



Orange Presentation



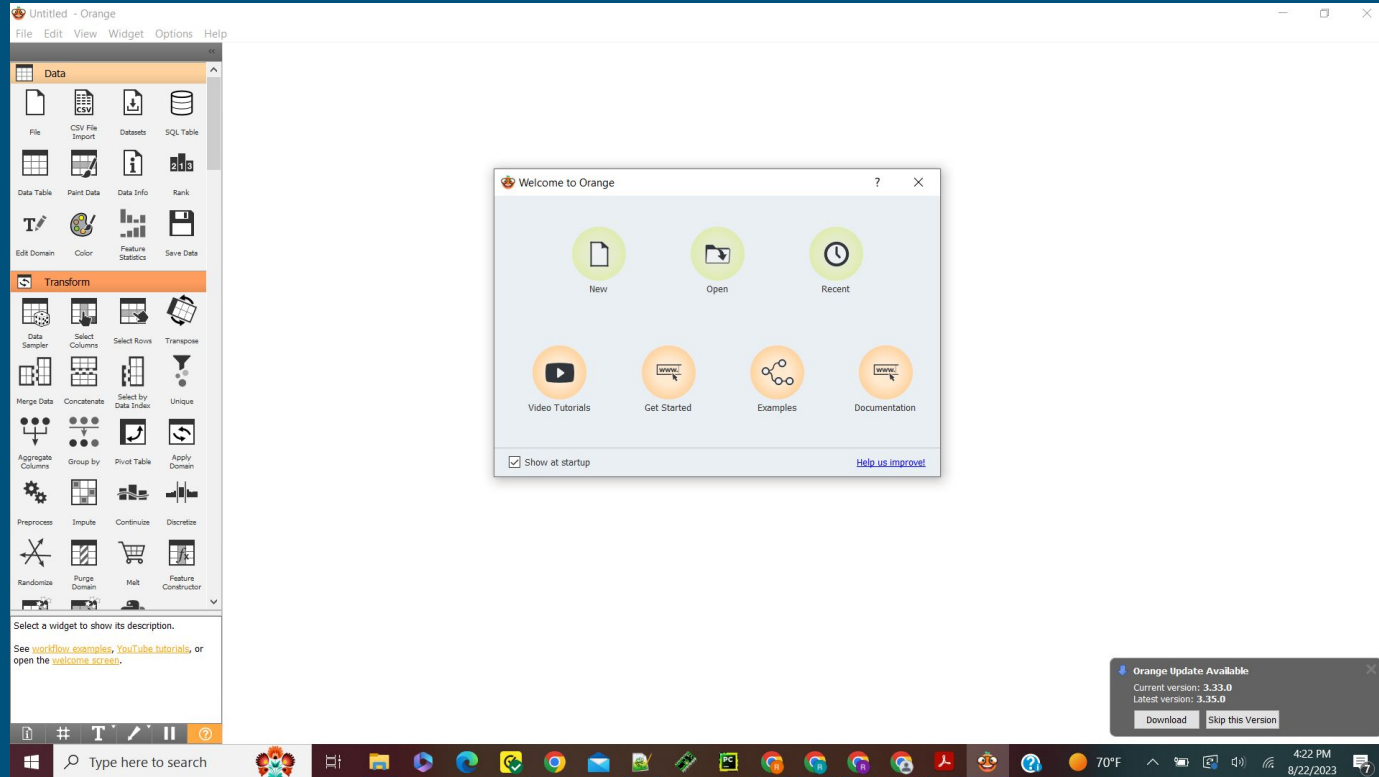
By Rohan Sachdeva
PATHS P6 Scholar



What is Orange?

