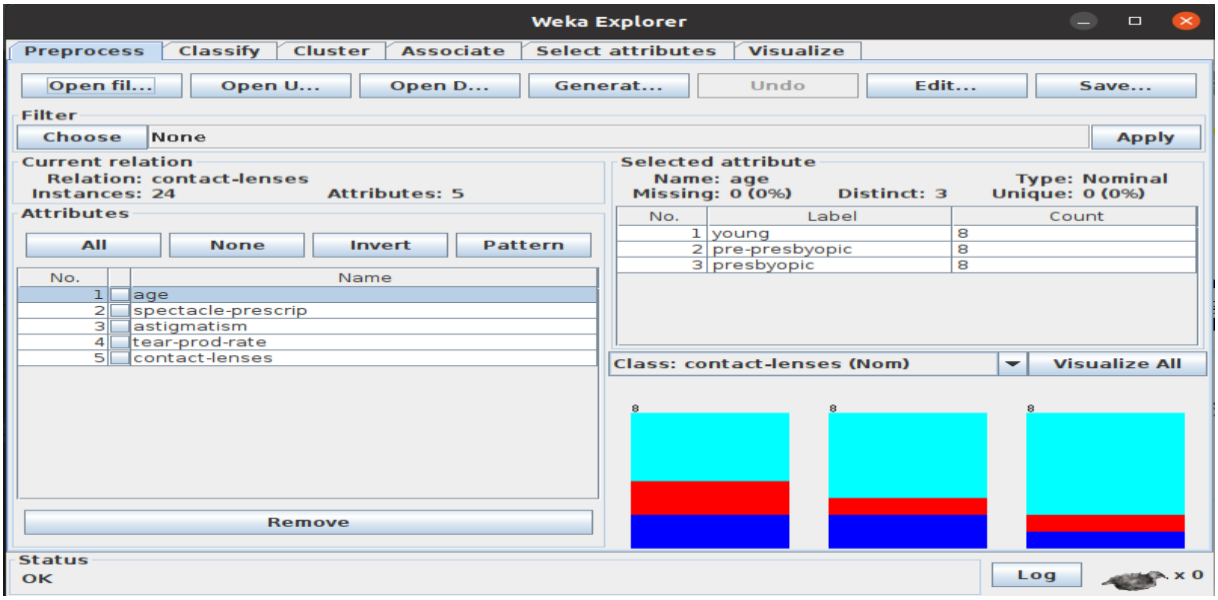
(Module 1- Introduction to OSS)

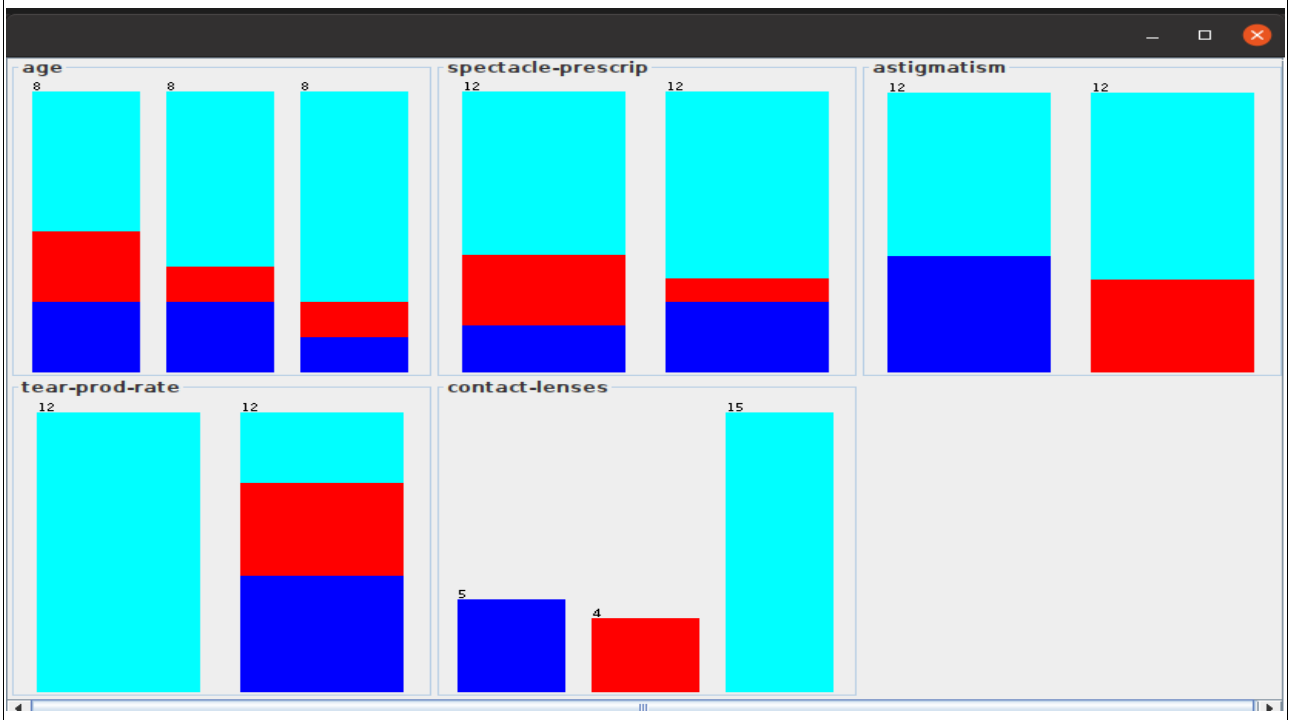
Name:Abhishek Dadarao Bele
Prn No: 2019BTECS00107
Batch:T5

