DATA ANALYTICS

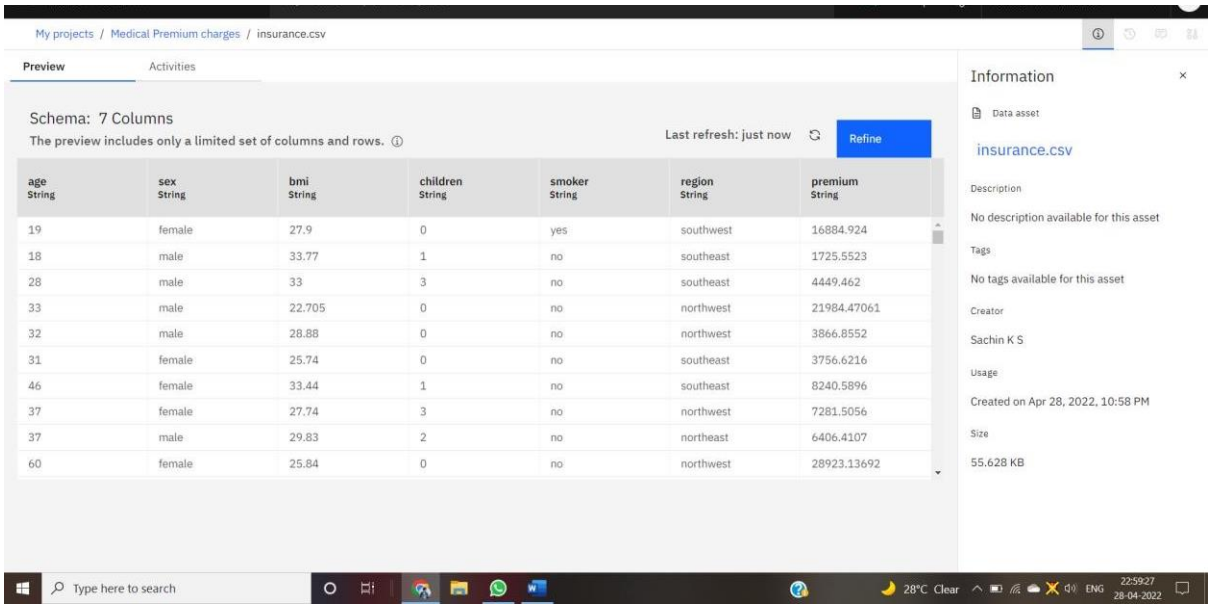
ASSIGNMENT-1

VIT-VELLORE CAMPUS

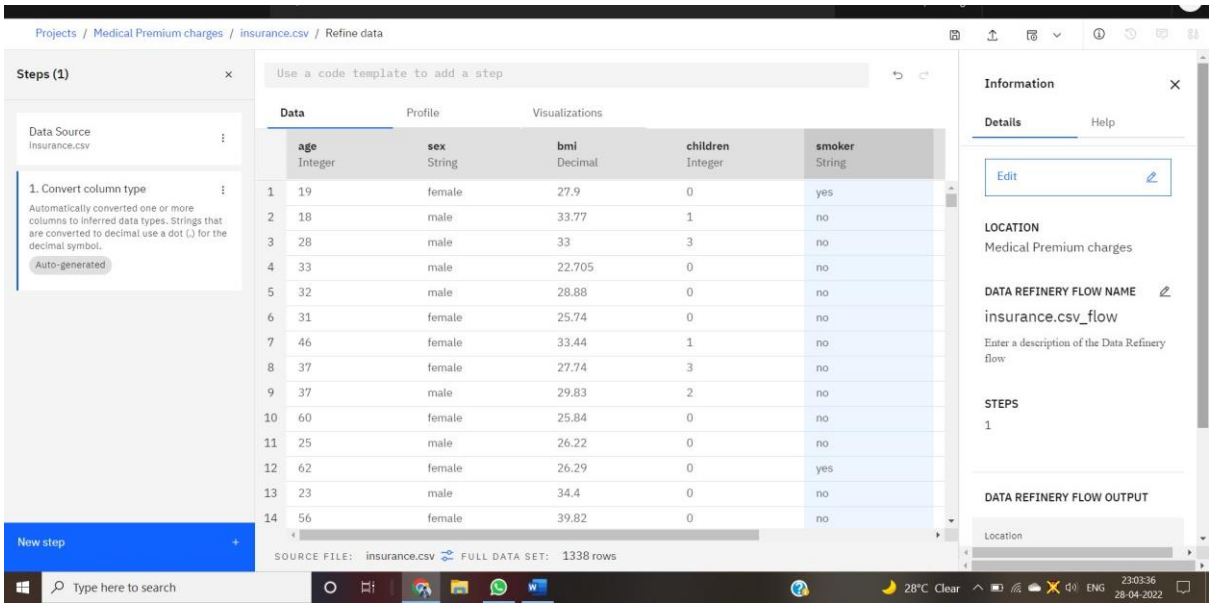
NAME: ANISH KUMAR

REG.NO : 19BEE0135

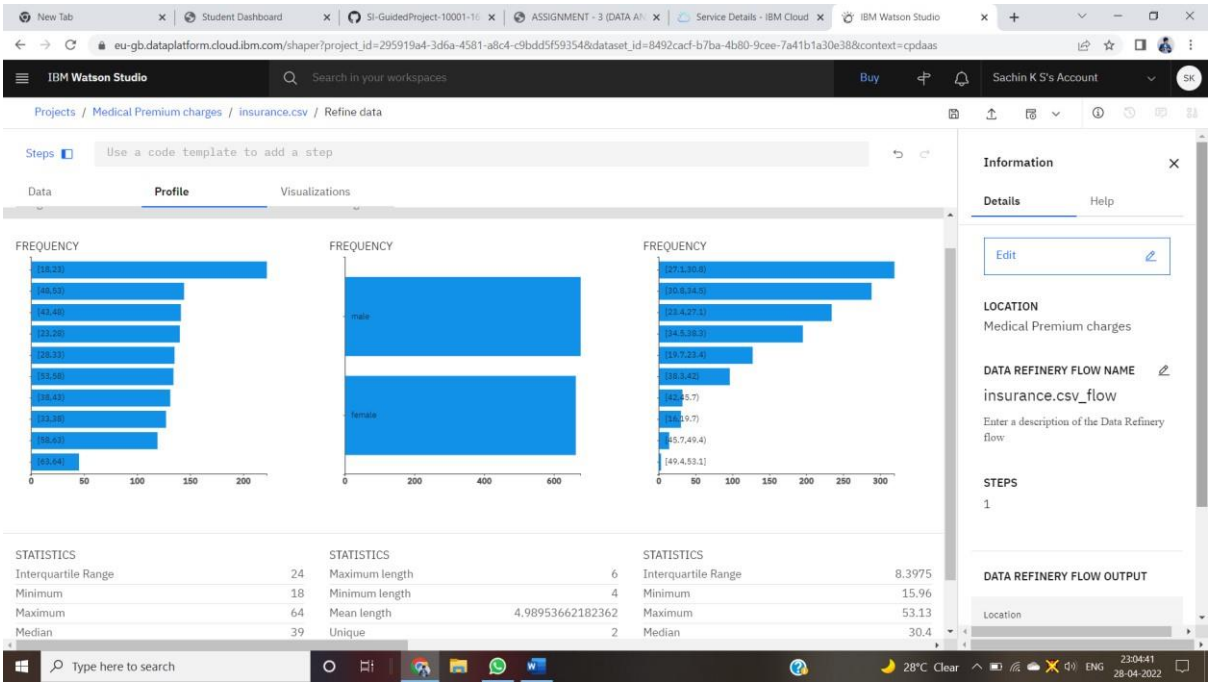
CLUSTERING MEDICAL PREMIUM CHARGES

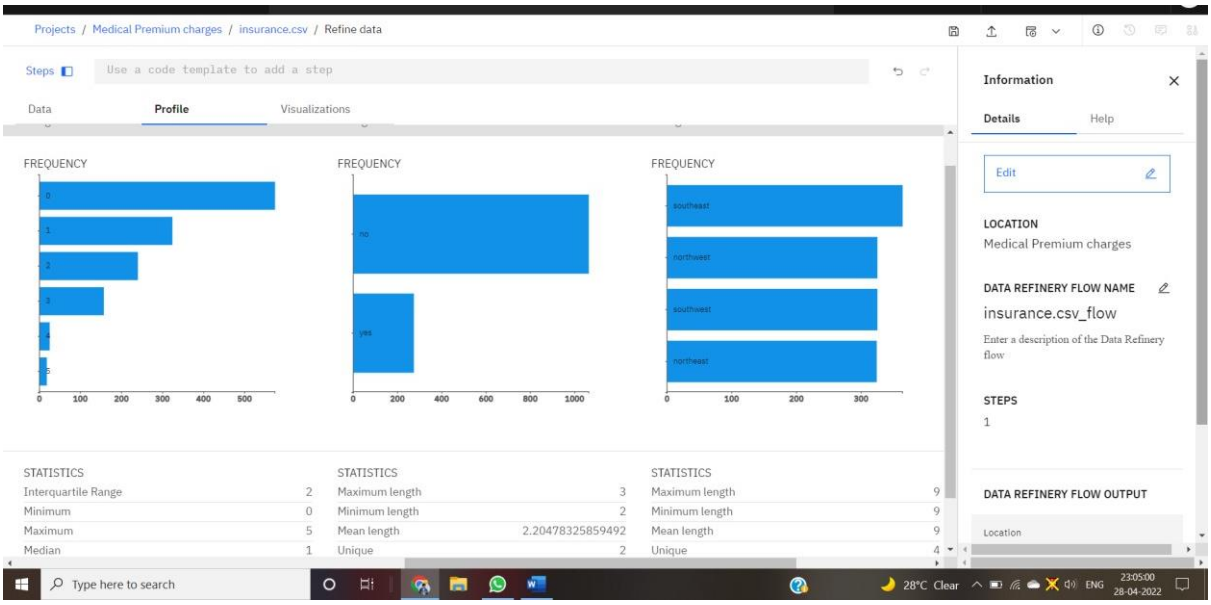


