

Project Development Phase

Project Development - Delivery of Sprint-1

Date	10 November 2022
Team ID	PNT2022TMID27276
Project Name	Project – Analytics for Hospitals' Health- Care Data

Task 3: Data Preparation (Data Module) and Exploratory Data Analysis

Data Preparation

Step 1: Adding Data Source

The screenshot displays the IBM Cognos Analytics web application interface. A modal dialog titled "Add a data source to explore" is open, showing a list of available data sources. The dialog has two tabs: "My content" and "Team content". The "My content" tab is active, displaying a table of data sources. The table has three columns: "Name", "Type", and "Last Accessed". The data sources listed include folders like "Assignment 1", "Assignment 2", and "Hospitals' Health-Care Data", as well as various CSV and XLSX files such as "50_Startups.csv", "Olympic Events.xlsx", "Olympic Medals.xlsx", "Pharma data module", "Pharma_Monthly_Sales data module", "Pharma_Monthly_Sales.csv", "sales.csv", "test_data.csv", and "train_data.csv". The "test_data.csv" file is highlighted. The dialog also includes a "Cancel" button and an "Add" button. In the background, the main interface shows the "Data Exploration" view with a search bar, a sidebar with "Assistant" and "test_data.csv", and a main area with "Fields" and "No visualization created" message. The bottom of the screen shows a Windows taskbar with various application icons and system information like "28°C" and "18:10 02-11-2022".

Name	Type	Last Accessed
Assignment 1	Folder	9/14/2022, 9:44 AM
Assignment 2	Folder	9/27/2022, 1:10 AM
Hospitals' Health-Care Data	Folder	11/2/2022, 7:04 AM
50_Startups.csv	Uploaded file	9/13/2022, 10:54 AM
Olympic Events.xlsx	Uploaded file	9/6/2022, 5:09 AM
Olympic Medals.xlsx	Uploaded file	9/6/2022, 5:10 AM
Pharma data module	Data module	10/1/2022, 7:06 AM
Pharma_Monthly_Sales data module	Data module	10/1/2022, 7:48 AM
Pharma_Monthly_Sales.csv	Uploaded file	9/25/2022, 6:35 AM
sales.csv	Uploaded file	9/6/2022, 4:41 AM
test_data.csv	Uploaded file	11/2/2022, 6:07 AM
train_data.csv	Uploaded file	11/2/2022, 2:26 AM

Step 2: Create a View of Table

IBM Cognos Analytics with Watson | * New data module | Metadata Modeling Guidelines

https://us3.ca.analytics.ibm.com/bi/?perspective=ca-modeller&id=2818311301_255c651e5fac422fa2041876bc3f20e4_sessionTemp&objRe...

Sign in

Properties

Create a view of a table

New table name: Test Data - View (1)

Select items

Find

Test Data

Invert Clear all

(17) columns selected.

Previous Cancel Finish

Hospital Region Code	Available ...n Hospital	Department	Ward Type	Ward Facility Code	Bed Grade
Z	3	gynecology	S	A	2
X	2	gynecology	S	F	2
Y	3	gynecology	Q	D	4
X	3	gynecology	Q	F	2
X	2	gynecology	R	F	2
X	3	gynecology	Q	F	2
Y	2	gynecology	Q	D	2
X	4	gynecology	S	E	3
X	4	gynecology	Q	F	3
X	3	gynecology	Q	F	4
X	4	gynecology	Q	E	2
X	3	gynecology	R	F	3

IBM Cognos Analytics with Watson | * New data module | Metadata Modeling Guidelines

https://us3.ca.analytics.ibm.com/bi/?perspective=ca-modeller&id=2818311301_255c651e5fac422fa2041876bc3f20e4_sessionTemp&objRe...

Sign in

Properties

Create a view of a table

New table name: Test Data - View (1)

Select items

Find

Test Data

Invert Clear all

(17) columns selected.

