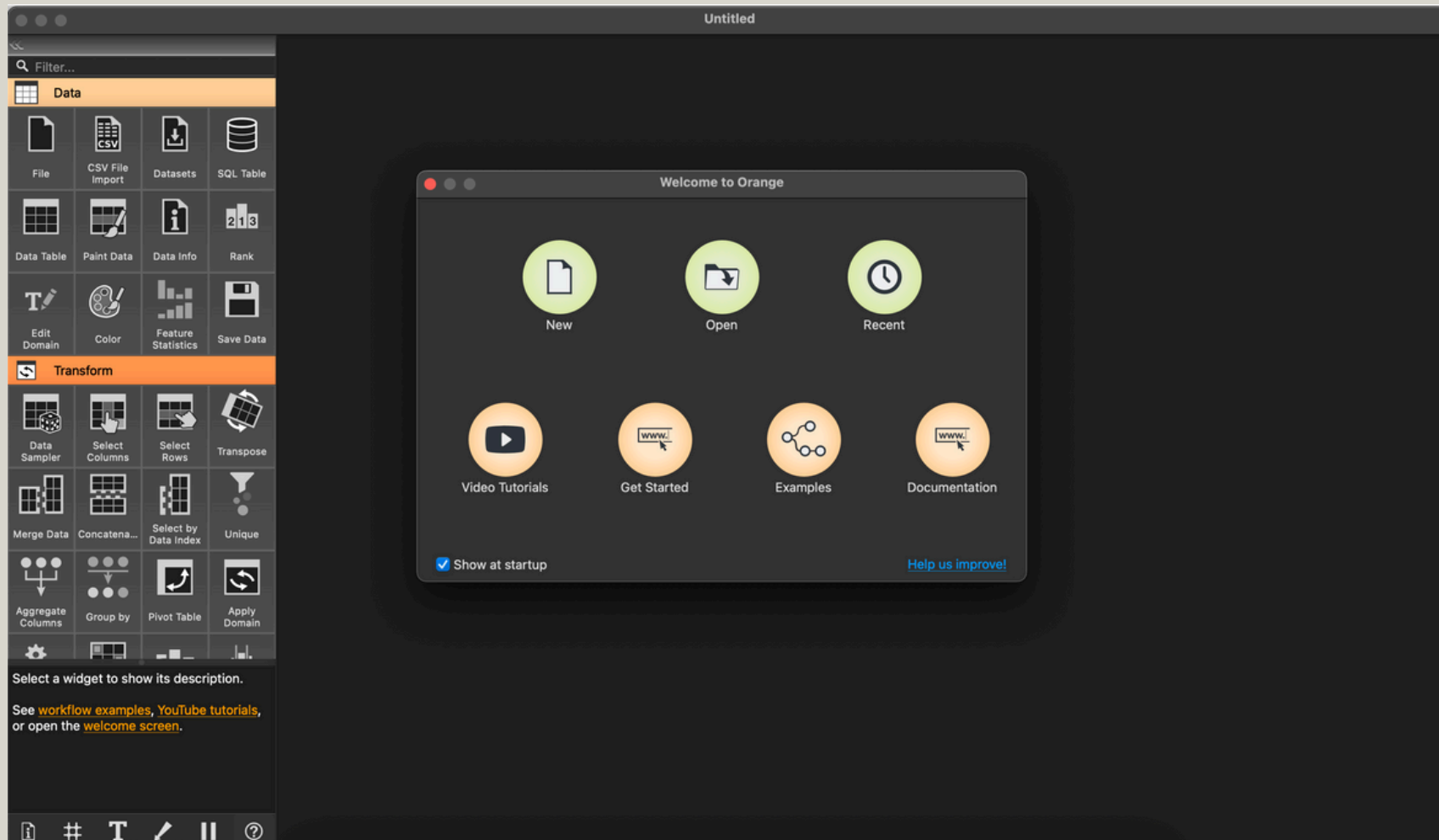