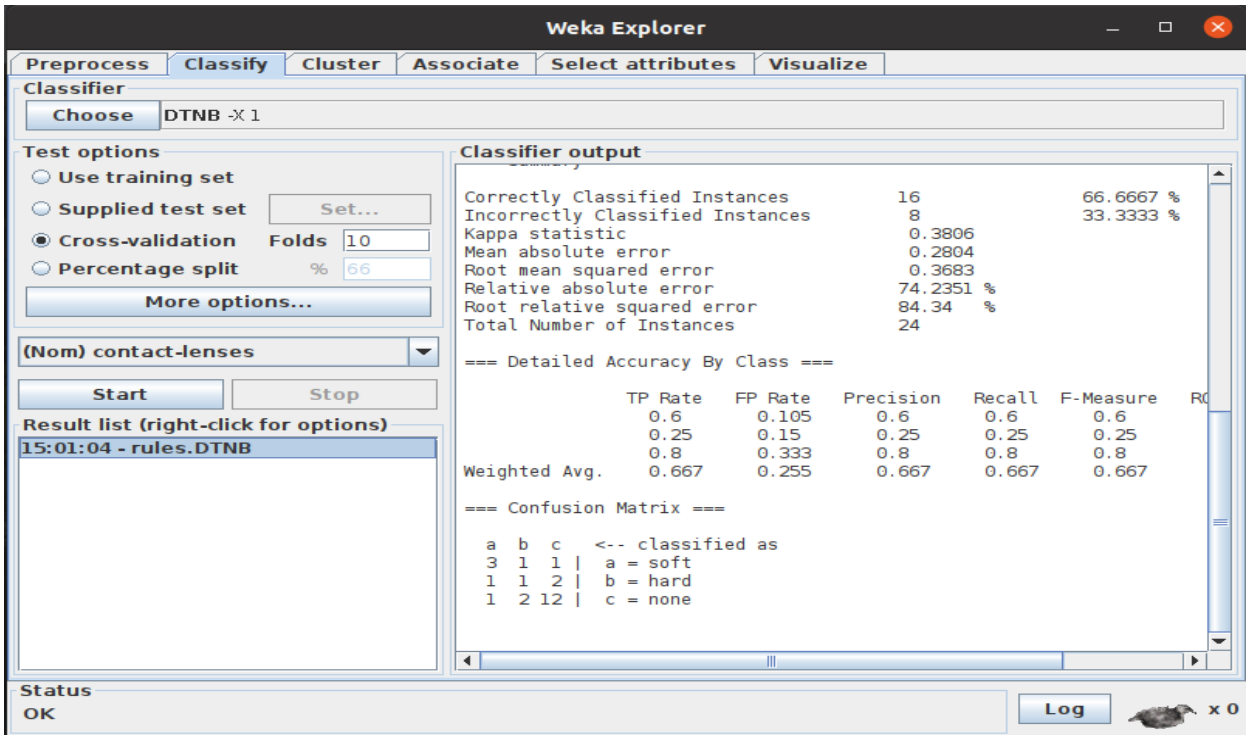
1.Weka is a GUI workbench that empowers data wranglers to assemble machine learning pipelines, train models, and run predictions without having to write code. Using Weka tool perform below tasks such as data preprocessing, data classification (use any appropriate ML algorithm) and data visualization efficiently on given dataset.
Use the Iris dataset given:
https://drive.google.com/file/d/1A3Fxsfzm6BSfhFZGDrjI47RTe45bSgYP/view

Note-provide screen shots for every task Create a report which will illustrate the details of tasks performed (for e.g to perform preprocessing of data provide details of navigation and selection of appropriate parameters)

Used Dataset: form weka proived


Weka Explorer
Preprocess
Classify
Cluster
Associate
Select attributes
Visualize
Open fil...
Open U...
Open D...
Generat...
Undo
Edit...
Save...
Filter
Choose
None
Apply
Current relation
Relation: contact-lenses
Instances: 24
Attributes: 5
Attributes
All
None
Invert
Pattern
No.
Name
1 age
2 spectacle-prescrip
3 astigmatism
4 tear-prod-rate
5 contact-lenses
Remove
Selected attribute
Name: age
Type: Nominal
Missing: 0 (0%)
Distinct: 3
Unique: 0 (0%)
No.
Label
Count
1 young 8
2 pre-presbyopic 8
3 presbyopic 8
Class: contact-lenses (Nom)
Visualize All
8
8
8
Status
OK
Log
x 0


age
8
8
8
spectacle-prescrip
12
12
astigmatism
12
12
tear-prod-rate
12
12
contact-lenses
5
4
15