Previous Cancel Finish

Case Id	Hospital Code	Hospital Type Code	City Code Hospital	Hospital Region Code	Available ...n Hospital	Department
318439	21	c	3	Z	3	
318440	29	a	4	X	2	
318441	26	b	2	Y	3	
318442	6	a	6	X	3	
318443	28	b	11	X	2	
318444	23	a	6	X	3	
318445	26	b	2	Y	2	
318446	25	e	1	X	4	
318447	23	a	6	X	4	
318448	23	a	6	X	3	
318449	10	e	1	X	4	
318450	4	a	4	X	3	

New data module

Metadata Modeling Guidelines

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https://us3.ca.analytics.ibm.com/bi/?perspective=ca-modeller&id=2818311301_255c651e5fac422fa2041876bc3f20e4_sessionTemp&objRe...

Sign in

IBM Cognos Analytics with Watson

New data module

Search content

Properties

Data module

Search

New data module

Navigation

Test Data

Train Data

Train Data

Case Id

Hospita

Hospita

City Cos

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Departm

Ward Ty

Ward Pa

Bed Gra

Patients

City Cos

Type Of

Severit

Visitors

Age

Admission Flannsit

Create a view of a table

New table name: Test Data - View (1)

Select items

Find

Test Data

Invert

Clear all

(17) columns selected.

Previous

Cancel

Finish

City Code Patient	Type Of Admission	Severity Of Illness	Visitors With Patient	Age	Admission Deposit
2	Emergency	Moderate	2	71-80	3096
2	Trauma	Moderate	4	71-80	4018
2	Emergency	Moderate	3	71-80	4492
2	Trauma	Moderate	3	71-80	4173
2	Trauma	Moderate	4	71-80	4161
2	Trauma	Moderate	2	71-80	4659
2	Trauma	Moderate	2	71-80	4167
Null	Emergency	Moderate	2	31-40	4396
Null	Trauma	Moderate	2	31-40	4088
Null	Urgent	Moderate	2	31-40	3925
Null	Trauma	Moderate	2	31-40	4241
Null	Emergency	Moderate	6	31-40	3468

Type here to search

27°C

21:52

09-11-2022

Step 3: Created new Data Module

IBM Cognos Analytics with Watson | Data Preparation

https://us3.ca.analytics.ibm.com/bi/?perspective=ca-modeller&id=iE8D17F9A43AF44DB8A2B2F84FBEC04D5&objRef=iE8D17F9A43AF...

Not syncing

Search content

Properties

Data module

Grid Relationships Custom tables

Search

Data Preparation

Navigation paths

test_data.csv

Row Id

case_id

Hospital_code

Hospital_type_code

City_Code_Hospital

Hospital_region_code

Available E...in Hospital

Department

Ward_Type

Ward_Facility_Cod

Bed Grade

patientid

City_Code_Patient

Type of Admission

Severity of Illness

Visitors with Patient

Age

Admission_Deposit

Row Id	case_id	Hospital_code	Hospital_type_code	City_Code_Hospital	Hospital_region_code	Available E...in Hospital	Department	Ward_Type	Ward_Facility_Cod
1	318439	21	c	3	Z	3	gynecology	S	A
2	318440	29	a	4	X	2	gynecology	S	F
3	318441	26	b	2	Y	3	gynecology	Q	D
4	318442	6	a	6	X	3	gynecology	Q	F
5	318443	28	b	11	X	2	gynecology	R	F
6	318444	23	a	6	X	3	gynecology	Q	F
7	318445	26	b	2	Y	2	gynecology	Q	D
8	318446	28	e	1	X	4	gynecology	S	E
9	318447	23	a	6	X	4	gynecology	Q	F
10	318448	23	a	6	X	3	gynecology	Q	F
11	318449	10	e	1	X	4	gynecology	Q	E
12	318450	4	a	4	X	3	gynecology	R	F
13	318451	16	c	3	Z	4	gynecology	R	A
14	318452	28	b	11	X	3	gynecology	R	F
15	318453	19	a	7	Y	1	gynecology	S	C
16	318454	26	b	2	Y	5	gynecology	S	D
17	318455	19	a	7	Y	2	gynecology	S	C
18	318456	26	b	2	Y	3	gynecology	P	D
19	318457	23	a	6	X	4	anesthesia	Q	F

Type here to search

28°C

ENG

17:35

02-11-2022

IBM Cognos Analytics with Watson | Data Preparation

https://us3.ca.analytics.ibm.com/bi/?perspective=ca-modeller&id=iE8D17F9A43AF44DB8A2B2F84FBEC04D5&objRef=iE8D17F9A43AF...

