

# DATA ANALYTICS

## ASSIGNMENT-4

### VIT-VELLORE CAMPUS

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REG.NO : 19BEC0620

#### CLUSTERING MEDICAL PREMIUM CHARGES

My projects / Medical Premium charges / insurance.csv

Preview Activities

Schema: 7 Columns  
The preview includes only a limited set of columns and rows. ①

Last refresh: just now [Refine](#)

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

Information

Data asset

insurance.csv

Description

No description available for this asset

Tags

No tags available for this asset

Creator

Sachin K S

Usage

Created on Apr 28, 2022, 10:58 PM

Size

55.628 KB

Projects / Medical Premium charges / insurance.csv / Refine data

Steps (1)

Data Source: insurance.csv

1. Convert column type

Automatically converted one or more columns to inferred data types. Strings that are converted to decimal use a dot (.) for the decimal symbol.

Auto-generated

New step

Use a code template to add a step

	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

SOURCE FILE: insurance.csv FULL DATA SET: 1338 rows

Information

Details Help

Edit

LOCATION

Medical Premium charges

DATA REFINERY FLOW NAME

insurance.csv\_flow

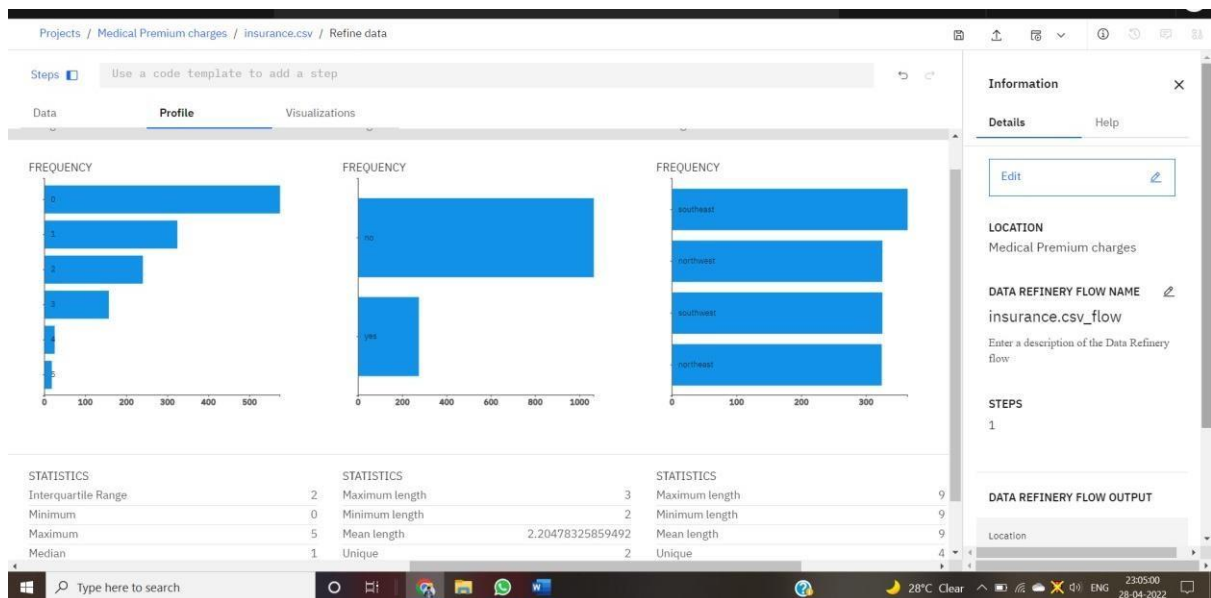
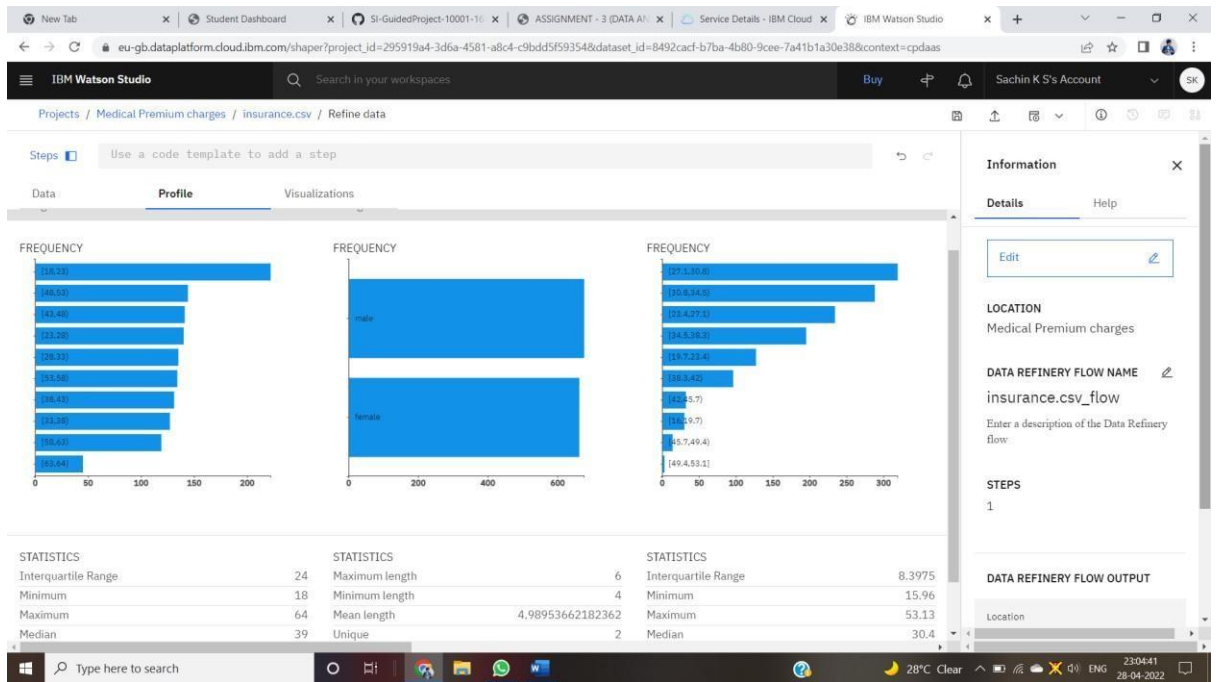
Enter a description of the Data Refinery flow