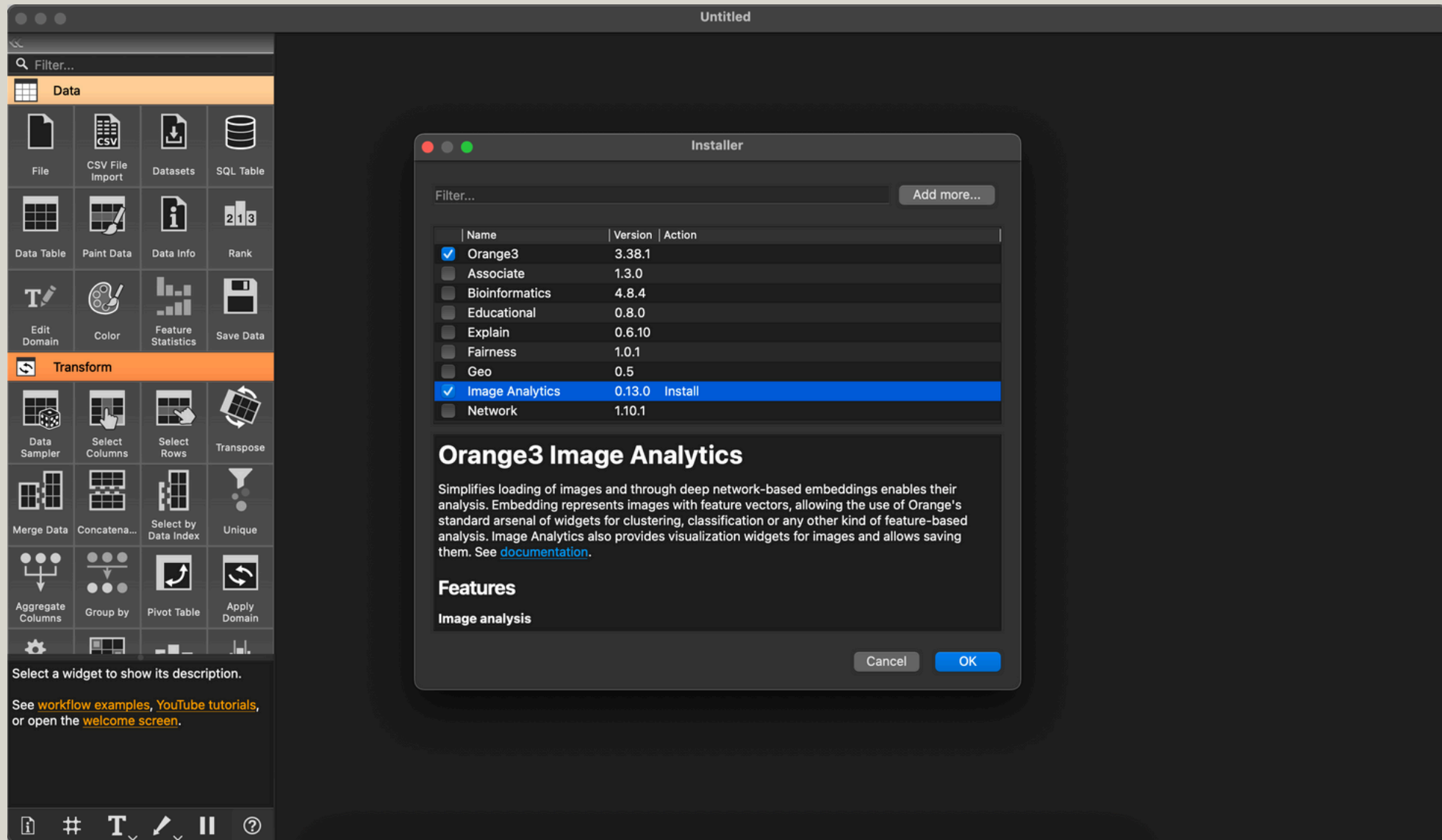