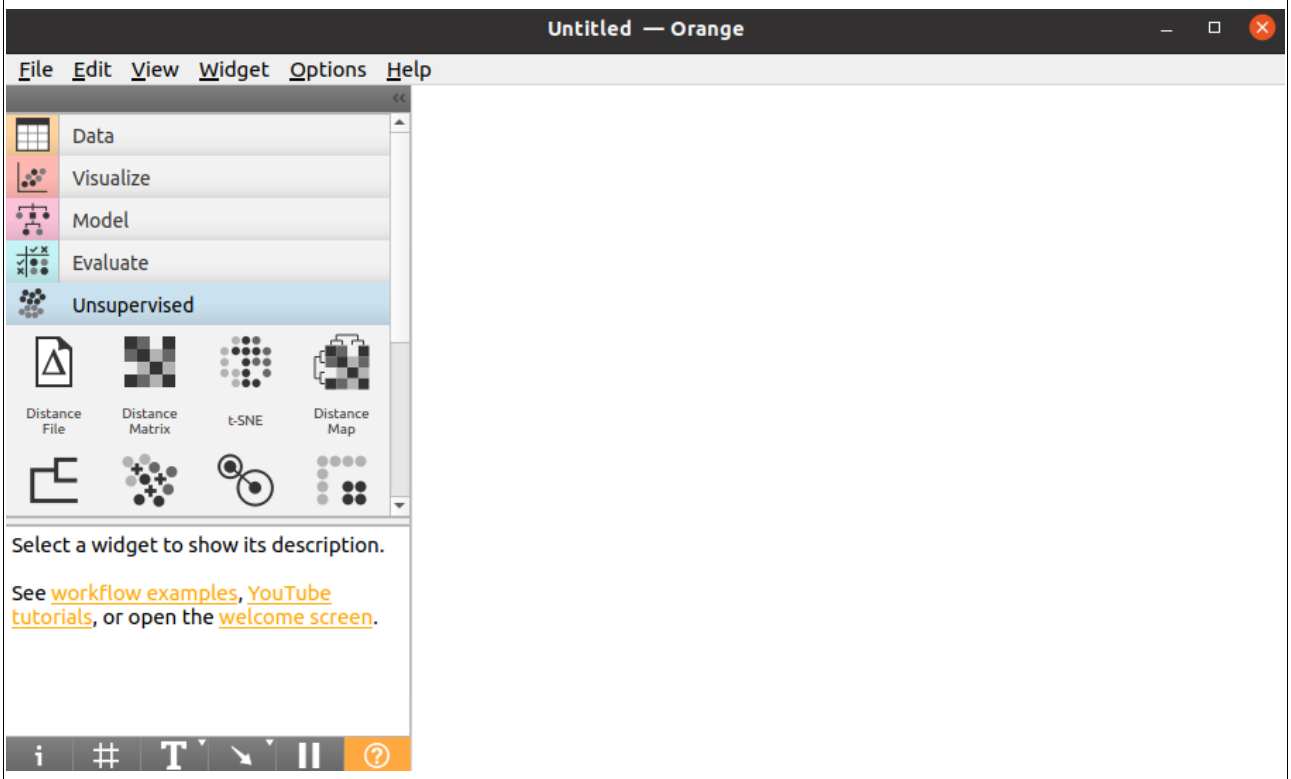

Weka Explorer
Preprocess
Classify
Cluster
Associate
Select attributes
Visualize
Classifier
Choose
DTNB -X 1
Test options
Use training set
Supplied test set
Set...
Cross-validation
Folds
10
Percentage split
%
66
More options...
(Nom) contact-lenses
Start
Stop
Result list (right-click for options)
15:01:04 - rules.DTNB
Classifier output
Correctly Classified Instances 16 66.6667 %
Incorrectly Classified Instances 8 33.3333 %
Kappa statistic 0.3806
Mean absolute error 0.2804
Root mean squared error 0.3683
Relative absolute error 74.2351 %
Root relative squared error 84.34 %
Total Number of Instances 24
=== Detailed Accuracy By Class ===
TP Rate FP Rate Precision Recall F-Measure
0.6 0.105 0.6 0.6 0.6
0.25 0.15 0.25 0.25 0.25
0.8 0.333 0.8 0.8 0.8
Weighted Avg. 0.667 0.255 0.667 0.667 0.667
=== Confusion Matrix ===
a b c <-- classified as
3 1 1 | a = soft
1 1 2 | b = hard
1 2 12 | c = none
Status
OK
Log
x 0

2.Orange is an easy to use data visualization tool with a large toolkit. In spite of being a GUI-based beginner-friendly tool, you mustn't mistake it for a light-weight one. It can do statistical distributions and box plots as well as decision trees, hierarchical clustering and linear projections.

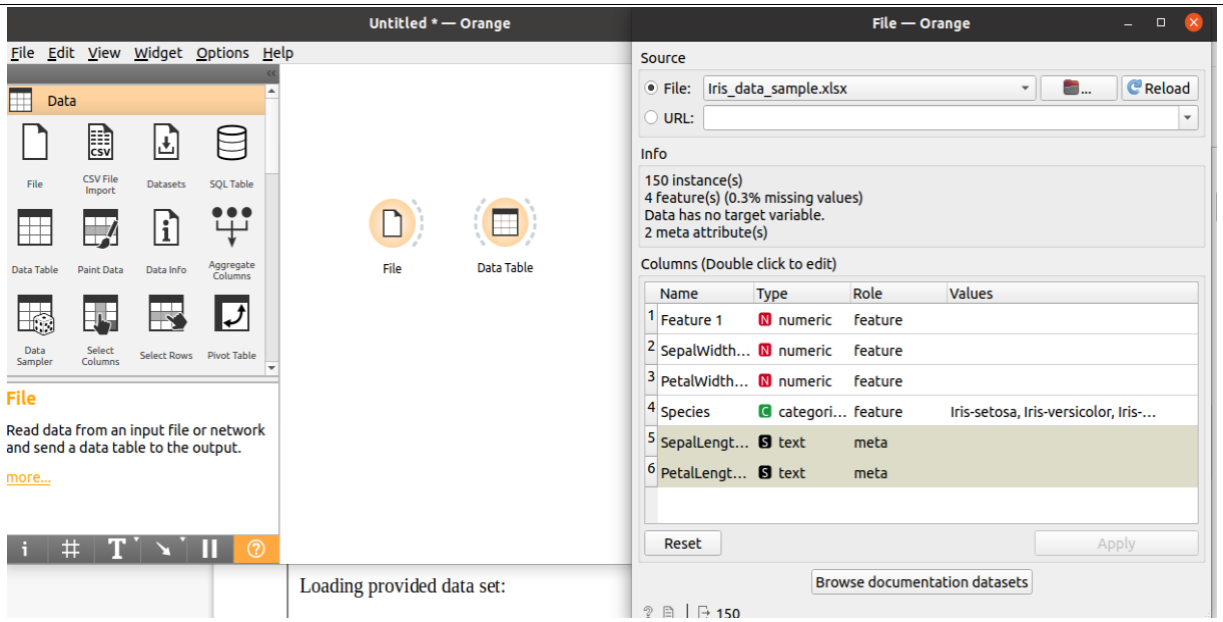
a. Install orange
b. Show data distribution
c. Show linear projection
d. Show FreeViz

Use dataset:
https://drive.google.com/file/d/1m6sKI1Dap0XK6Bw1edUd5PohwpPwXnd9/view
Create a report for this task and upload screenshots for the same.