Not syncing

Search content

Properties

Data module

Grid Relationships Custom tables

Search

Data Preparation

Navigation paths

test_data.csv

Row Id

case_id

Hospital_code

Hospital_type_code

City_Code_Hospital

Hospital_region_code

Available E...in Hospital

Department

Ward_Type

Ward_Facility_Code

Bed Grade

patientid

City_Code_Patient

Type of Admission

Severity of Illness

Visitors with Patient

Age

Admission_Deposit

Row Id	case_id	Hospital_code	Hospital_type_code	City_Code_Hospital	Hospital_region_code	Available E...in Hospital	Department	Ward_Type	Ward_Facility_Code	Bed Grade	patientid	City_Code_Patient	Type of Admission	Severity of Illness	Visitors with Patient	Age	Admission_Deposit
1	60879	10	Emergency	Minor	4	61-70	4878										
2	60879	10	Trauma	Minor	4	61-70	4349										
3	60879	10	Trauma	Minor	3	61-70	5345										
4	60879	10	Trauma	Minor	3	61-70	4544										
5	60879	10	Trauma	Minor	2	61-70	4839										
6	60879	10	Trauma	Minor	2	61-70	4198										
7	60879	10	Trauma	Minor	4	61-70	4515										
8	88846	4	Trauma	Extreme	2	31-40	5314										
9	88846	4	Trauma	Extreme	4	31-40	4526										
10	88846	4	Emergency	Extreme	3	31-40	4480										
11	21991	4	Trauma	Moderate	2	41-50	6447										
12	21991	4	Trauma	Moderate	4	41-50	3901										
13	21991	4	Trauma	Moderate	4	41-50	6152										
14	21991	4	Trauma	Moderate	2	41-50	6125										
15	21991	4	Trauma	Moderate	2	41-50	5909										
16	90788	8	Trauma	Extreme	4	41-50	4718										
17	90788	8	Trauma	Extreme	4	41-50	4256										
18	90788	8	Trauma	Extreme	4	41-50	4564										
19	90788	8	Emergency	Extreme	4	41-50	3797										

Type here to search

28°C

ENG

17:46

02-11-2022

IBM Cognos Analytics with Watson | Data Preparation

Search content

Not syncing

Data module

Search

Data Preparation

Navigation paths

test_data.csv

Row Id

case_id

Hospital_code

Hospital_type_code

City_Code_Hospital

Hospital_region_code

Available E...n Hospital

Department

Ward_Type

Ward_Facility_Code

Bed Grade

patientid

City_Code_Patient

Type of Admission

Severity of Illness

Visitors with Patient

Age

Admission_Deposit

Row Id	case_id	Hospital_code	Hospital_type_code	City_Code_Hospital	Hospital_region_code	Available E...n Hospital	Department	Ward_Type	Ward_Facility_Cod
12482	330920	23	a	6	X	4	gynecology	Q	F
12483	330921	5	a	1	X	4	gynecology	Q	E
12484	330922	24	a	1	X	3	gynecology	R	E
12485	330923	31	c	3	Z	3	gynecology	R	A
12486	330924	9	d	5	Z	2	TB & Chest disease	Q	F
12487	330925	28	b	11	X	2	gynecology	R	F
12488	330926	23	a	6	X	4	TB & Chest disease	Q	F
12489	330927	32	f	9	Y	2	gynecology	S	B
12490	330928	26	b	2	Y	4	gynecology	R	D
12491	330929	11	b	2	Y	4	gynecology	Q	D
12492	330930	32	f	9	Y	4	radiotherapy	S	B
12493	330931	9	d	5	Z	4	radiotherapy	S	F
12494	330932	21	c	3	Z	4	radiotherapy	S	A
12495	330933	13	a	5	Z	2	radiotherapy	R	F
12496	330934	9	d	5	Z	2	radiotherapy	R	F
12497	330935	15	c	5	Z	2	gynecology	S	F
12498	330936	2	c	5	Z	2	gynecology	S	F
12499	330937	29	a	4	X	2	gynecology	S	F
12500	330938	19	a	7	Y	2	gynecology	S	C