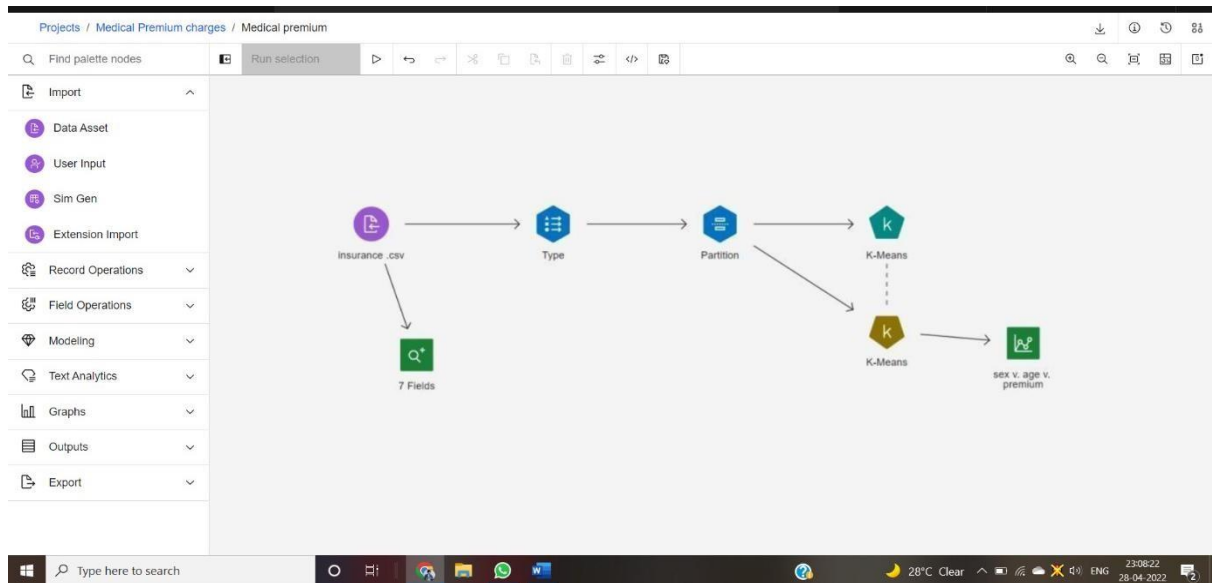
STEPS

1

DATA REFINERY FLOW OUTPUT

Location







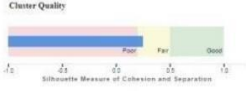
### View Output: Data Audit of [7 fields]

