

Nama: M.Rizky Fadillah

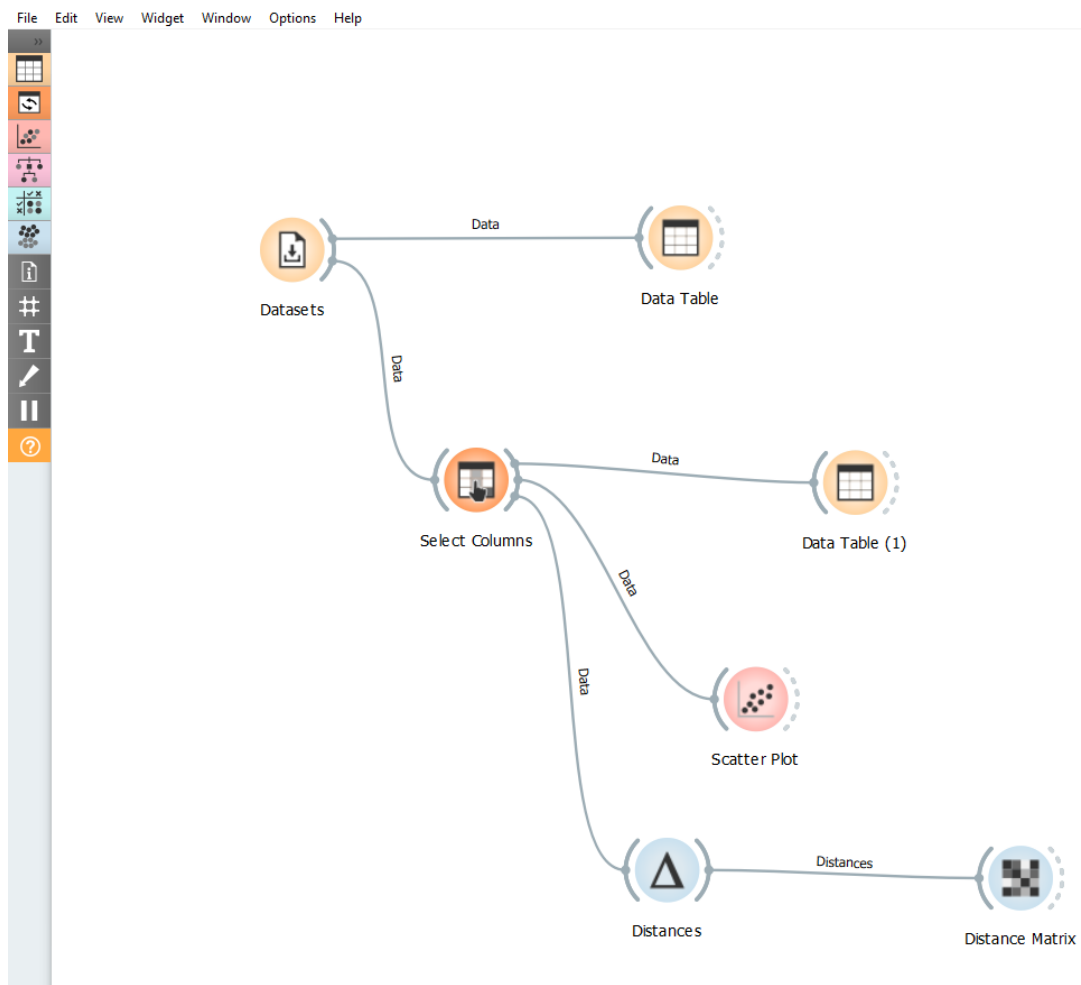
NIM: 1103210259

Kelas: TK-45-G03

TUGAS 6 PEMBELAJARAN MESIN

ODM DATASET

- Euclidean Distance in 2D



Datasets - Orange

Title	Size	Instances	Variables	Target	Tags
Course Grades	9.2 KB	16	8	none	synthetic, education

Data Table - Orange

Info

16 instances (no missing data)

7 features

No target variable.