Type here to search

28°C

17:46

02-11-2022

IBM Cognos Analytics with Watson

Data Preparation

Search content

Not syncing

Data module

Search

Data Preparation

Navigation paths

test_data.csv

Row Id

case_id

Hospital_code

Hospital_type_code

City_Code_Hospital

Hospital_region_code

Available ...n Hospital

Department

Ward_Type

Ward_Facility_Code

Bed Grade

patientid

City_Code_Patient

Type of Admission

Severity of Illness

Visitors with Patient

Age

Admission_Deposit

Grid

Relationships

Custom tables

Row Id	Ward_Facility_Code	Bed Grade	patientid	City_Code_Patient	Type of Admission	Severity of Illness	Visitors with Patient	Age	Admission_Deposit
A	2	17006	2	Emergency	Moderate	2	71-80	3096	
F	2	17006	2	Trauma	Moderate	4	71-80	4018	
D	4	17006	2	Emergency	Moderate	3	71-80	4492	
F	2	17006	2	Trauma	Moderate	3	71-80	4173	
F	2	17006	2	Trauma	Moderate	4	71-80	4161	
F	2	17006	2	Trauma	Moderate	2	71-80	4699	
D	2	17006	2	Trauma	Moderate	2	71-80	4167	
E	3	98946	Null	Emergency	Moderate	2	31-40	4396	
F	3	98946	Null	Trauma	Moderate	2	31-40	4088	
F	4	98946	Null	Urgent	Moderate	2	31-40	3928	
E	2	98946	Null	Trauma	Moderate	2	31-40	4241	
F	3	98946	Null	Emergency	Moderate	6	31-40	3468	
A	3	98946	Null	Trauma	Moderate	3	31-40	4322	
F	4	98946	Null	Urgent	Moderate	2	31-40	4315	
C	2	40728	8	Emergency	Moderate	4	51-60	3288	
D	4	40728	8	Emergency	Moderate	4	51-60	6818	
C	4	40728	8	Emergency	Moderate	2	51-60	3410	
D	4	40728	8	Trauma	Moderate	6	51-60	4782	
F	2	40728	8	Emergency	Moderate	4	51-60	5387	