# Computer Vision with Orange

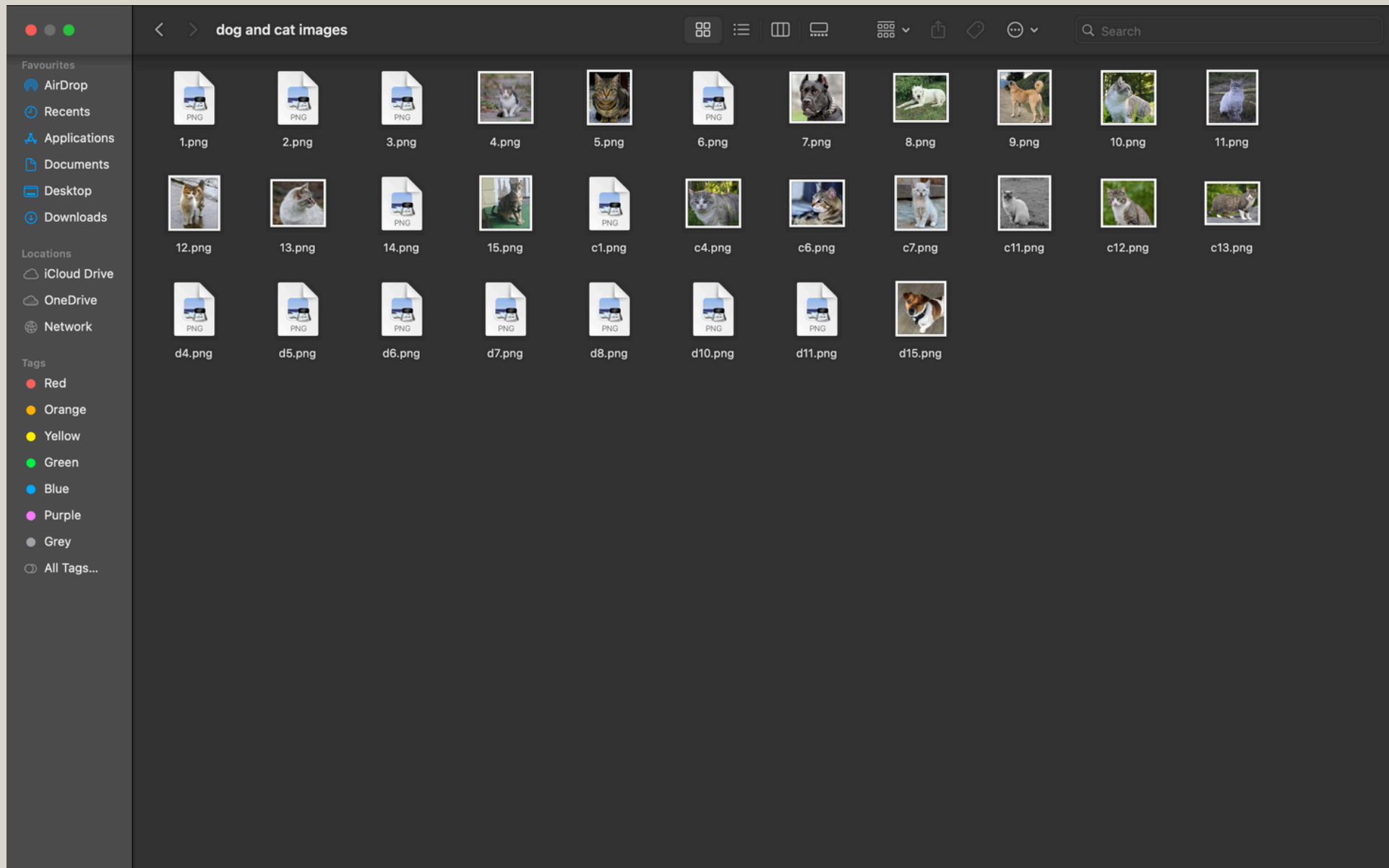
## Step 1: Launch Orange Data Mining Software



## Step 2: Install Image Analytics Add-On



## Step 3: Example Scenario



# Step 4: Import Images

im

Data

CSV File Import

Transform

Impute

Visualize

Model

Evaluate

Unsupervised

Image Analytics

Import Images

Image Viewer

Image Embedding

Image Grid

Save Images

Text Mining

Image Viewer

View images referred to in the data.

[more...](#)

Import Images

Data

Image Viewer

Image Viewer

8

9

14

15

12

13

d8

11

10

d6

d7

d5

?