1 meta attribute

Variables

☒ Show variable labels (if present)

☒ Visualize numeric values

☒ Color by instance classes

Selection

☒ Select full rows

Student	English	French	History	Algebra	Biology	Physics	Physical
1 Ana	22	30	32	21	37	46	99
2 Bill	91	95	65	89	39	11	29
3 Cynthia	51	89	21	100	70	100	27
4 Demi	9	15	18	61	100	90	8
5 Eve	93	99	39	12	47	17	63
6 Fred	49	17	17	92	70	98	73
7 George	91	99	97	49	96	81	69
8 Henry	12	30	32	34	12	33	96
9 Ian	91	80	20	82	93	87	22
10 Jena	39	18	19	99	97	77	23
11 Katherine	20	50	10	71	99	78	12
12 Lea	90	100	45	45	20	15	100
13 Maya	100	98	97	32	72	22	37
14 Nash	14	4	15	61	42	51	39
15 Olga	9	22	8	100	11	92	29
16 Phill	85	90	100	45	38	92	21

Select Columns - Orange

Ignored (5)

Filter

- French
- History
- Biology
- Physics
- Physical

Features (2)

Filter

- English
- Algebra

Target

Metas (1)

- Student

Reset

☐ Ignore new variables by default

☒ Send Automatically

Data Table (1) - Orange

Info

16 instances (no missing data)

2 features

No target variable.

1 meta attribute

Variables

☒ Show variable labels (if present)

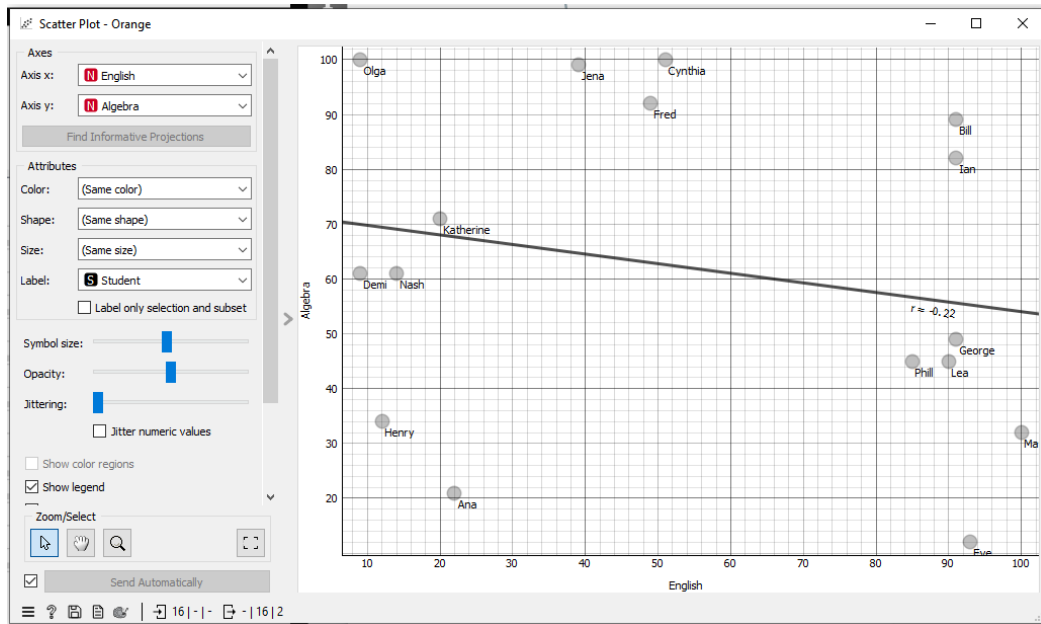
☒ Visualize numeric values

☒ Color by instance classes

Selection

☒ Select full rows

Student	English	Algebra
1 Ana	22	21
2 Bill	91	89
3 Cynthia	51	100
4 Demi	9	61
5 Eve	93	12
6 Fred	49	92
7 George	91	49
8 Henry	12	34
9 Ian	91	82
10 Jena	39	99
11 Katherine	20	71
12 Lea	90	45
13 Maya	100	32
14 Nash	14	61
15 Olga	9	100
16 Phill	85	45