	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

K-Means Clustering Model	Cluster Quality
EVALUATION	
Cluster Quality	
MODEL VIEWER	
Model Information	
Feature Importance	
Cluster Score	
Cluster Comparison	
Clusters	
Cell Distributions (Absolute)	
Cell Distributions (Relative)	
Build Settings	
Training Summary	
Cluster Quality Parameters	
Overall Clustering Quality (Avg. Silhouette)	0.249
Total Within Clusters Sum of Squares	0.132
Average Within Cluster Sum of Squares	0.026
Average Silhouette (Between all)	0.075

## View Model: K-Means



K-Means Clustering Model

EVALUATION

Cluster Quality

MODEL VIEWER

Model Information

Feature Importance

Cluster Sizes

Cluster Comparisons

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	389 (39.53%)
	Cluster 3	112 (12.68%)
	Cluster 4	196 (20.41%)
	Cluster 5	186 (19.33%)
Ratio of sizes (Largest to smallest)		4.583

## View Model: K-Means



K-Means Clustering Model

EVALUATION

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Cell Distributions (Relative)

Build Settings

Training Summary

Feature Importance

Feature	Importance
year	1.00
price	1.00
prepared	6.98
region	3.37
size	0.01
price	0.00

## View Model: K-Means



K-Means Clustering Model

EVALUATION

Cluster Quality

MODEL VIEWER

Model Information

Feature Importance

Cluster Sizes

Cluster Comparisons

Clusters

Cell Distributions (Absolute)