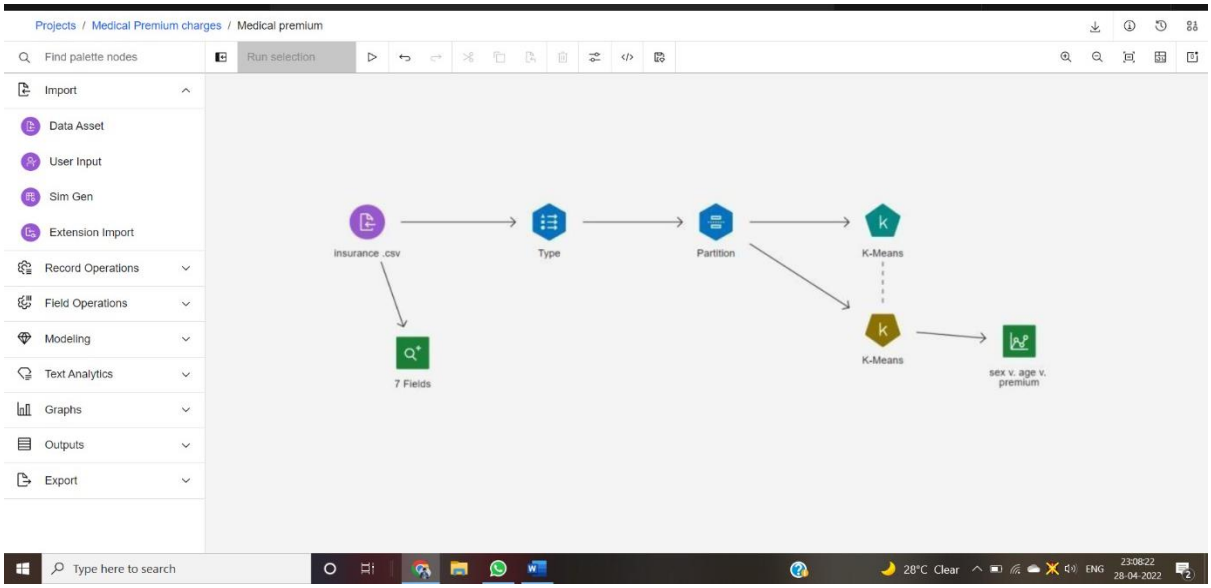
age String	sex String	bmi String	children String	smoker String	region String	premium String
19	female	27.9	0	yes	southwest	16884.924
18	male	33.77	1	no	southeast	1725.5523
28	male	33	3	no	southeast	4449.462
33	male	22.705	0	no	northwest	21984.47061
32	male	28.88	0	no	northwest	3866.8552
31	female	25.74	0	no	southeast	3756.6216
46	female	33.44	1	no	southeast	8240.5896
37	female	27.74	3	no	northwest	7281.5056
37	male	29.83	2	no	northeast	6406.4107
60	female	25.84	0	no	northwest	28923.13692