Distances - Orange

Compare
☒ Rows ☐ Columns

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

☒ Apply Automatically

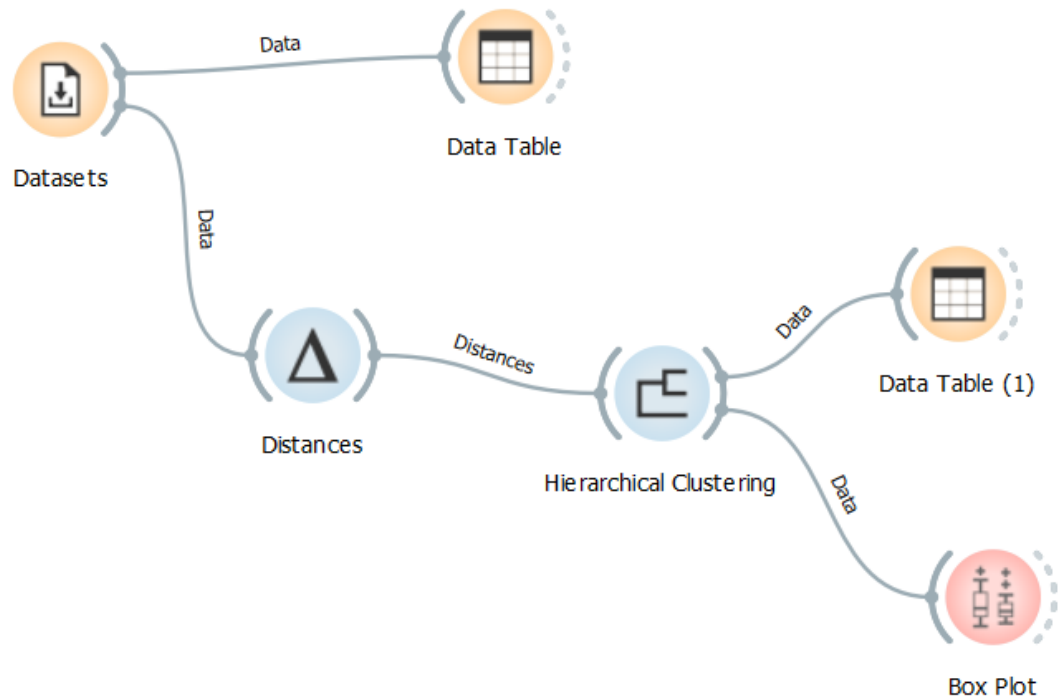
16 16x16

Distance Matrix - Orange

	Ana	Bill	Cynthia	Demi	Eve	Fred	George	Henry	Ian	Jena	Katherine	Lea	Maya	Nash	Olga
Ana		96.876	84.155	42.059	71.568	75.961	74.465	16.401	92.098	79.831	50.040	72.111	78.772	40.792	80.062
Bill	96.876		41.485	86.649	77.026	42.107	40.000	96.260	7.000	52.953	73.246	44.011	57.706	81.933	82.735
Cynthia	84.155	41.485		57.315	97.509	8.246	64.815	76.662	43.863	12.042	42.450	67.424	83.815	53.759	42.000
Demi	42.059	86.649	57.315		97.247	50.606	82.873	27.166	84.646	48.415	14.866	82.565	95.509	5.000	39.000
Eve	71.568	77.026	97.509	97.247		91.302	37.054	83.934	70.029	102.396	93.862	33.136	21.190	92.962	121.655
Fred	75.961	42.107	8.246	50.606	91.302		60.108	68.797	43.174	12.207	35.805	62.370	78.746	46.755	40.792
George	74.465	40.000	64.815	82.873	37.054	60.108		80.411	33.000	72.139	74.330	4.123	19.235	77.929	96.566
Henry	16.401	96.260	76.662	27.166	83.934	68.797	80.411		92.439	70.385	37.855	78.772	88.023	27.074	66.068
Ian	92.098	7.000	43.863	84.646	70.029	43.174	33.000	92.439		54.708	71.847	37.014	50.804	79.812	83.952
Jena	79.831	52.953	12.042	48.415	102.396	12.207	72.139	70.385	54.708		33.838	74.277	90.609	45.486	30.017
Katherine	50.040	73.246	42.450	14.866	93.862	35.805	74.330	37.855	71.847	33.838		74.673	89.000	11.662	31.016
Lea	72.111	44.011	67.424	82.565	33.136	62.370	4.123	78.772	37.014	74.277	74.673		16.401	77.666	97.908
Maya	78.772	57.706	83.815	95.509	21.190	78.746	19.235	88.023	50.804	90.609	89.000	16.401		90.758	113.600
Nash	40.792	81.933	53.759	5.000	92.962	46.755	77.929	27.074	79.812	45.486	11.662	77.666	90.758		39.319
Olga	80.062	82.735	42.000	39.000	121.655	40.792	96.566	66.068	83.952	30.017	31.016	97.908	113.600	39.319	
Phill	67.417	44.407	64.661	77.666	33.956	59.203	7.211	73.824	37.483	70.937	70.007	5.000	19.849	72.780	93.814