- Orange Data Mining is a platform which applies a graph structure to perform Exploratory Data Analysis and utilize machine learning methods
 - System of nodes (or widgets) and edges allows for visual interaction without code
 - Provides strong, advanced, unique visualizations
 - Baseline scores for machine learning methods/models against Python code
 - Special tools for Bioinformatics, Text Mining, Image Analytics, Time Series as well as special types of data: Socioeconomic, Scientific, Geographical etc.
 - Key Reporting and Documentation Features

Welcome Screen



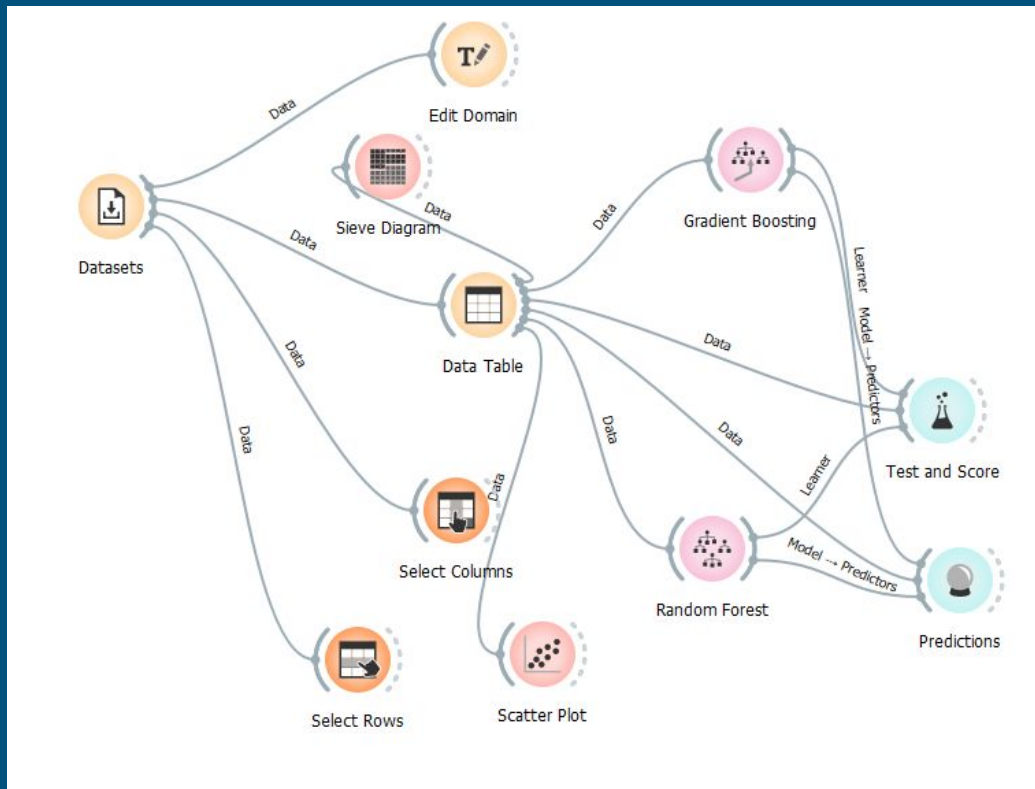
Simple Well-Documented Workflows

- Graph with nodes and edges is better known as a workflow in Orange as there is a processing signal that flows from file node through other nodes
 - Can have multiple file nodes
- <https://orangedatamining.com/workflows/>