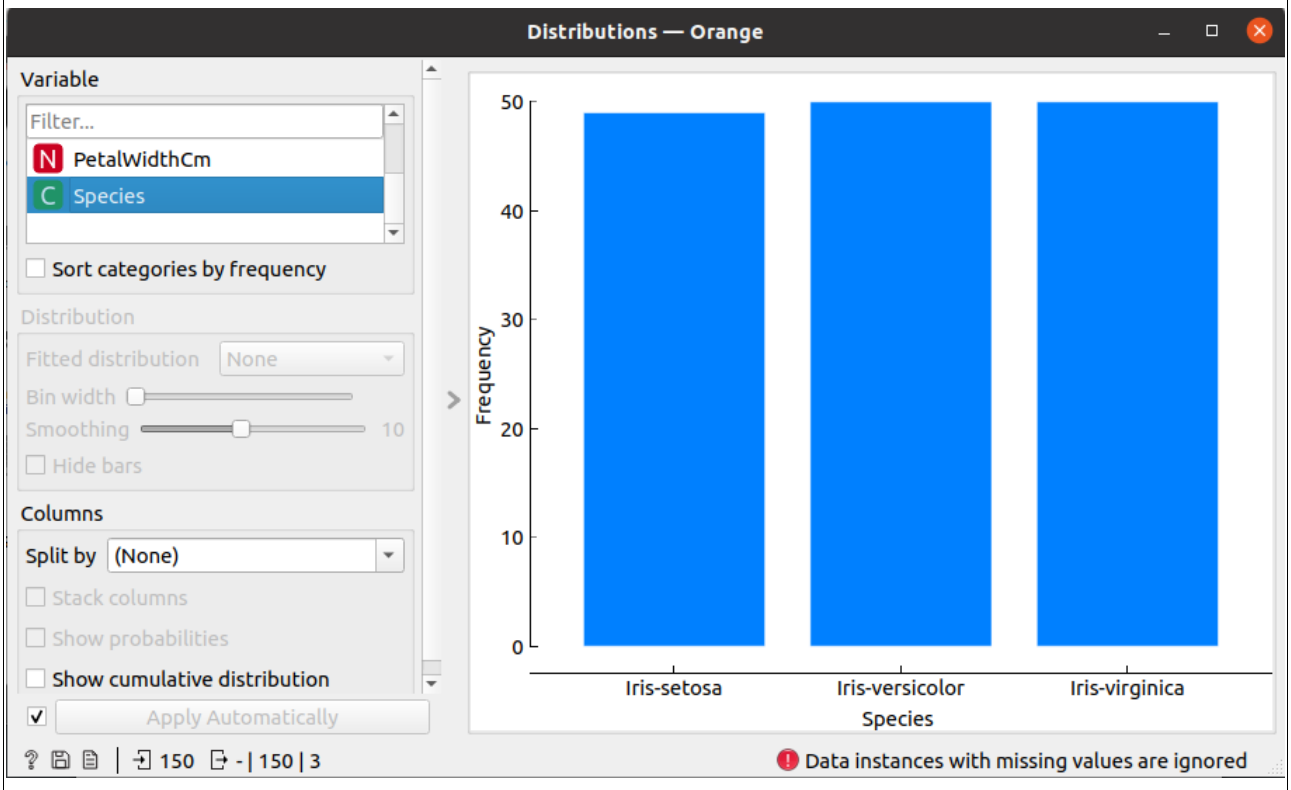
Installation of ornage :