Labels: Student ☒ Send Automatically

- Explaining Clusters



Data Table - Orange

Info											
16 instances (no missing data)											
7 features											
No target variable.											
1 meta attribute											
Variables											
<input checked="" type="checkbox"/> Show variable labels (if present)											
<input checked="" type="checkbox"/> Visualize numeric values											
<input checked="" type="checkbox"/> Color by instance classes											
Selection											
<input checked="" type="checkbox"/> Select full rows											
		Student	English	French	History	Algebra	Biology	Physics	Physical		
1	Ana		22	30	32	21	37	46	99		
2	Bill		91	95	65	89	39	11	29		
3	Cynthia		51	89	21	100	70	100	27		
4	Demi		9	15	18	61	100	90	8		
5	Eve		93	99	39	12	47	17	63		
6	Fred		49	17	17	92	70	98	73		
7	George		91	99	97	49	96	81	69		
8	Henry		12	30	32	34	12	33	96		
9	Ian		91	80	20	82	93	87	22		
10	Jena		39	18	19	99	97	77	23		
11	Katherine		20	50	10	71	99	78	12		
12	Lea		90	100	45	45	20	15	100		
13	Maya		100	98	97	32	72	22	37		
14	Nash		14	4	15	61	42	51	39		
15	Olga		9	22	8	100	11	92	29		
16	Phill		85	90	100	45	38	92	21		

Distances - Orange

Compare

☒ Rows
☐ Columns

Distance Metric

☒ Euclidean (normalized)
☐ Cosine

☐ Euclidean
☐ Pearson

☐ Manhattan (normalized)
☐ Pearson (absolute)

☐ Manhattan
☐ Spearman

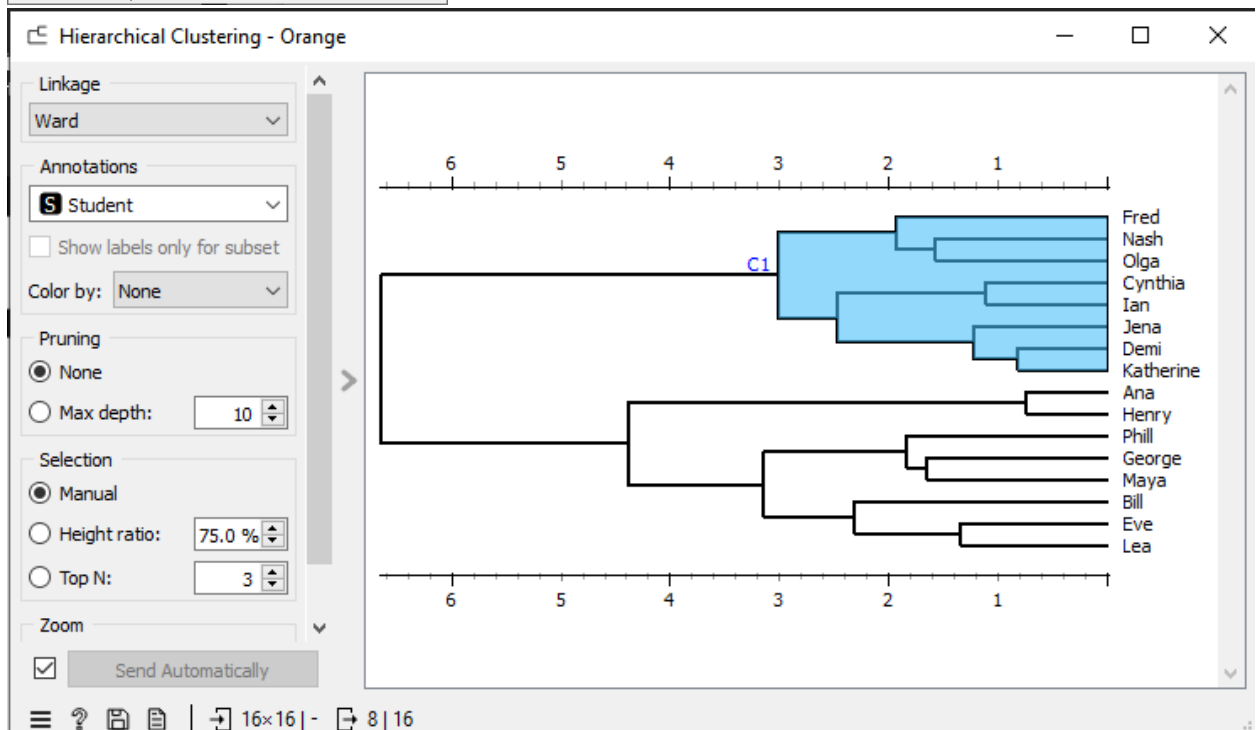
☐ Mahalanobis
☐ Spearman (absolute)