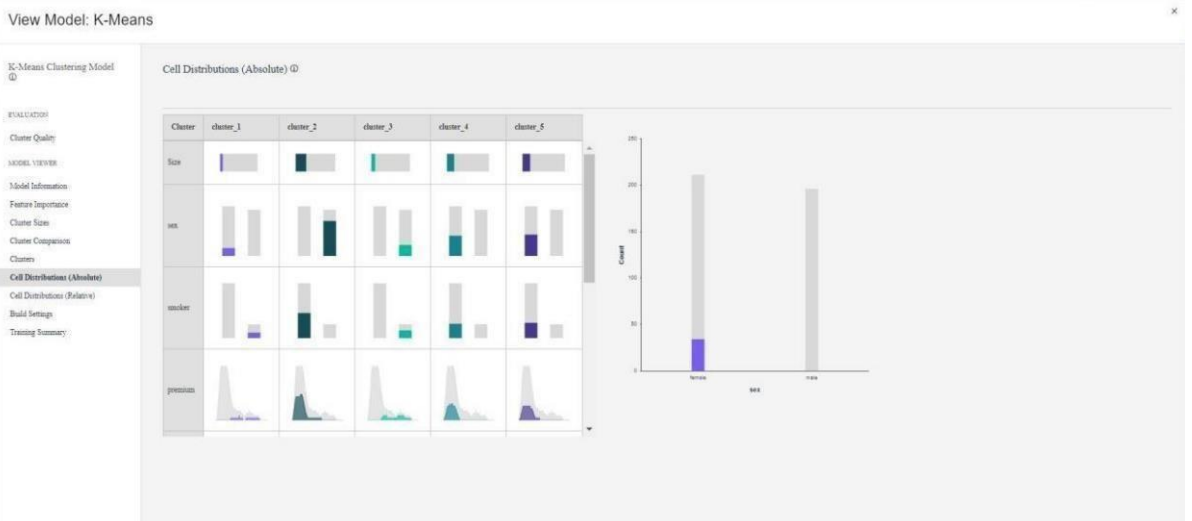
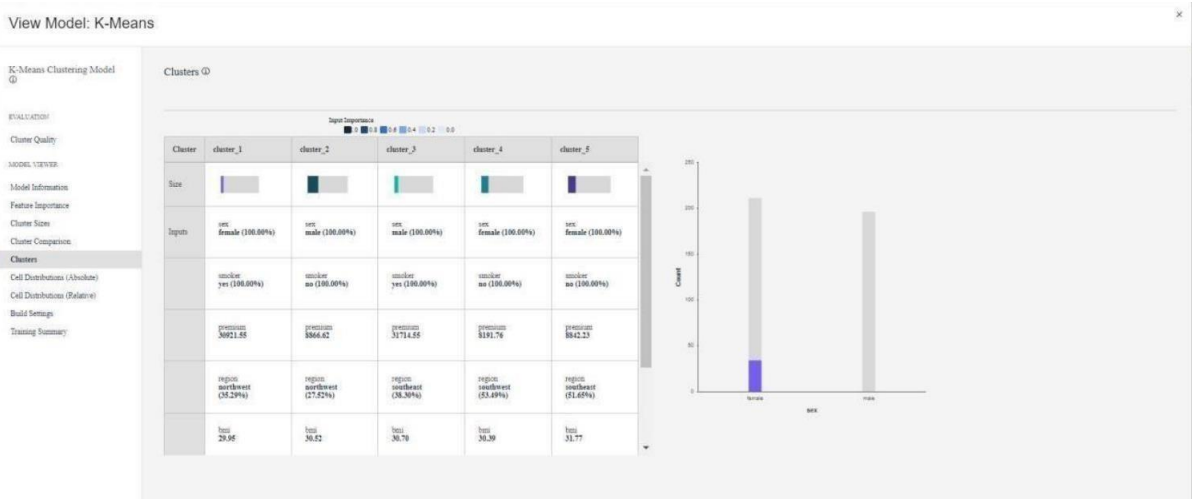
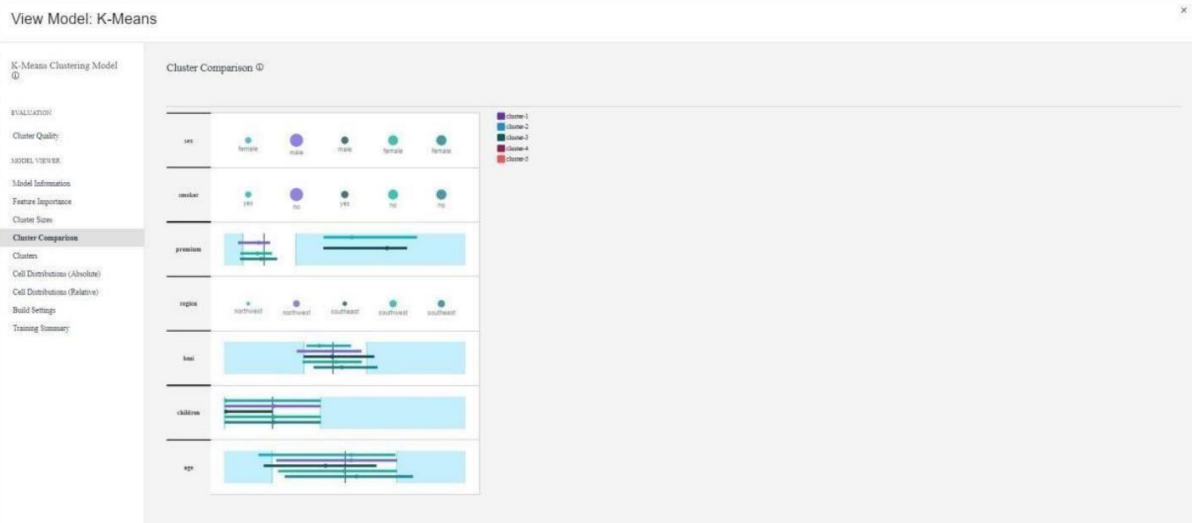
Cell Distributions (Relative)

Build Settings

Training Summary

Cluster Sizes

Cluster	Count	Percentage
1	81	8.7%
2	389	39.53%
3	112	12.68%
4	196	20.41%
5	186	19.33%



## View Model: K-Means

X

K-Means Clustering Model

EVALUATION

Cluster Quality

MODEL VIEWER

Model Information

Feature Importance

Cluster Sizes

Cluster Comparisons

Clusters

Cell Distributions (Absolute)

Cell Distributions (Relative)

Build Settings

Training Summary

Cell Distributions (Relative) @