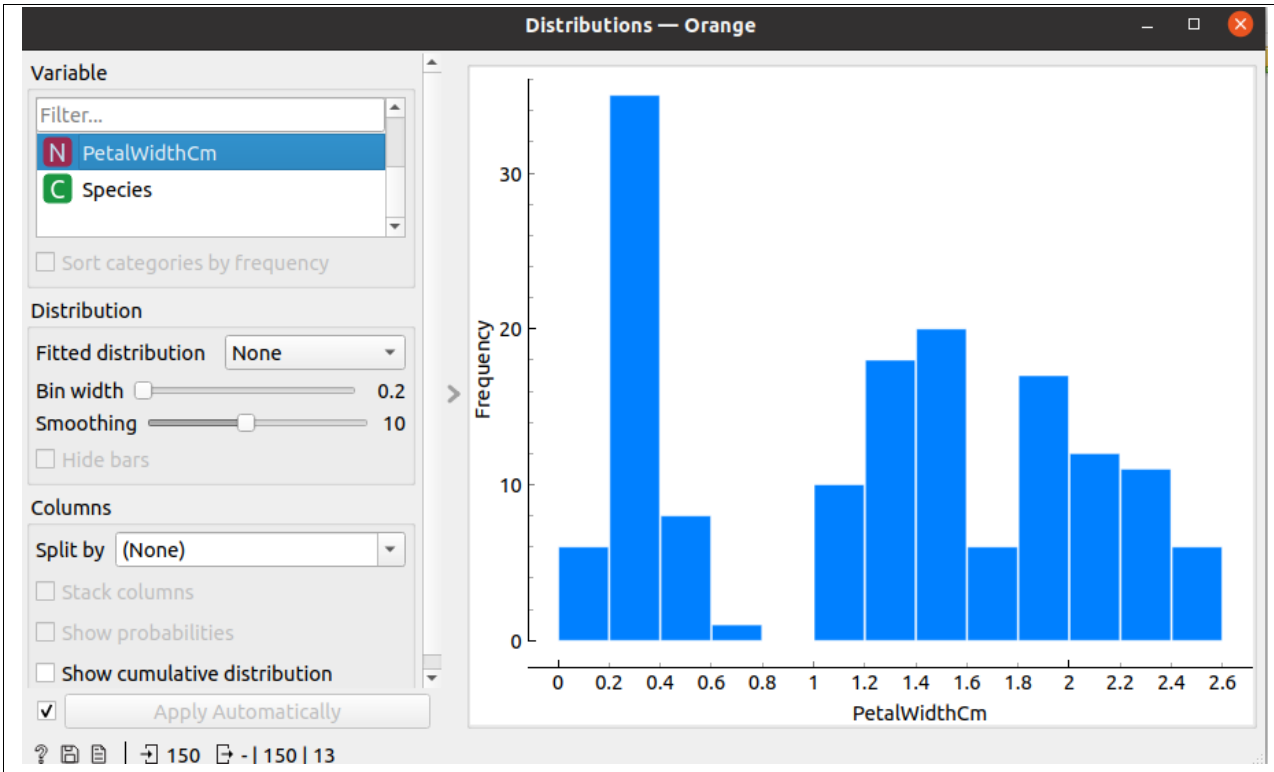


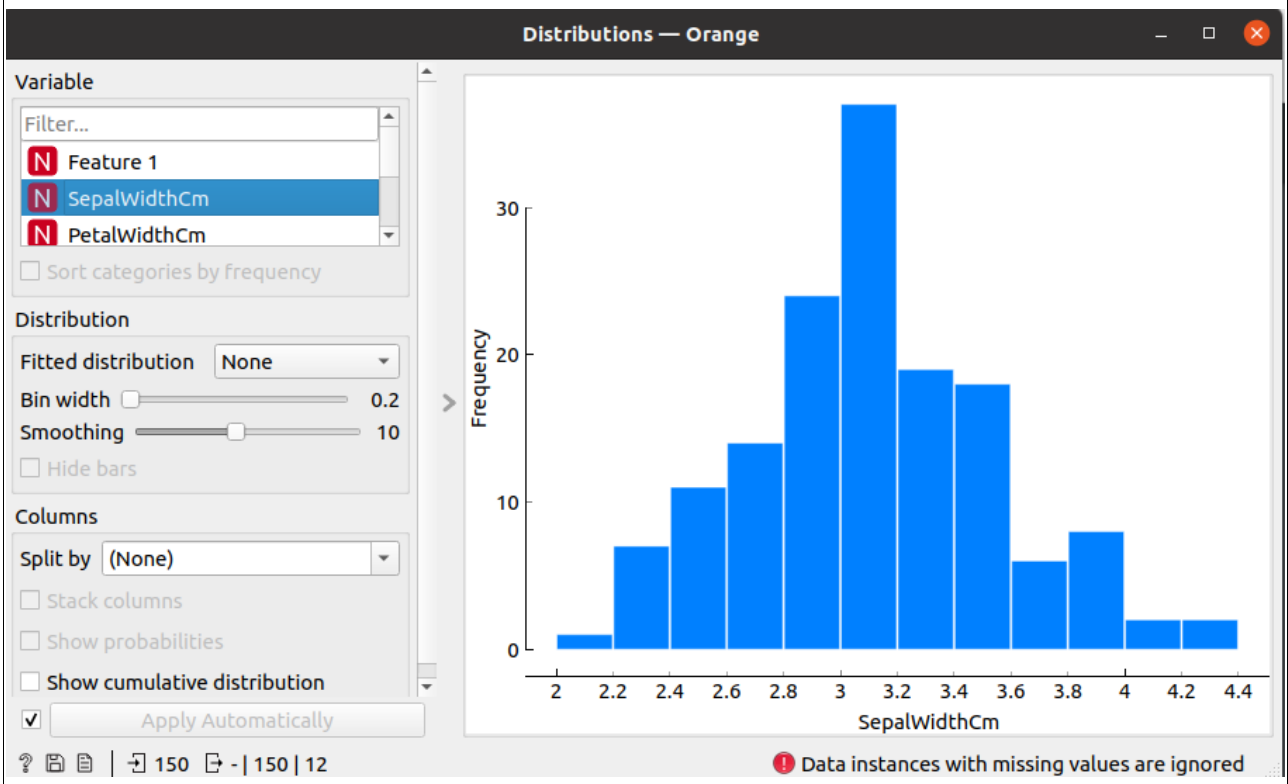
Loading provided data set:



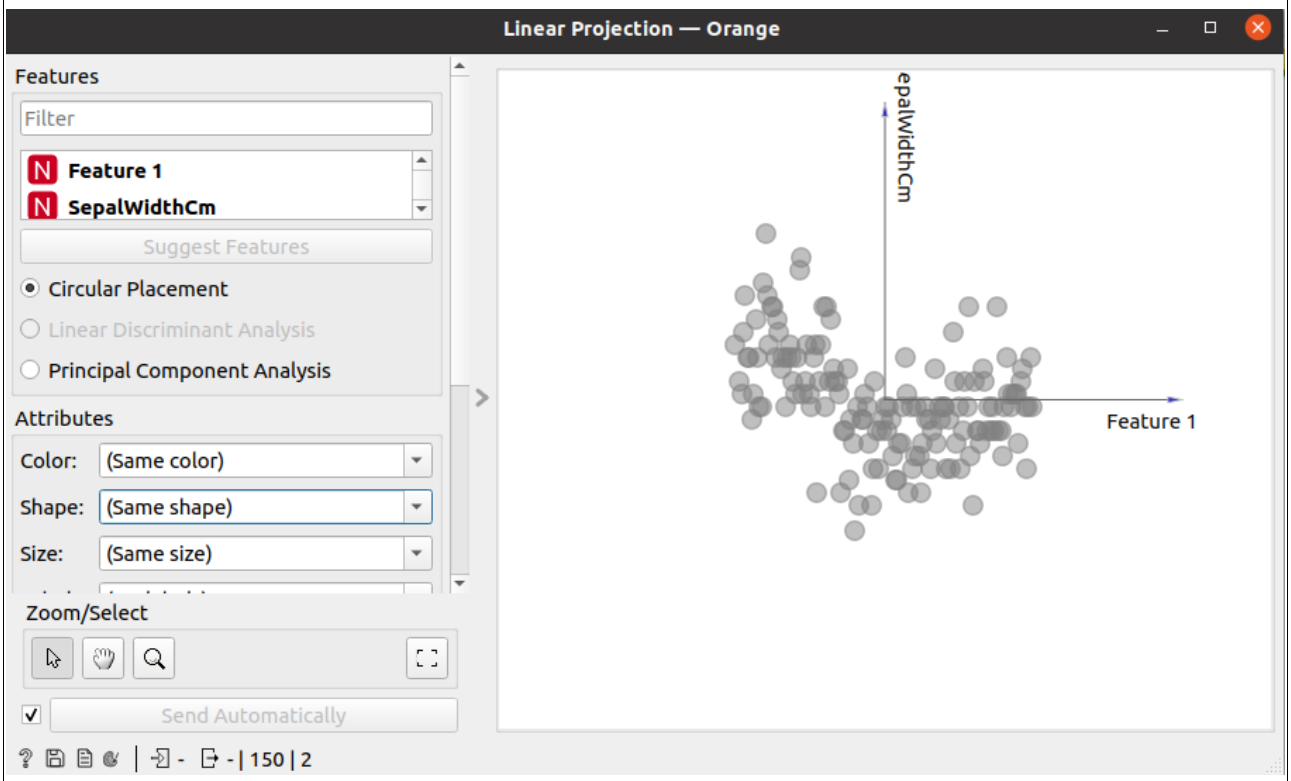
Data Distribution

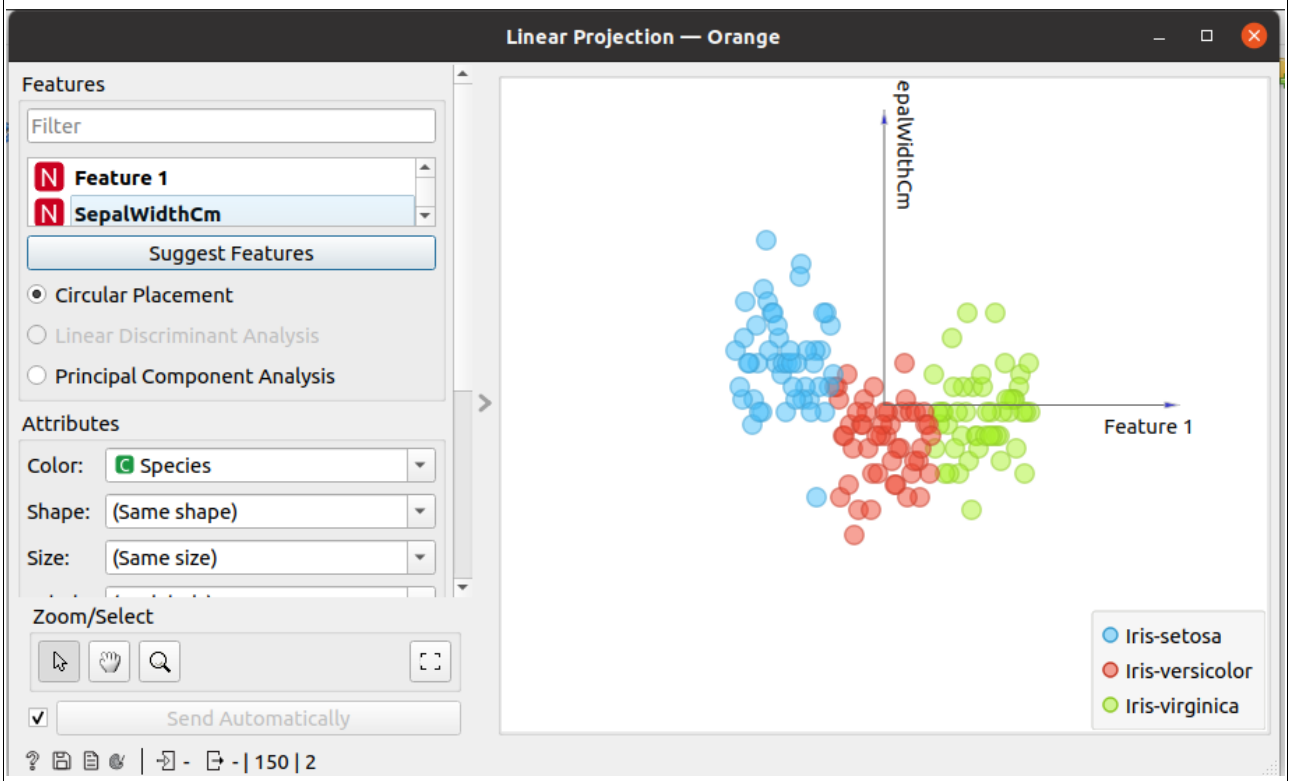




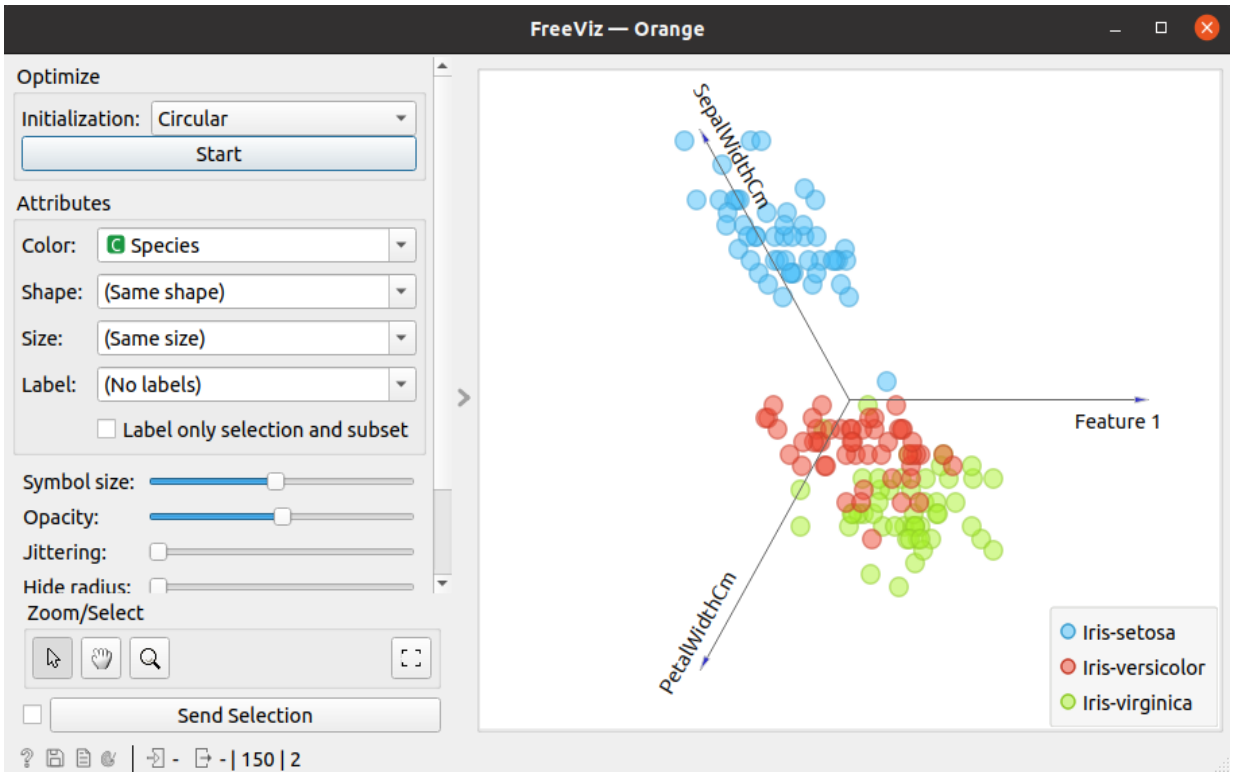


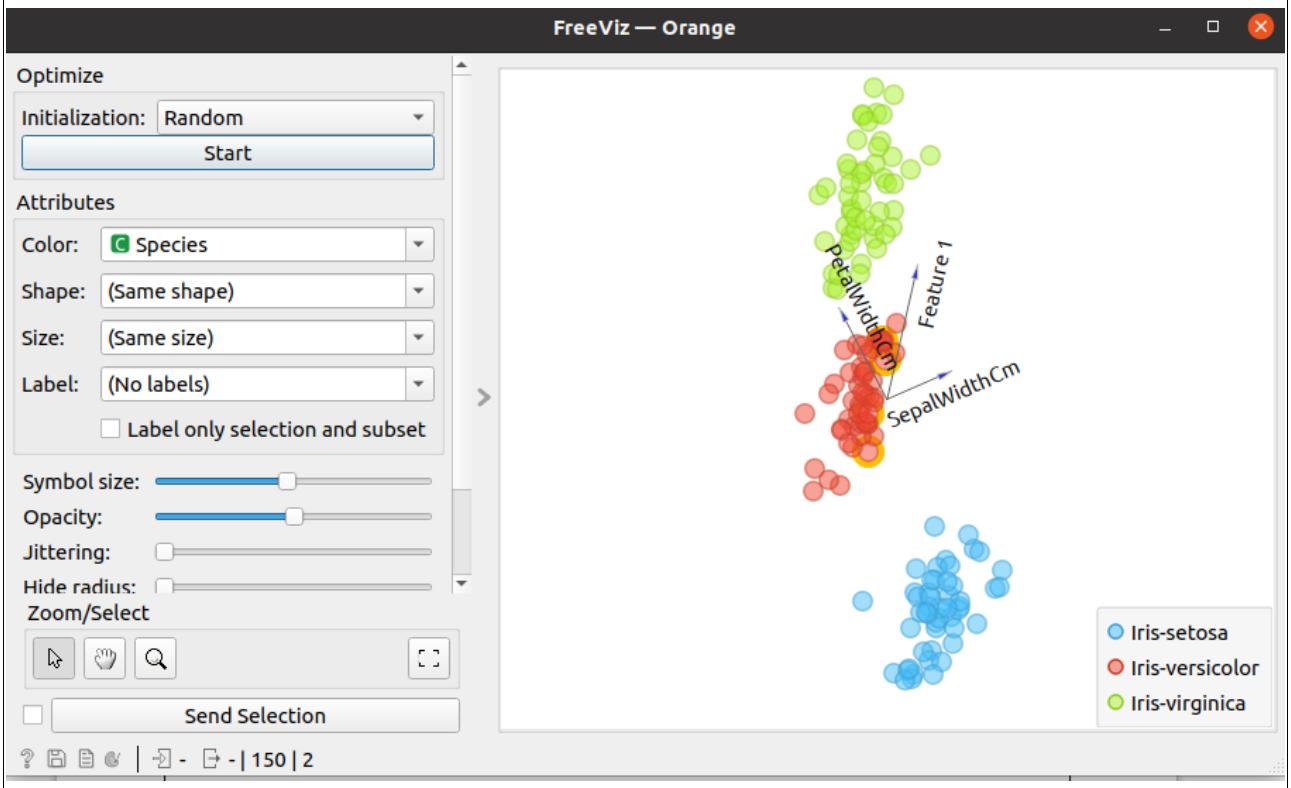
Linear Projection:


Linear Projection — Orange
Features
Filter
Feature 1
SepalWidthCm
Suggest Features
Circular Placement
Linear Discriminant Analysis
Principal Component Analysis
Attributes
Color: (Same color)
Shape: (Same shape)
Size: (Same size)
Zoom/Select
Send Automatically
- | 150 | 2
epalWidthCm
Feature 1


Linear Projection — Orange
Features
Filter
Feature 1
SepalWidthCm
Suggest Features
Circular Placement
Linear Discriminant Analysis
Principal Component Analysis
Attributes
Color: Species
Shape: (Same shape)
Size: (Same size)
Zoom/Select
Send Automatically
- | 150 | 2
epalWidthCm
Feature 1
Iris-setosa
Iris-versicolor
Iris-virginica

Freefiz





3. Differentiate in between free software, Open source software and

proprietary software with respect to its properties.

Free Software:

“Free software” means software that respects users’ freedom and community. Roughly, it means that the users have the freedom to run, copy, distribute, study, change and improve the software.
The term “free software” is sometimes misunderstood—it has nothing to do with price. It is about freedom.