☐ Hamming
☐ Jaccard

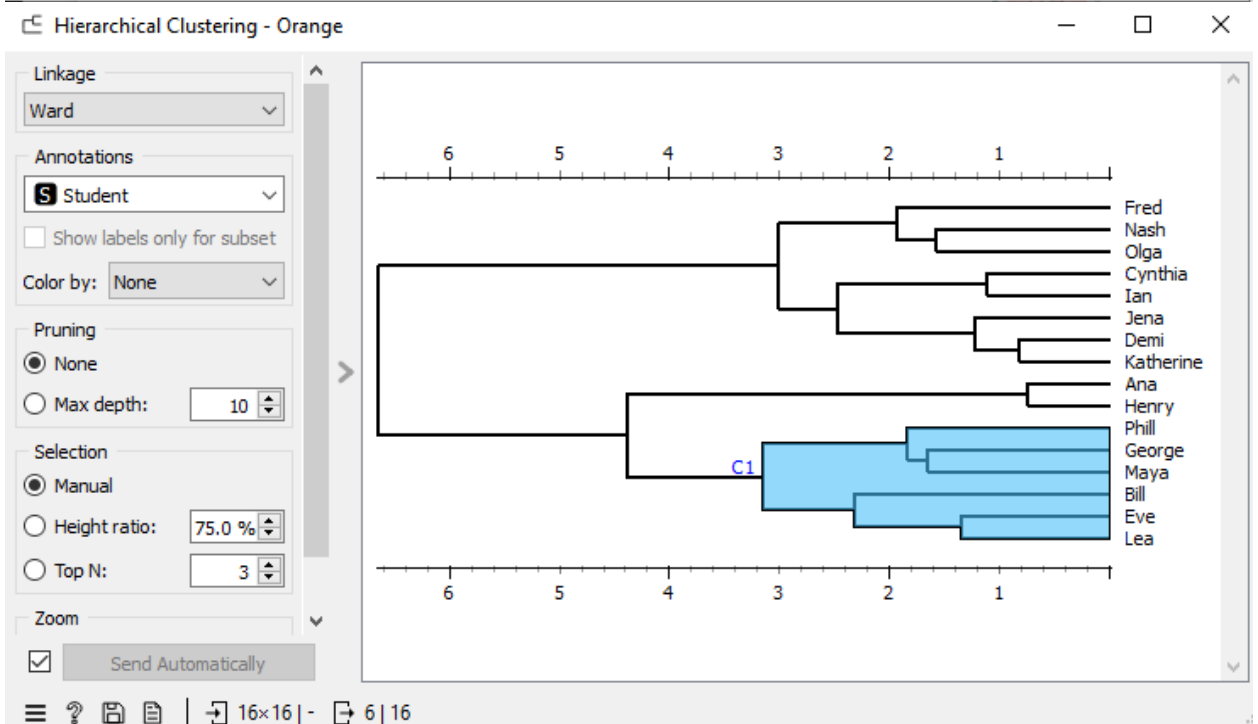
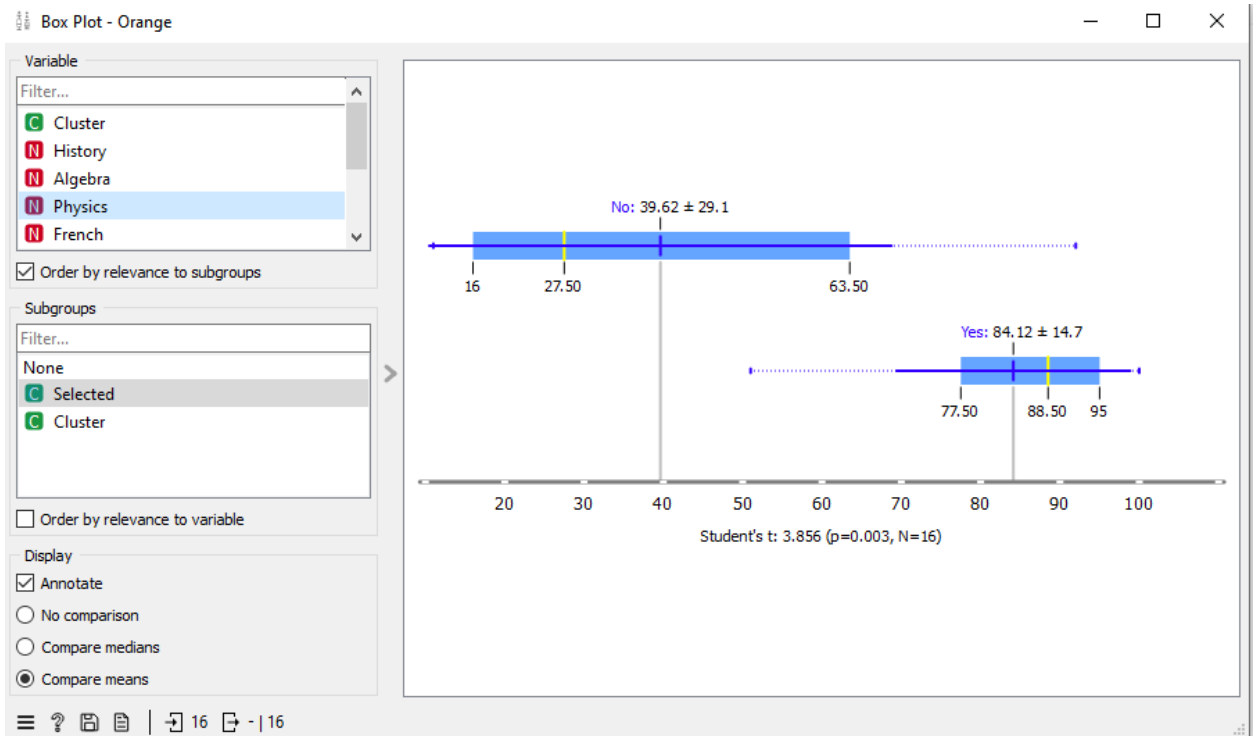
☒ Apply Automatically