	age Integer	sex String	bmi Decimal	children Integer	smoker String
1	19	female	27.9	0	yes
2	18	male	33.77	1	no
3	28	male	33	3	no
4	33	male	22.705	0	no
5	32	male	28.88	0	no
6	31	female	25.74	0	no
7	46	female	33.44	1	no
8	37	female	27.74	3	no
9	37	male	29.83	2	no
10	60	female	25.84	0	no
11	25	male	26.22	0	no
12	62	female	26.29	0	yes
13	23	male	34.4	0	no
14	56	female	39.82	0	no


IBM Watson Studio
Projects / Medical Premium charges / insurance.csv / Refine data
Steps
Use a code template to add a step
Data
Profile
Visualizations
FREQUENCY
male
female
STATISTICS
Interquartile Range 24
Minimum 18
Maximum 64
Median 39
STATISTICS
Maximum length 6
Minimum length 4
Mean length 4.98953662182362
Unique 2
STATISTICS
Interquartile Range 8.3975
Minimum 15.96
Maximum 53.13
Median 30.4
Information
Details
Help
Edit
LOCATION
Medical Premium charges
DATA REFINERY FLOW NAME
insurance.csv_flow
Enter a description of the Data Refinery flow
STEPS
1
DATA REFINERY FLOW OUTPUT
Location
Type here to search
28°C Clear
ENG
23:04:41
28-04-2022


Projects / Medical Premium charges / insurance.csv / Refine data
Steps
Use a code template to add a step
Data
Profile
Visualizations
FREQUENCY
no
yes
southeast
northwest
southwest
northeast
STATISTICS
Interquartile Range 2
Minimum 0
Maximum 5
Median 1
STATISTICS
Maximum length 3
Minimum length 2
Mean length 2.20478325859492
Unique 2
STATISTICS
Maximum length 9
Minimum length 9
Mean length 9
Unique 4
Information
Details
Help
Edit
LOCATION
Medical Premium charges
DATA REFINERY FLOW NAME
insurance.csv_flow
Enter a description of the Data Refinery flow
STEPS
1
DATA REFINERY FLOW OUTPUT
Location
Type here to search
28°C Clear
ENG
23:05:00
28-04-2022



View Output: Data Audit of [7 fields]