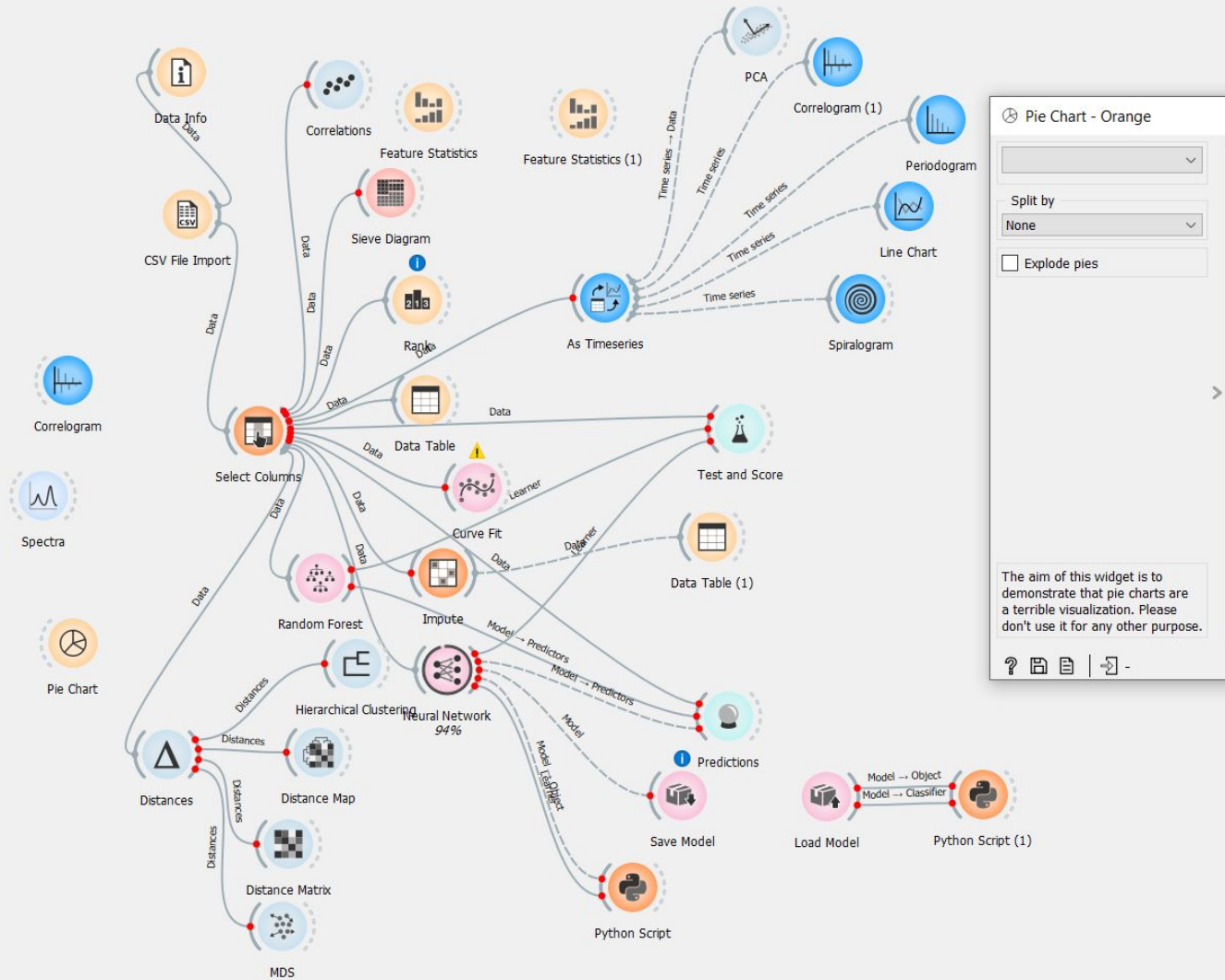
Types of Widgets

- Data - Light Orange - tools for loading data, viewing data or attributes, basic statistics
- Transform - Dark Orange - change size/shape of data or type of variable (set target)
- Visualize - Red - contains standard as well as advanced like Violin Plot, Sieve Diagram, FreeViz, RadViz, Linear Progression, Heat Map, Pythagorean Tree/Forest
- Model - Pink - Regressions, kNN, Calibrated Learner, AdaBoost, Neural Net., Stacking
- Evaluate - Blue - Test and Score, Predictions, Confusion Matrix; ROC, Performance, and Calibration Analytical Plots
- Unsupervised (Methods) - Gray - Correlations, Hierarchical Clustering, PCA, k-Means, Distance Matrix/Map
- Other (Add-Ons) - <https://orangedatamining.com/widget-catalog/>