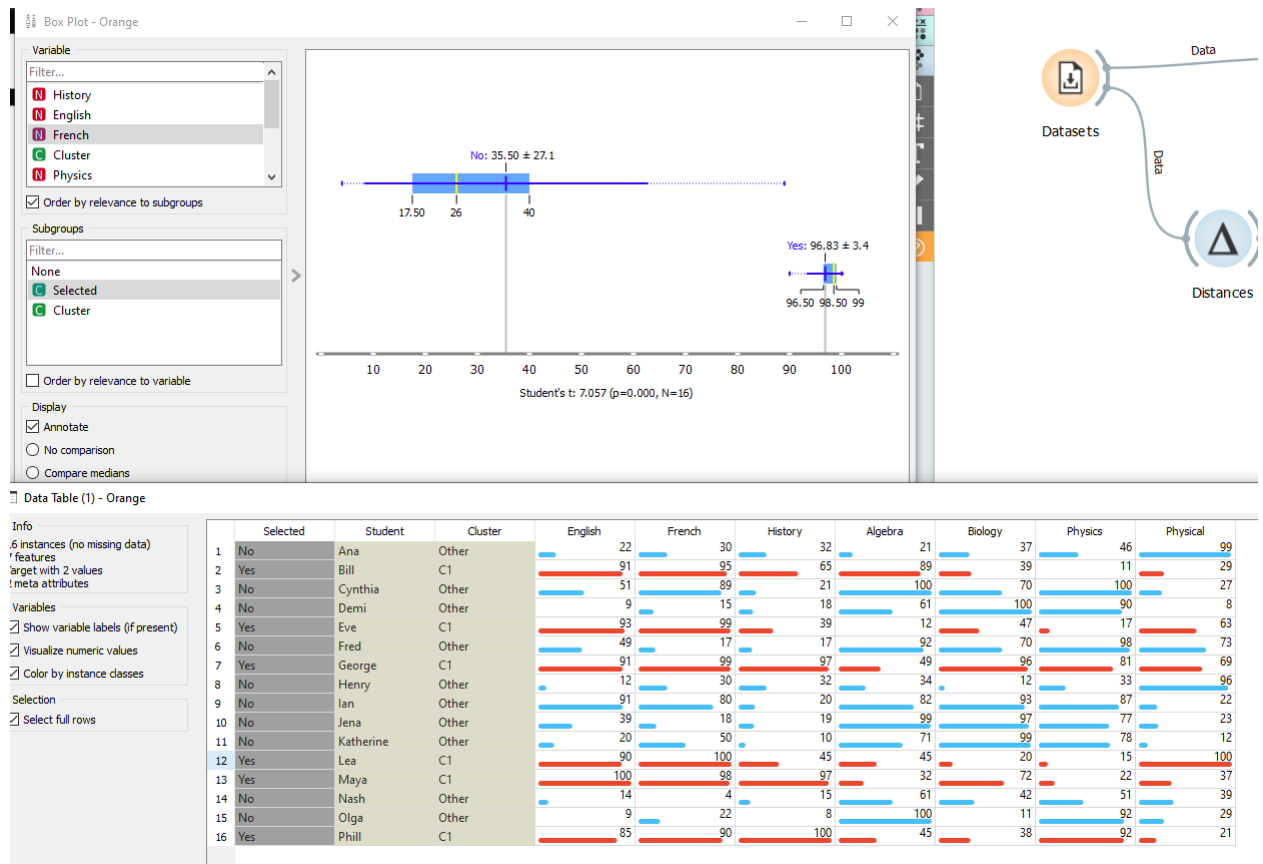
16

16x16

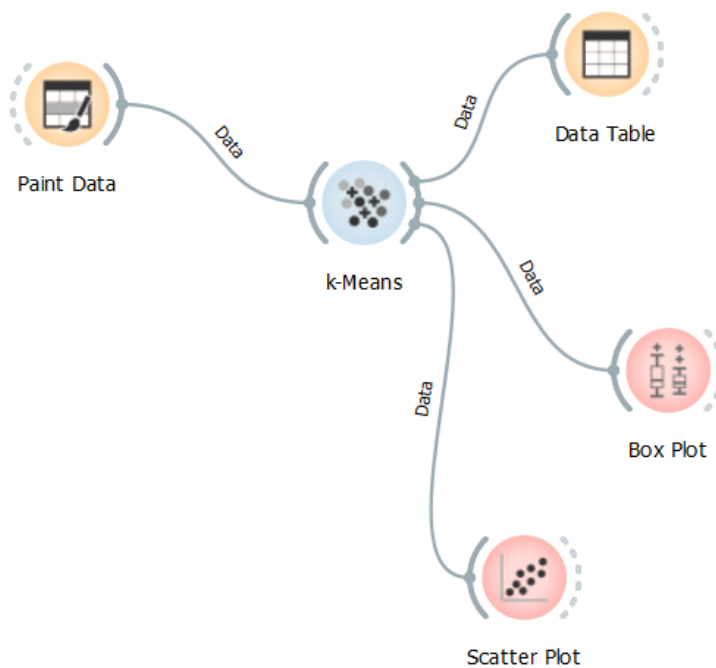


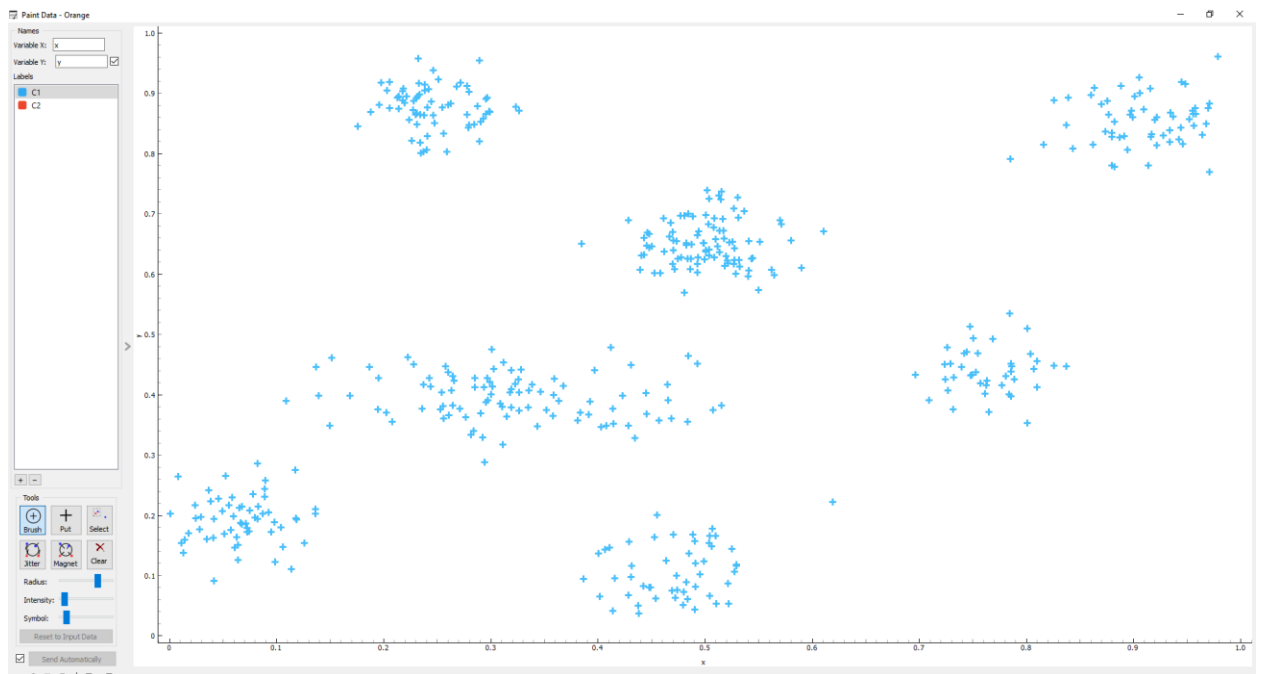
	Selected	Student	Cluster	English	French	History	Algebra	Biology	Physics	Physical
1	No	Ana	Other	22	30	32	21	37	46	99
2	No	Bill	Other	91	95	65	89	39	11	29
3	Yes	Cynthia	C1	51	89	21	100	70	100	27
4	Yes	Demi	C1	9	15	18	61	100	90	8
5	No	Eve	Other	93	99	39	12	47	17	63
6	Yes	Fred	C1	49	17	17	92	70	98	73
7	No	George	Other	91	99	97	49	96	81	69
8	No	Henry	Other	12	30	32	34	12	33	96
9	Yes	Ian	C1	91	80	20	82	93	87	22
10	Yes	Jena	C1	39	18	19	99	97	77	23
11	Yes	Katherine	C1	20	50	10	71	99	78	12
12	No	Lea	Other	90	100	45	20	15	15	100
13	No	Maya	Other	100	98	97	32	72	22	37
14	Yes	Nash	C1	14	4	15	61	42	51	39
15	Yes	Olga	C1	9	22	8	100	11	92	29
16	No	Phill	Other	85	90	100	45	38	92	21