Type here to search

28°C

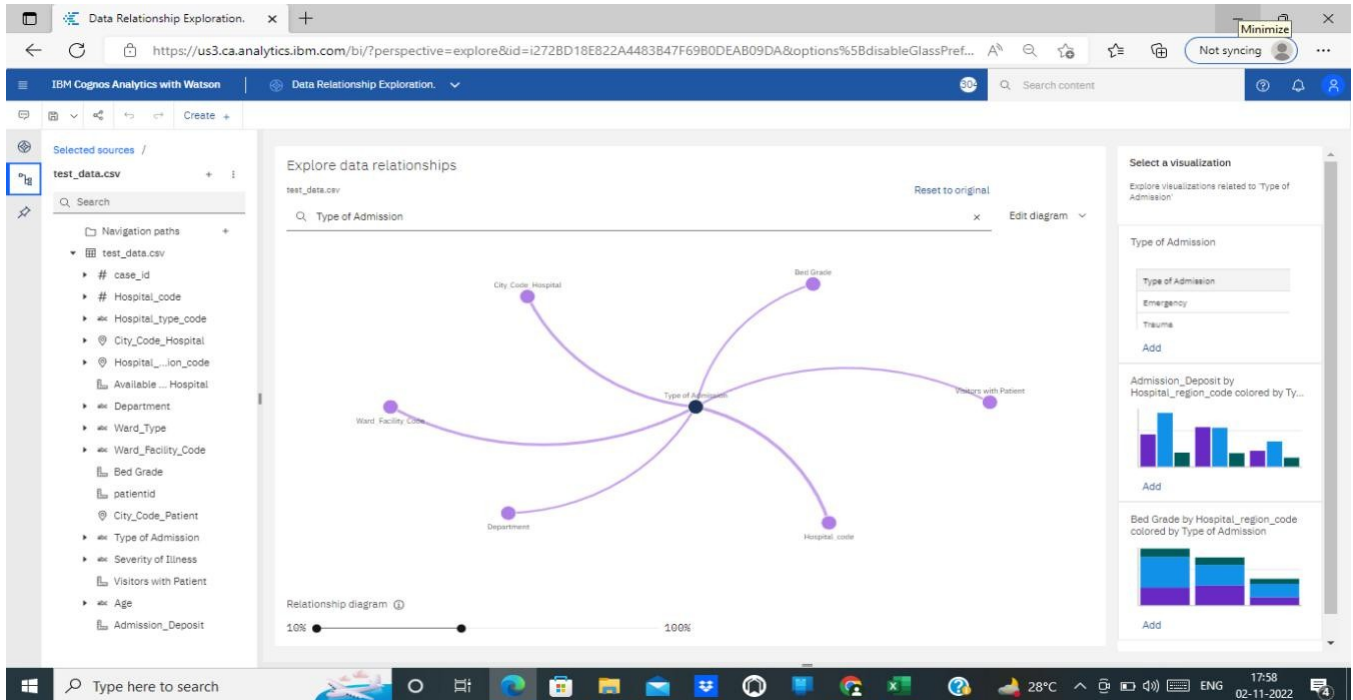
17:35

02-11-2022