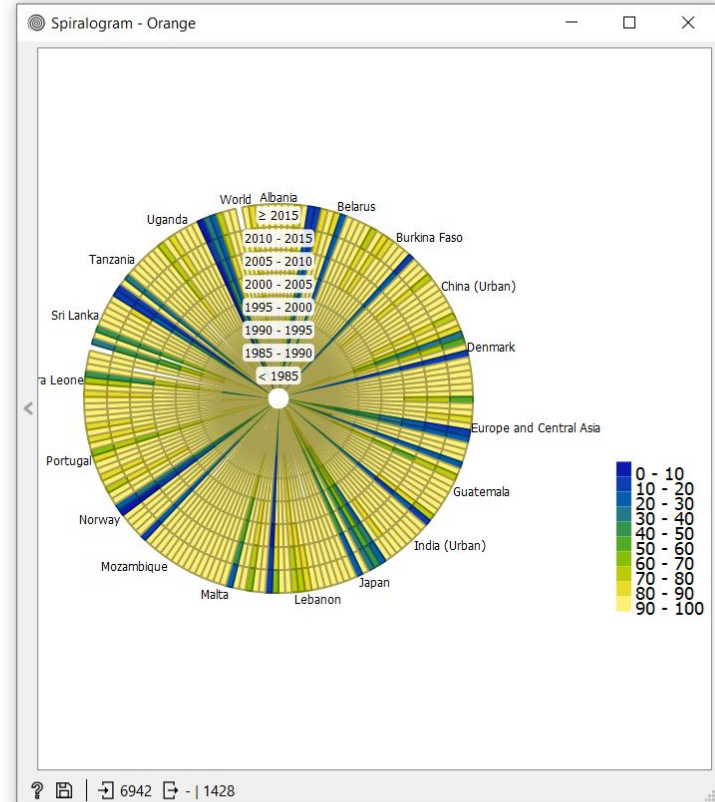
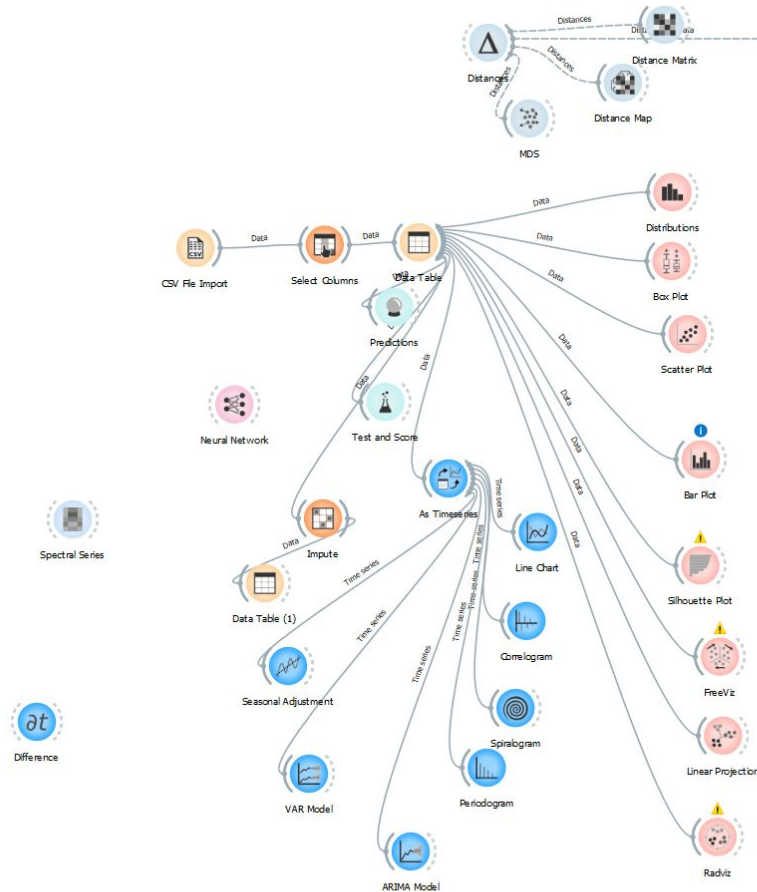
Ionosphere Electron Classification