30

- | 30

## Step 5: Image Embedding

The screenshot displays a workflow builder interface with a dark background. On the left is a sidebar with a search bar containing 'im'. Below the search bar are several categories of widgets, each with a grid icon: 'Data' (orange), 'Transform' (orange), 'Visualize' (pink), 'Model' (pink), 'Evaluate' (cyan), 'Unsupervised' (blue), 'Image Analytics' (yellow), and 'Text Mining' (light blue). The 'Image Analytics' category is expanded, showing four widgets: 'Import Images', 'Image Viewer', 'Image Embedding', and 'Image Grid'. Below this is a 'Save Images' widget. The 'Text Mining' category shows 'Import Documents', 'NY Times', 'Similarity Hashing', and 'Sentiment Analysis'. At the bottom of the sidebar, there is a text prompt: 'Select a widget to show its description. See [workflow examples](#), [YouTube tutorials](#), or open the [welcome screen](#).' The main workspace on the right shows a workflow diagram. It starts with an 'Import Images' widget (yellow circle with a camera icon). Two arrows labeled 'Data' lead from 'Import Images' to 'Image Viewer' (yellow circle with a camera icon) and 'Image Embedding' (yellow circle with a camera icon). The 'Image Embedding' widget has a dashed border, indicating it is the selected widget. At the bottom of the interface is a toolbar with icons for information, a hashtag, text formatting, a pencil, a pause button, and a help icon.

## Step 6: Computing Similarities

The screenshot displays the Orange 3.12.1 data mining software interface. On the left is a widget toolbox with categories: Data, Transform, and Distances. The main workspace shows a workflow with four widgets: 'Import Images', 'Image Viewer', 'Image Embedding', and 'Distances'. The workflow is as follows: 'Import Images' outputs 'Data' to 'Image Viewer' and 'Data -> Images' to 'Image Embedding'. 'Image Embedding' outputs 'Embeddings -> Data' to the 'Distances' widget. A 'Distances' configuration window is open, showing 'Compare' set to 'Rows' and 'Distance Metric' set to 'Cosine'. A tooltip for 'Jaccard distance' is visible. The bottom status bar shows icons for help, zoom, text, pan, and pause.

**Data**

- File
- CSV File Import
- Datasets
- SQL Table
- Data Table
- Paint Data
- Data Info
- Rank
- Edit Domain
- Color
- Feature Statistics
- Save Data

**Transform**

- Data Sampler
- Select Columns
- Select Rows
- Transpose
- Merge Data
- Concatena...
- Select by Data Index
- Unique
- Aggregate Columns
- Group by
- Pivot Table
- Apply Domain
- Preprocess
- Impute
- Continuize
- Discretize

**Distances**

Compute a matrix of pairwise distances.  
[more...](#)

**Distances**

Compare

- ☒ Rows
- ☐ Columns

Distance Metric

- ☐ Euclidean (normalized)
- ☐ Euclidean
- ☐ Manhattan (normalized)
- ☐ Manhattan
- ☐ Mahalanobis
- ☐ Hamming
- ☒ Cosine
- ☐ Pearson
- ☐ Pearson (absolute)
- ☐ Spearman
- ☐ Spearman (absolute)
- ☐ Jaccard