- How to choose k for k-Means?





k-Means - Orange

Number of Clusters
☒ Fixed: 5
☐ From 2 to 8

Preprocessing
☒ Normalize columns

Initialization
Initialize with KMeans++

Re-runs: 10
Maximum iterations: 300

☒ Apply Automatically

468 468 | 5

Data Table - Orange

Info

468 instances (no missing data)
2 features
No target variable.
2 meta attributes

Variables

- ☒ Show variable labels (if present)
☒ Visualize numeric values
☒ Color by instance classes

Selection

- ☒ Select full rows

	Cluster	Silhouette	x	y
1	C3	0.723241	0.295602	0.890909
2	C3	0.722437	0.290363	0.852962
3	C3	0.731352	0.213821	0.873793
4	C3	0.722833	0.296523	0.892272
5	C3	0.733381	0.231346	0.894651
6	C3	0.732609	0.245996	0.863496
7	C3	0.731145	0.217758	0.903241
8	C3	0.72257	0.292844	0.858431
9	C3	0.730097	0.23287	0.916826
10	C3	0.73267	0.229491	0.865045
11	C3	0.727142	0.279384	0.902726
12	C3	0.72272	0.295054	0.865176
13	C3	0.730311	0.247187	0.85035
14	C3	0.728255	0.202735	0.90417
15	C3	0.726101	0.287625	0.878873
16	C3	0.732358	0.217737	0.888626
17	C3	0.721452	0.234248	0.818586
18	C3	0.71669	0.23981	0.806355
19	C3	0.719683	0.232428	0.958036
20	C3	0.732774	0.237737	0.863136
21	C3	0.731947	0.262596	0.883248
22	C3	0.73313	0.227501	0.871733
23	C3	0.721866	0.226002	0.821028
24	C3	0.73298	0.254462	0.876871
25	C3	0.724531	0.279295	0.847027
26	C3	0.730671	0.23801	0.914412
27	C3	0.715394	0.236799	0.803107
28	C3	0.727949	0.27766	0.86452
29	C3	0.724806	0.246187	0.938495
30	C3	0.732485	0.221083	0.89481
31	C3	0.725296	0.197841	0.91806
32	C3	0.729793	0.230904	0.848262
33	C3	0.733168	0.233374	0.897652
34	C3	0.71433	0.234501	0.800652
35	C3	0.725059	0.255602	0.832739
36	C3	0.718406	0.175593	0.845254
37	C3	0.726511	0.271823	0.917805
38	C3	0.733767	0.244415	0.88605
39	C3	0.723492	0.284284	0.848646
40	C3	0.721541	0.299139	0.869055
41	C3	0.730673	0.223675	0.856033
42	C1	0.670309	0.498717	0.651654
43	C1	0.680074	0.527495	0.642538
44	C1	0.680453	0.518521	0.613655
45	C1	0.633865	0.48072	0.697086
46	C1	0.672066	0.509858	0.657485
47	C1	0.659658	0.530801	0.693892
48	C1	0.631208	0.477068	0.696694
49	C1	0.663904	0.471607	0.607845
50	C1	0.662685	0.46975	0.616941

Restore Original Order

- ☒ Send Automatically