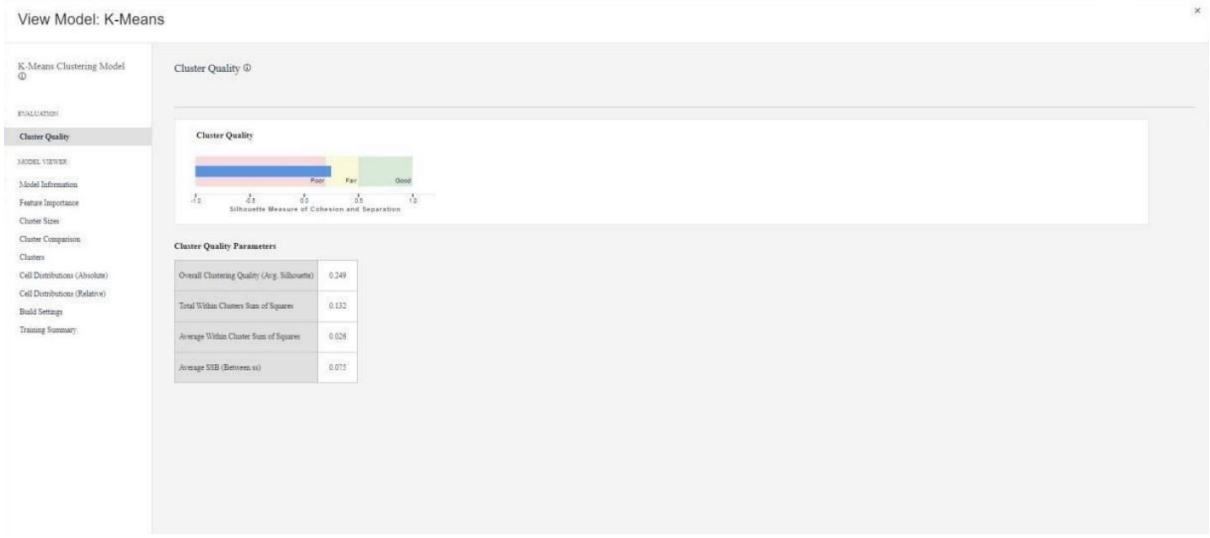
	Field	Graph	Measurement	Min	Max	Mean	Std. Dev	Skewness	Unique	Valid
1	age		Continuous	18	64	39.207	14.050	0.056	--	1338
2	sex		Categorical	--	--	--	--	--	2	1338
3	bmi		Continuous	15.960	53.130	30.663	6.098	0.284	--	1338
4	children		Continuous	0	5	1.095	1.205	0.938	--	1338
5	smoker		Categorical	--	--	--	--	--	2	1338
6	region		Categorical	--	--	--	--	--	4	1338

View Output: Data Audit of [7 fields]

6	region		Categorical	--	--	--	--	--	4	1338
7	premium		Continuous	1121.874	63770.428	13270.422	12110.011	1.516	--	1338

	Field	Measurement	Outliers	Extremes	Action	Impute Missing	Method	% Complete	Valid Records	Null Value	Empty String
1	age	Continuous	0	0	None	Never	Fixed	100.000	1338	0	0
2	sex	Categorical	--	--	--	Never	Fixed	100.000	1338	0	0
3	bmi	Continuous	4	0	None	Never	Fixed	100.000	1338	0	0
4	children	Continuous	18	0	None	Never	Fixed	100.000	1338	0	0
5	smoker	Categorical	--	--	--	Never	Fixed	100.000	1338	0	0
6	region	Categorical	--	--	--	Never	Fixed	100.000	1338	0	0
7	premium	Continuous	7	0	None	Never	Fixed	100.000	1338	0	0

View Model: K-Means



View Model: K-Means

K-Means Clustering Model ⓘ

EVALUATION
- Cluster Quality

MODEL VIEWER
- **Model Information**
- Feature Importance
- Cluster Sizes
- Cluster Comparison
- Clusters
- Cell Distributions (Absolute)
- Cell Distributions (Relative)
- Build Settings
- Training Summary

Model Information ⓘ

Algorithm		K-Means
Model Class		Center Based
Number of Features		7
Distance Measure		Euclidean
Number of Clusters		5
Number of instances in each cluster	Cluster 1	81 (8.7%)
	Cluster 2	368 (39.53%)
	Cluster 3	112 (12.03%)
	Cluster 4	190 (20.41%)
	Cluster 5	180 (19.33%)
Ratio of sizes (Largest to smallest)		4.543

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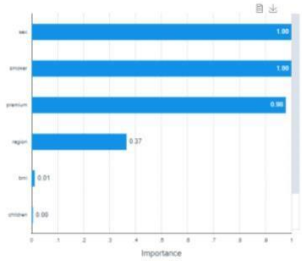
Feature Importance ⓘ