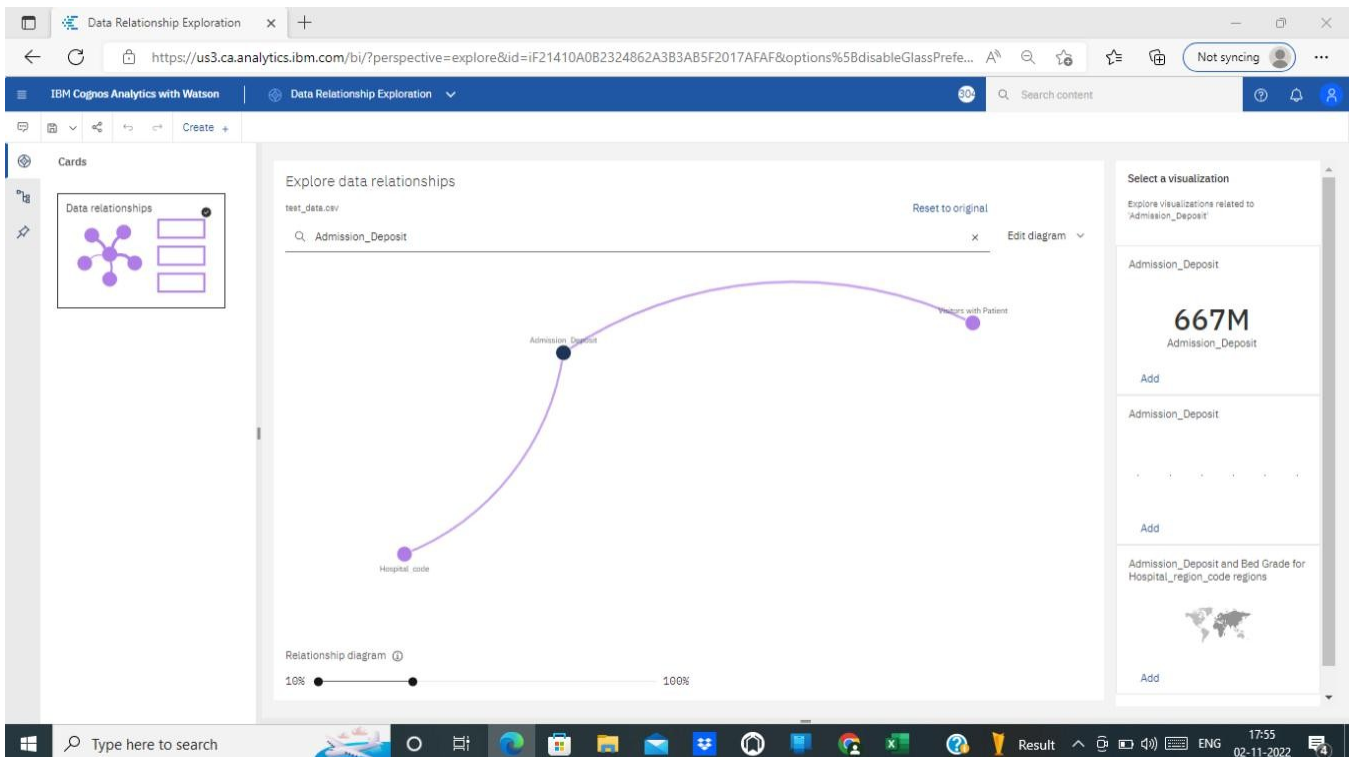
Data Relationship Exploration

Step 4: Explore Data Relationship

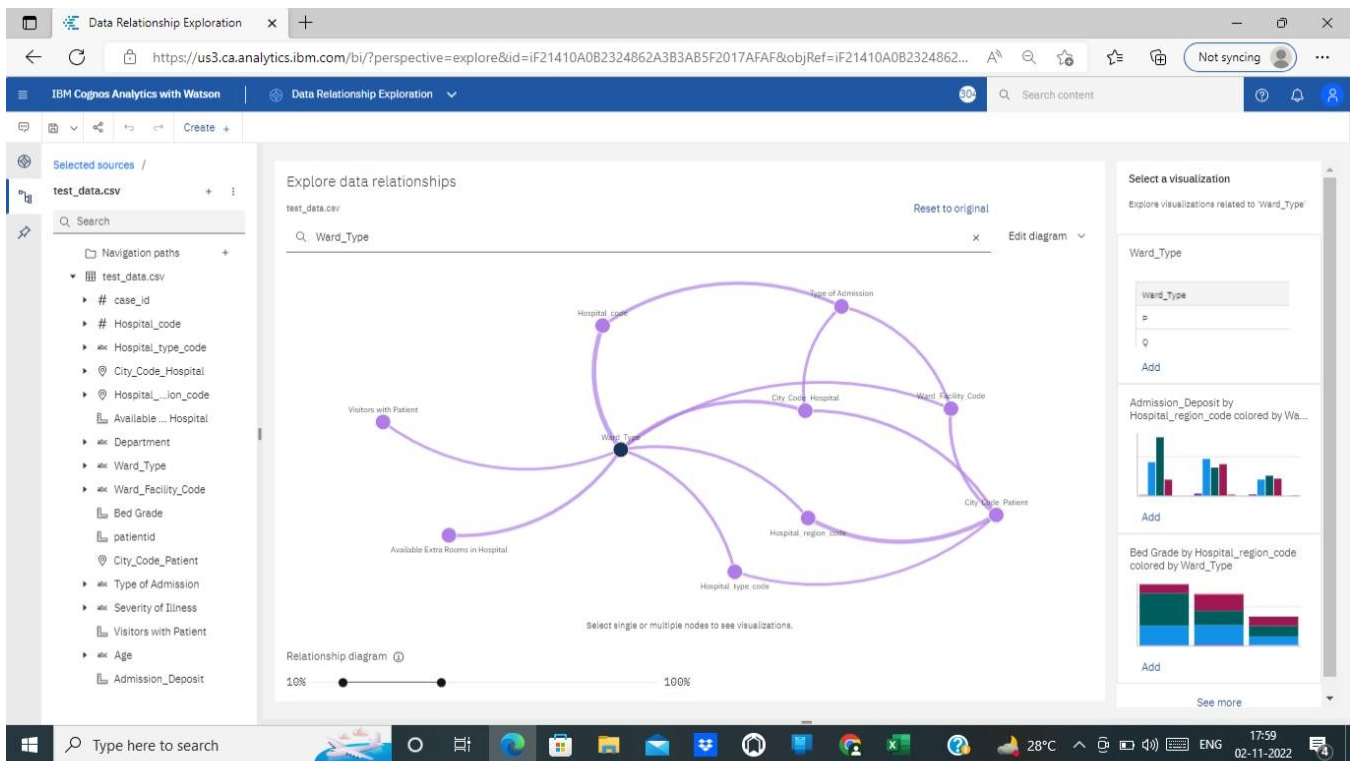