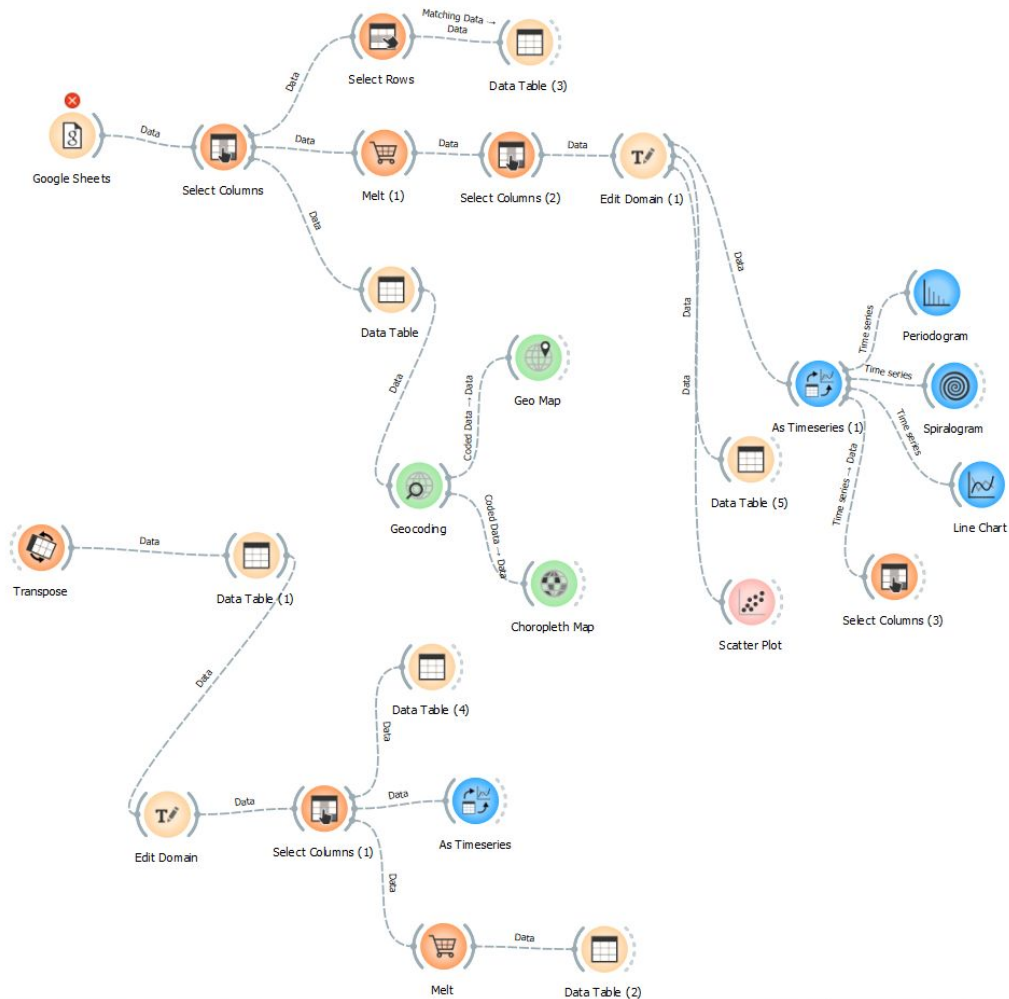
Dielectron Workflow



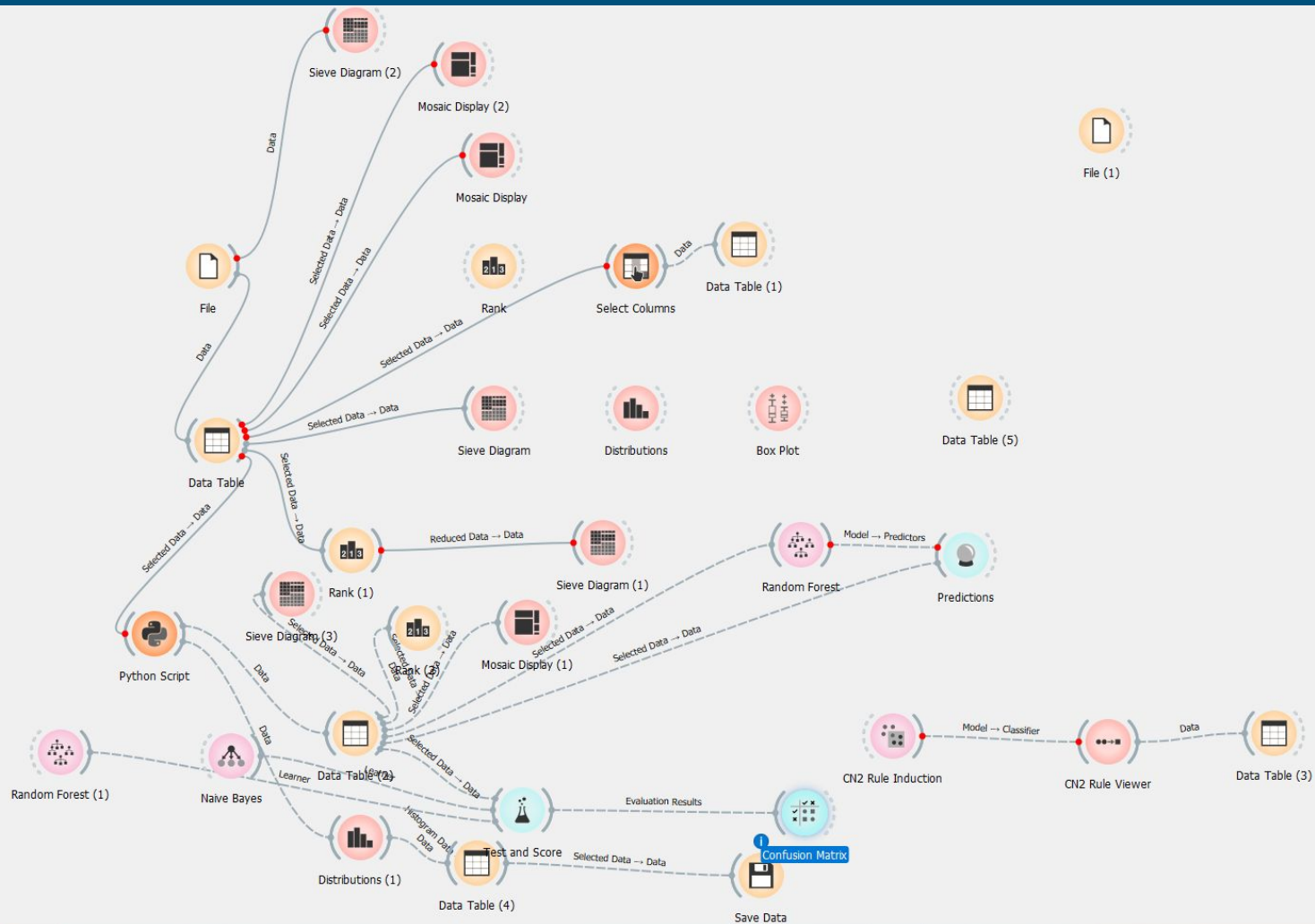
World Poverty Visualization



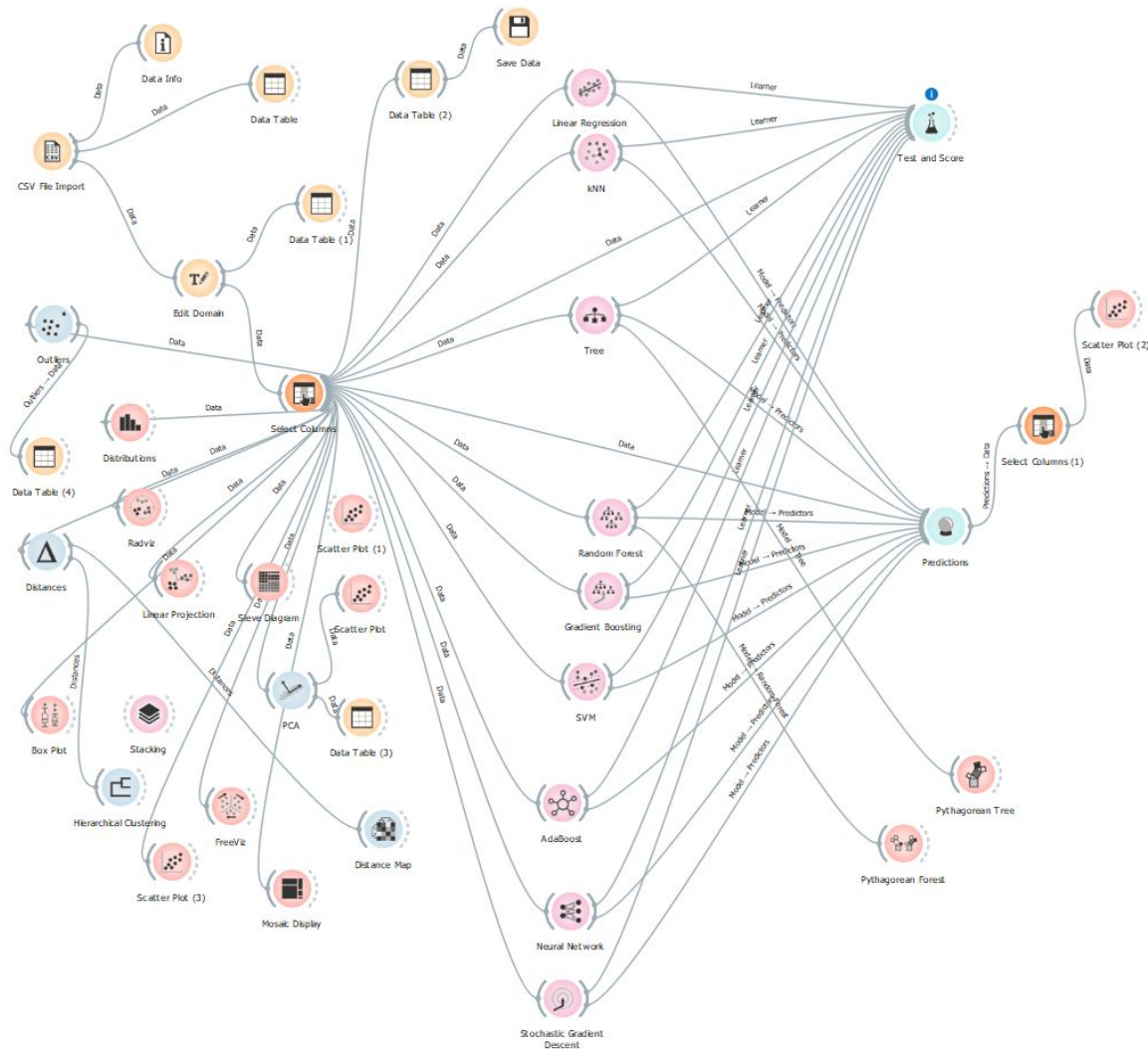
Solar Energy Analysis



2022 Fall Data Challenge