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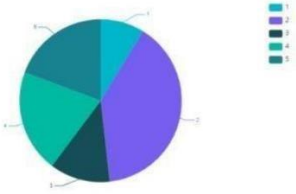
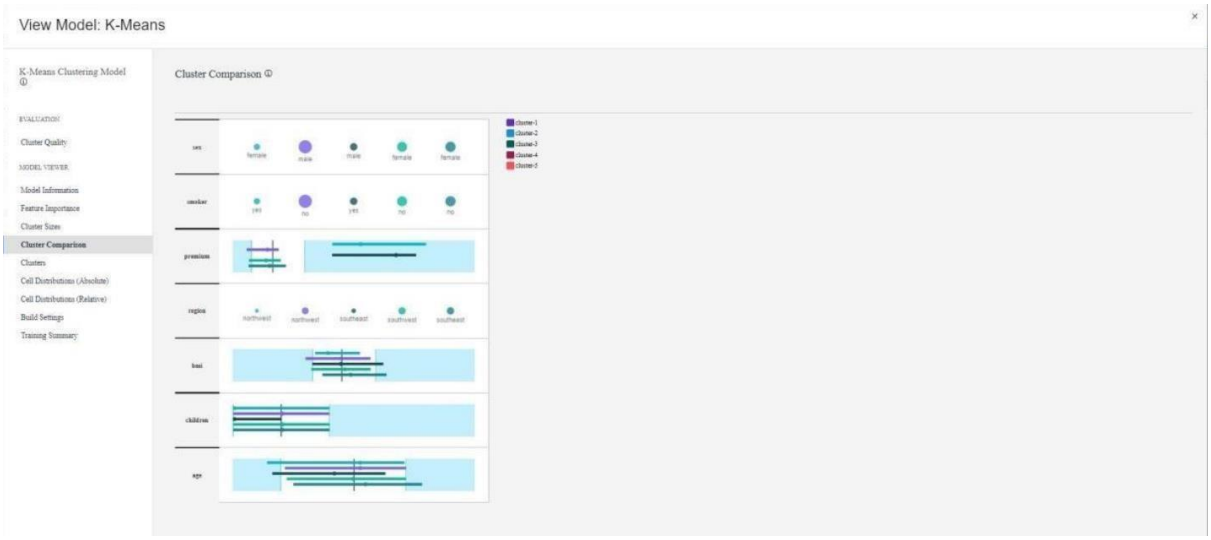
Cluster Sizes ⓘ