Open Source Software :

Open Source Software is something which you can modify as per your needs, share with others without any licensing violation burden. When we say Open Source, source code of software is available publicly with Open Source licenses.

Proprietary Software :

Proprietary software is a computer software where the source codes are not publicly not available only the company which has created can modify it. Here the software is developed and tested by the individual or organization by which it is owned not by public. This software is managed by an closed team of individuals or groups that developed it. We have to pay to get this software and it commercial support if available for maintenance. The company gives a valid and authenticated license to the users to use this software.

4. Using Anaconda Python create Histogram, Scatter plot and Bar plot for the dataset given below.
Dataset- https://drive.google.com/file/d/1i11BZFe8Xj9kNq7eeE9KOa_Iz1KhEdXJ/view
a. Scatter plot- Scatter plot of Price Vs Age
b. Histogram- for Kilometer and CC
c. Bar plot- Bar plot for different fuel types

In [10]:
```
details=pd.read_csv("/home/hp/Downloads/Toyota.csv")
print(details)
```

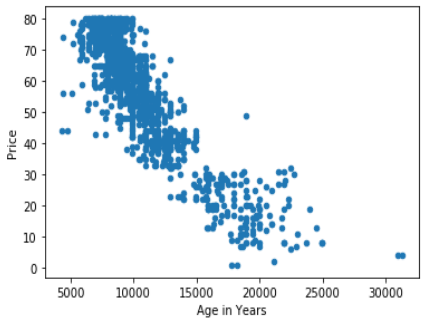
```
      Unnamed: 0  Price   Age     KM FuelType   HP  MetColor  Automatic    CC  \
0              0  13500  23.0  46986   Diesel   90       1.0          0  2000
1              1  13750  23.0  72937   Diesel   90       1.0          0  2000
2              2  13950  24.0  41711   Diesel   90       NaN          0  2000
3              3  14950  26.0  48000   Diesel   90       0.0          0  2000
4              4  13750  30.0  38500   Diesel   90       0.0          0  2000
...          ...    ...   ...    ...      ...  ...       ...        ...   ...
1431        1431   7500   NaN  20544   Petrol   86       1.0          0  1300
1432        1432  10845  72.0     ??   Petrol   86       0.0          0  1300
1433        1433   8500   NaN  17016   Petrol   86       0.0          0  1300
1434        1434   7250  70.0     ??      NaN   86       1.0          0  1300
1435        1435   6950  76.0      1   Petrol  110       0.0          0  1600

      Doors  Weight
0     three    1165
1         3    1165
2         3    1165
3         3    1165
4         3    1170
...     ...     ...
1431      3    1025
1432      3    1015
1433      3    1015
1434      3    1015
1435      5    1114

[1436 rows x 11 columns]
```

a.Scatter plot- Scatter plot of Price Vs Age

```
In [17]: price=[]
```

```
In [20]: details.plot(kind='scatter',x='Price',y='Age')
         plt.xlabel('Age in Years')
         plt.ylabel('Price')
```

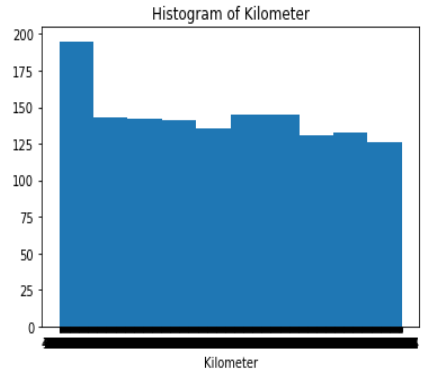
```
Out[20]: Text(0, 0.5, 'Price')
```



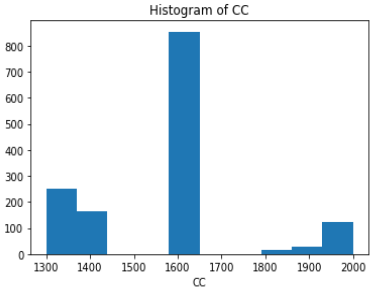

```
In [ ]:
```

b.Histogram- for Kilometer and CC

```
In [40]: plt.hist(details['KM'],)
         plt.title('Histogram of Kilometer')
         plt.xlabel('Kilometer')
         plt.show()
```

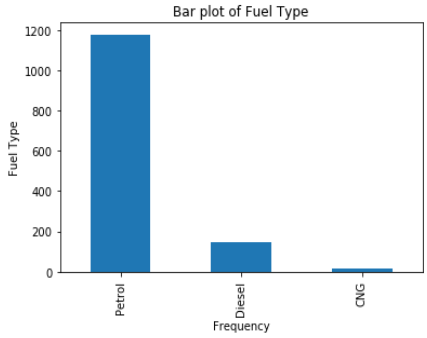



```
In [42]: plt.hist(details['CC'])
         plt.title('Histogram of CC')
         plt.xlabel('CC')
         plt.show()
```



c. Bar plot- Bar plot for different fuel types

```
In [85]: fuel_count = pd.value_counts(details['FuelType'].values, sort = True)
         plt.xlabel('Frequency')
         plt.ylabel('Fuel Type')
         plt.title('Bar plot of Fuel Type')
         fuel_count.plot.bar()

Out[85]: <matplotlib.axes._subplots.AxesSubplot at 0x7fcb94da6a30>
```



5. Enlist some examples along with its purpose and properties (at least 10) of FOSS and proprietary software with respect to database.

1.Open Source (Database) :

An open source database is a database that anyone can easily view the source code and this is open and free to download. Also for community version some small additional and affordable cost are imposed. Open Source Database provide Limited technical support to end users. Here Installation and updates are administered by user. For examples: MYSQL, PostgreSQL, MongoDB etc.

2. Proprietary (Database) :

Commercial database are that which has been created for Commercial Purpose only. They are premium and are not free like Open Source Database. In Commercial Database it is guaranteed that technical support is provided. In this Installation and updates are Administrated by software Vendor. For examples: Oracle, IBM DB2 etc.