☒ Apply Automatically

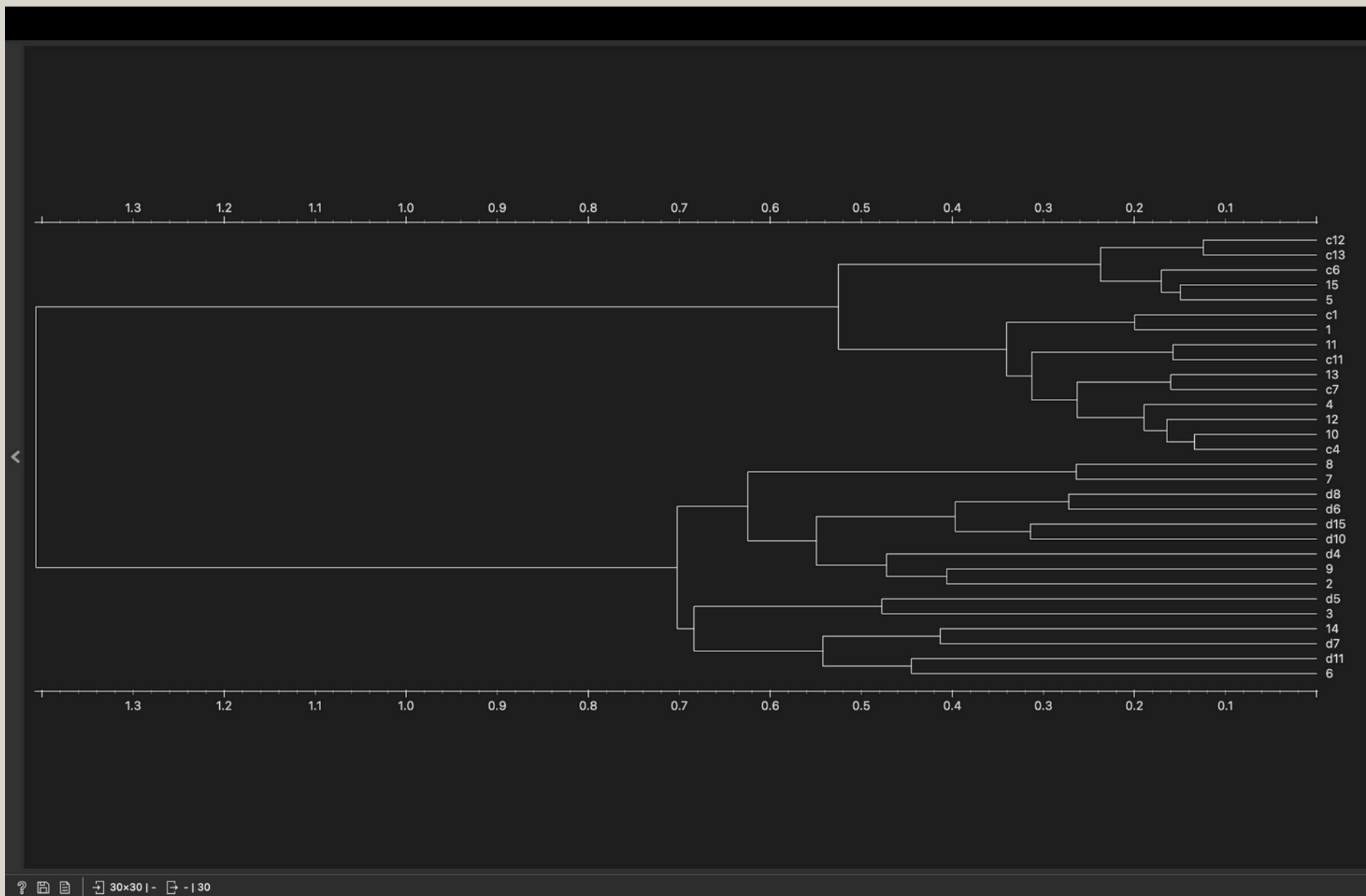
Jaccard distance

30 30x30

## Step 7: Hierarchical Clustering

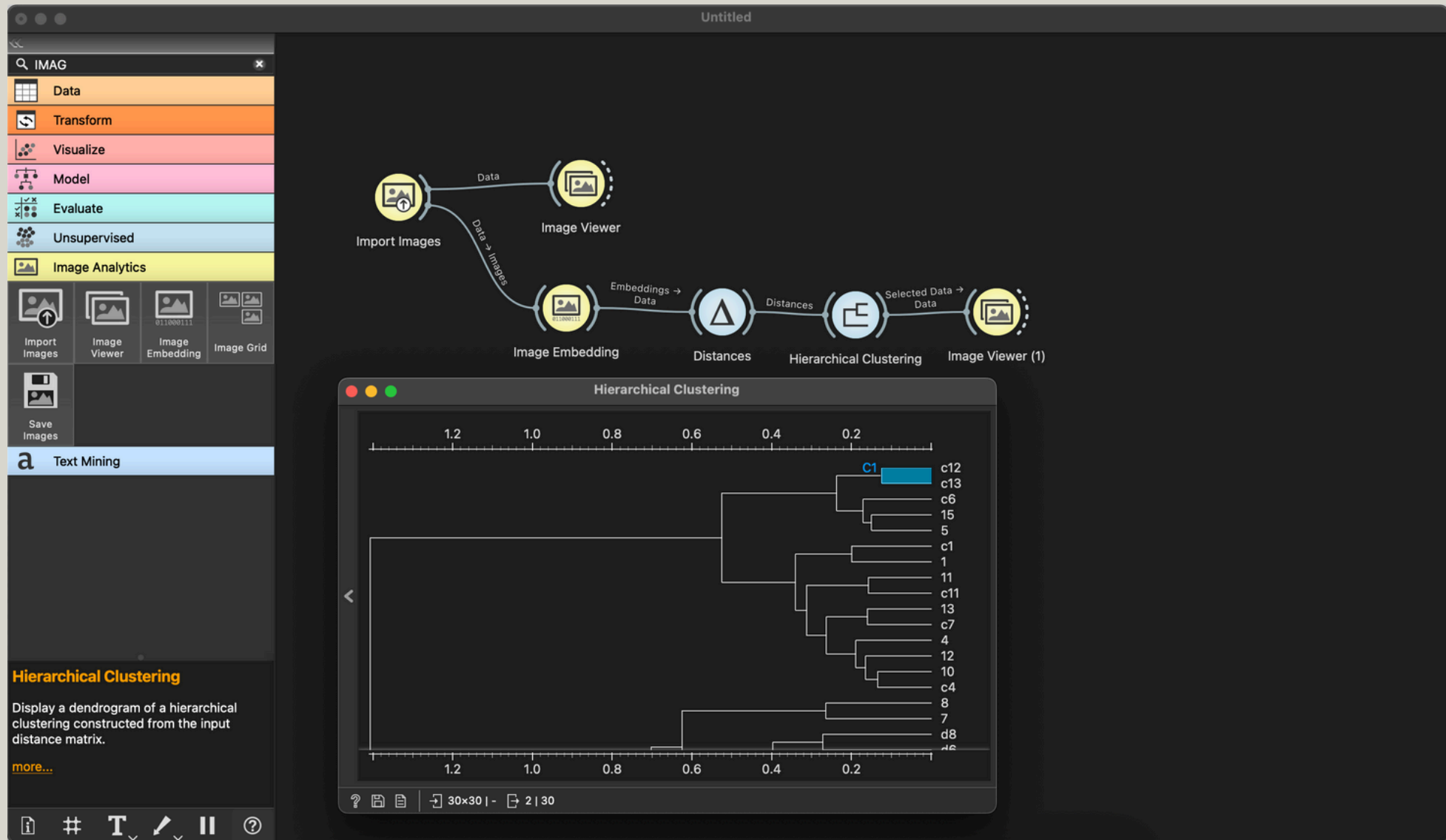
The screenshot displays the Orange3 data mining software interface. On the left is a widget toolbox with two main sections: 'Data' and 'Transform'. The 'Data' section includes widgets like File, CSV File Import, Datasets, SQL Table, Data Table, Paint Data, Data Info, Rank, Edit Domain, Color, Feature Statistics, and Save Data. The 'Transform' section includes Data Sampler, Select Columns, Select Rows, Transpose, Merge Data, Concatenate, Select by Data Index, Unique, Aggregate Columns, Group by, Pivot Table, Apply Domain, Preprocess, Impute, Continuize, and Discretize. Below these is a section titled 'Hierarchical Clustering' with a description: 'Display a dendrogram of a hierarchical clustering constructed from the input distance matrix.' and a 'more...' link. At the bottom of the toolbox are icons for information, zoom, text, paint, pause, and help.

The main workspace on the right shows a workflow diagram. It begins with an 'Import Images' widget (yellow circle with a house icon). Two arrows originate from it: one labeled 'Data' leading to an 'Image Viewer' widget (yellow circle with a camera icon), and another labeled 'Data > Images' leading to an 'Image Embedding' widget (yellow circle with a camera icon). An arrow labeled 'Embeddings → Data' connects 'Image Embedding' to a 'Distances' widget (blue circle with a triangle icon). Finally, an arrow labeled 'Distances' leads to a 'Hierarchical Clustering' widget (blue circle with a square icon).





## Step 8: Visualization and Interpretation



Untitled

Q IMAG

Data

Transform

Visualize

Model

Evaluate

Unsupervised

Image Analytics

Import Images

Image Viewer

Image Embedding

Image Grid

Save Images

a Text Mining

**Image Viewer**

View images referred to in the data.

[more...](#)

Import Images

Data

Data → Images

Image Viewer

Image Embedding

Embeddings → Data

Distances

Distances

Hierarchical Clustering

Selected Data → Data

Image Viewer (1)

Image Viewer (1)

c12

c13

2 - 12

By Lyba Fathima  
12-A