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Model Information
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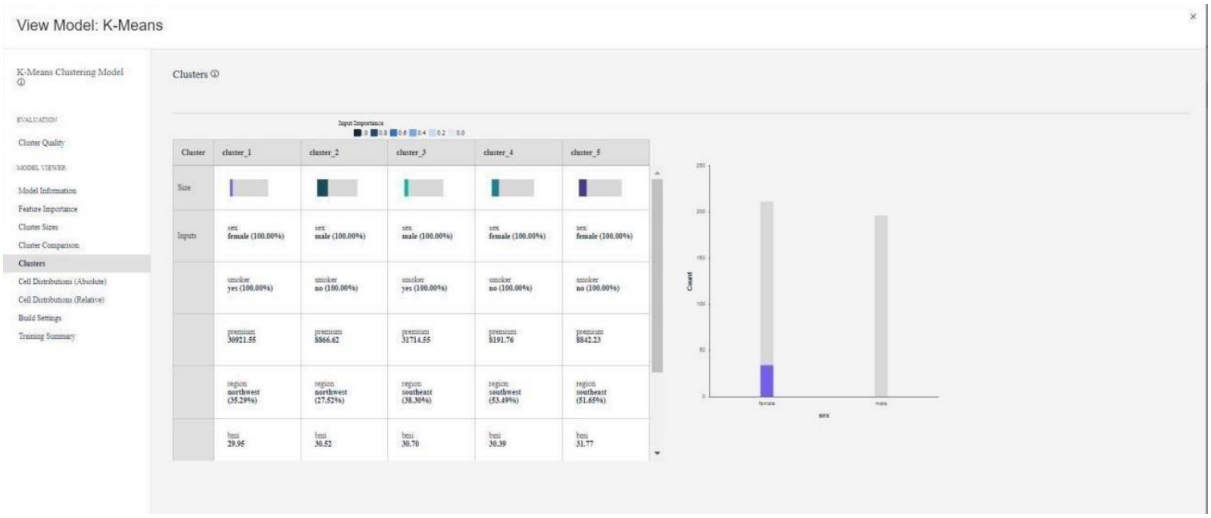
Clusters
Cell Distributions (Absolute)
Cell Distributions (Relative)
Build Settings
Training Summary
Cluster Comparison
sex
smoker
premium
region
bmi
children
age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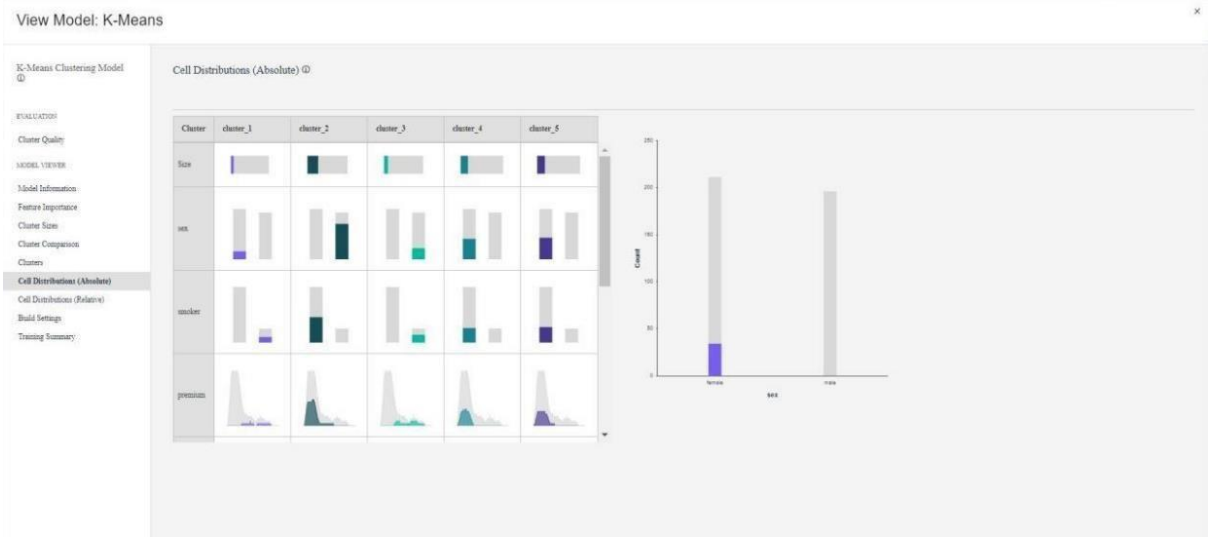
Clusters
Cell Distributions (Absolute)
Cell Distributions (Relative)
Build Settings
Training Summary
Clusters
Cluster
cluster_1
cluster_2
cluster_3
cluster_4
cluster_5
Size
Inputs
sex female (100.00%)
sex male (100.00%)
sex male (100.00%)
sex female (100.00%)
sex female (100.00%)
smoker yes (100.00%)
smoker no (100.00%)
smoker yes (100.00%)
smoker no (100.00%)
smoker no (100.00%)
premium 30921.55
premium 8866.62
premium 31714.55