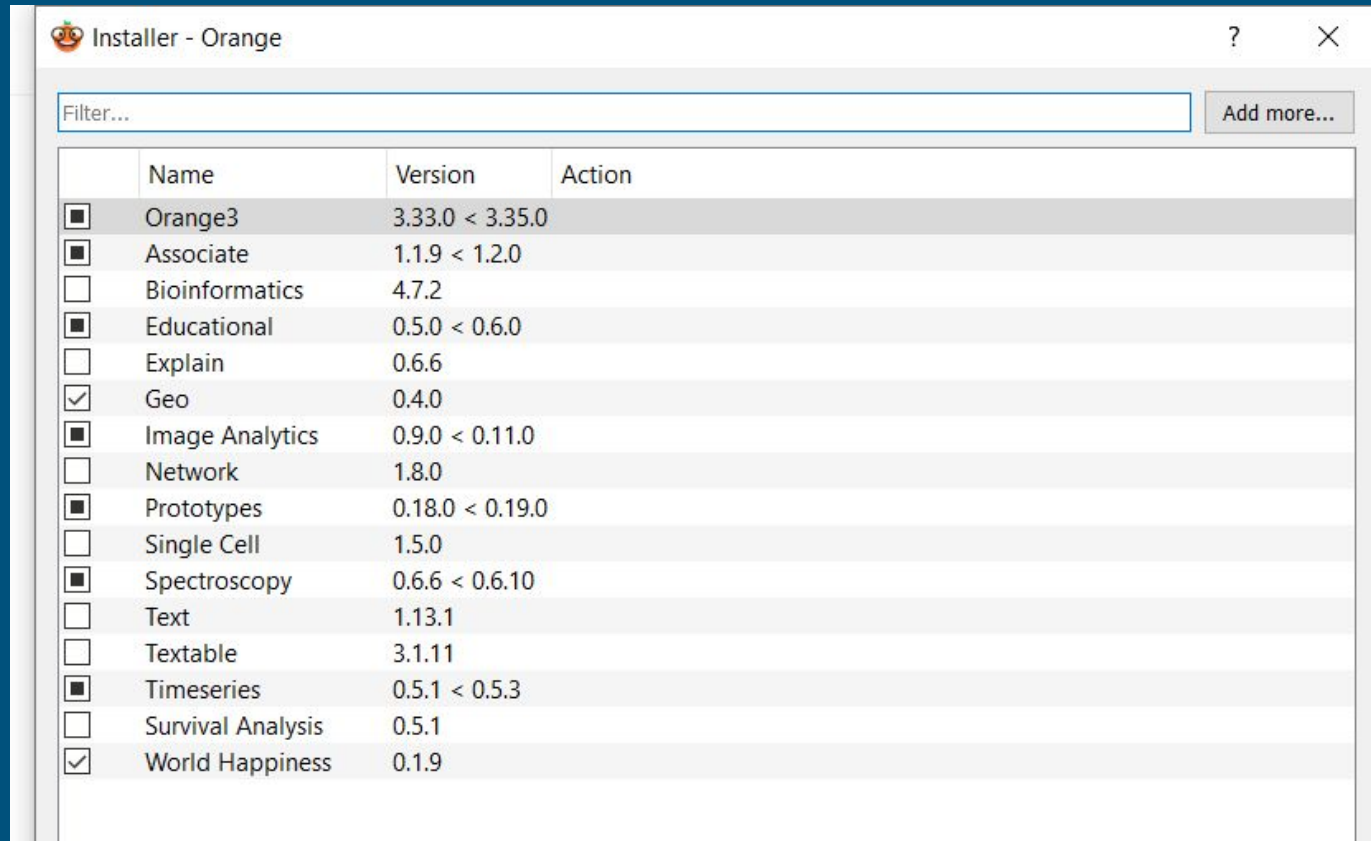


Boston Housing



Workflow for Boston Housing

Add-Ons



Variants/Companion Versions

- Single Cell Analysis Orange - specializes in genomics data
- Quasar Orange - includes pre-installed toolboxes for scientific data analysis

Links

Orange: <https://orangedatamining.com/>

Single Cell Analysis Orange: <https://singlecell.biolab.si/>

Quasar Orange: <https://quasar.codes/>

Getting Started:

<https://www.youtube.com/playlist?list=PLmNPvQr9Tf-ZSDLwOzxpY-HrE0yv-8Fy>

<https://orangedatamining.com/getting-started/>

<https://orangedatamining.com/workflows/>

<https://orangedatamining.com/widget-catalog/>