premium 8191.76
premium 8842.23
region northwest (35.29%)
region northwest (27.52%)
region southeast (38.30%)
region southwest (53.49%)
region southeast (51.65%)
bmi 29.95
bmi 30.52
bmi 30.70
bmi 30.39
bmi 31.77
Count
sex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Cell Distributions (Relative)
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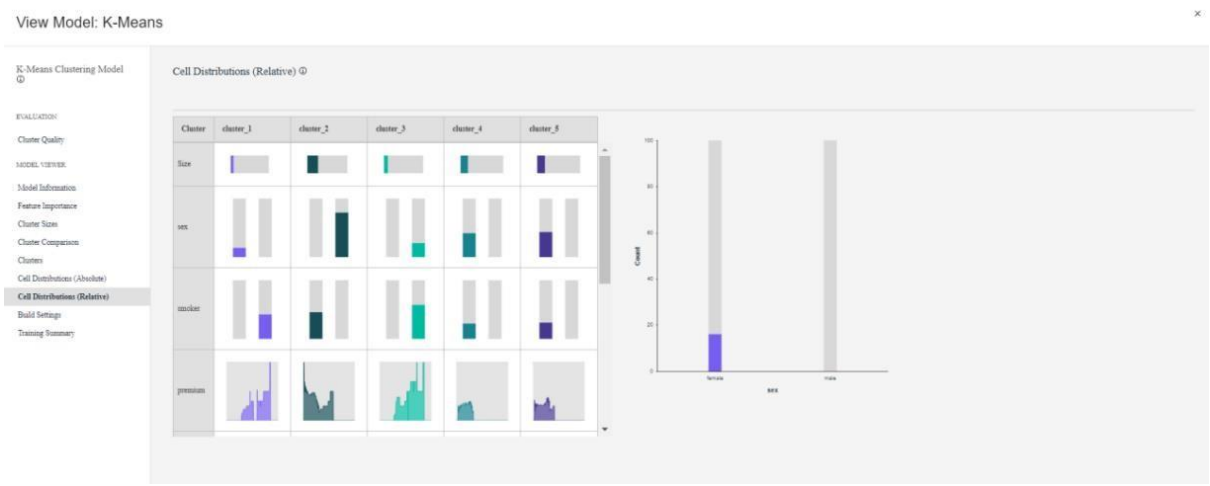
Cell Distributions (Absolute)
Cluster
cluster_1
cluster_2
cluster_3
cluster_4
cluster_5
Size
sex
smoker
premium
Count
sex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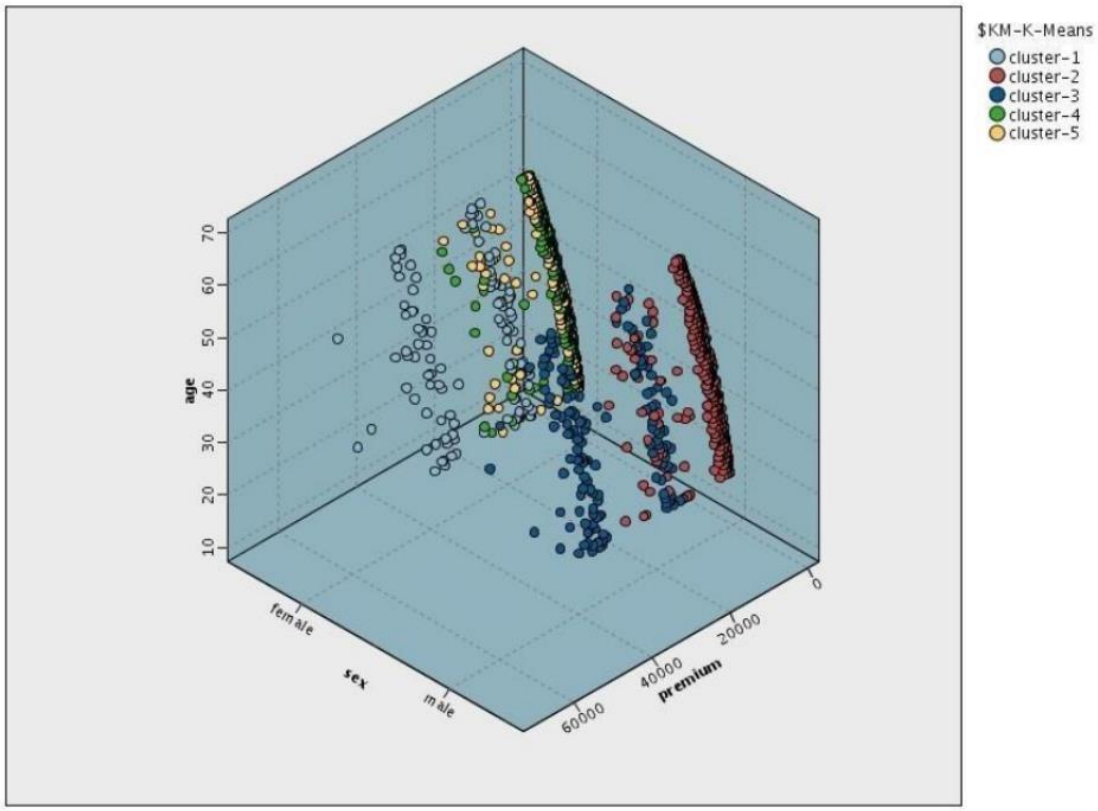
Cell Distributions (Relative)
Cluster
cluster_1
cluster_2
cluster_3
cluster_4
cluster_5
size
sex
smoker
premium
Count
sex


$KM-K-Means
cluster-1
cluster-2
cluster-3
cluster-4
cluster-5
age
10
20
30
40
50
60
70
female
sex
male
60000
40000
20000
0
premium