1. Type of Admission



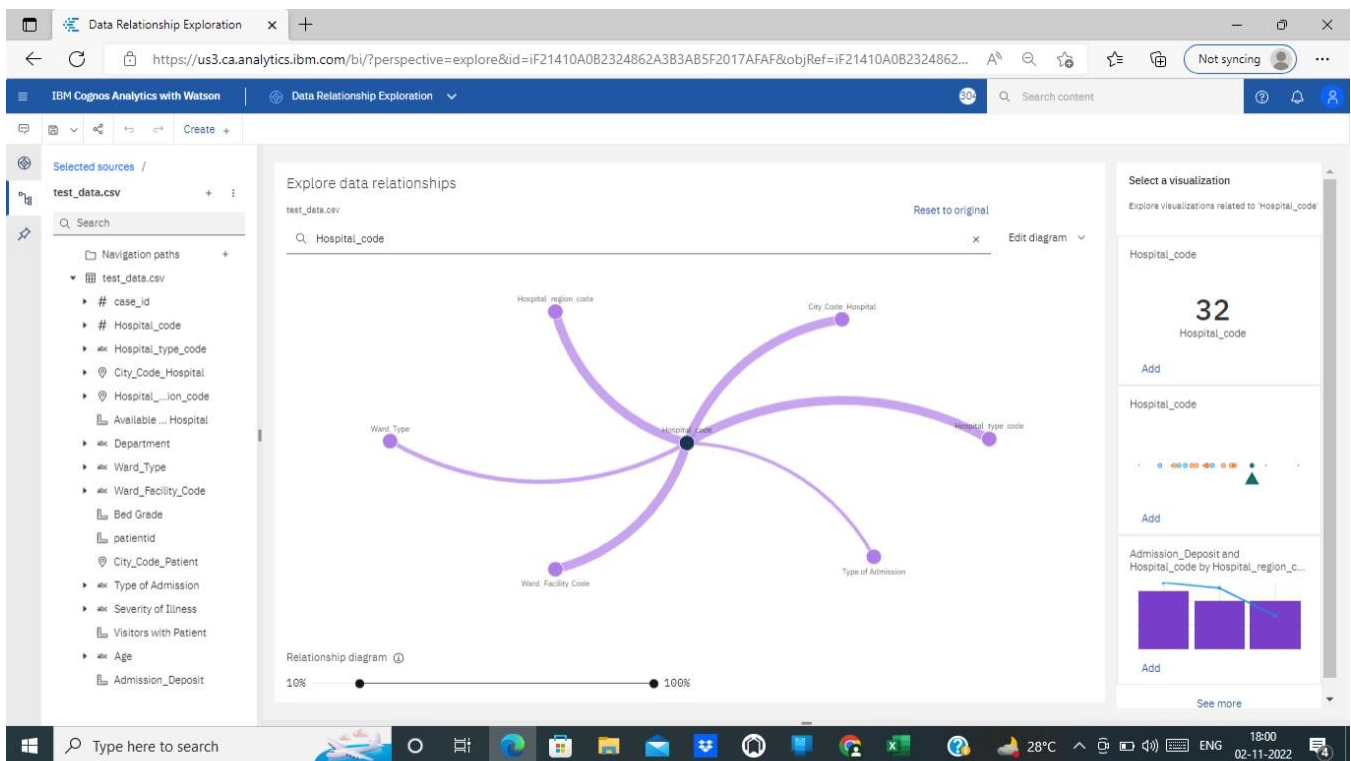
2. Admission_Deposit

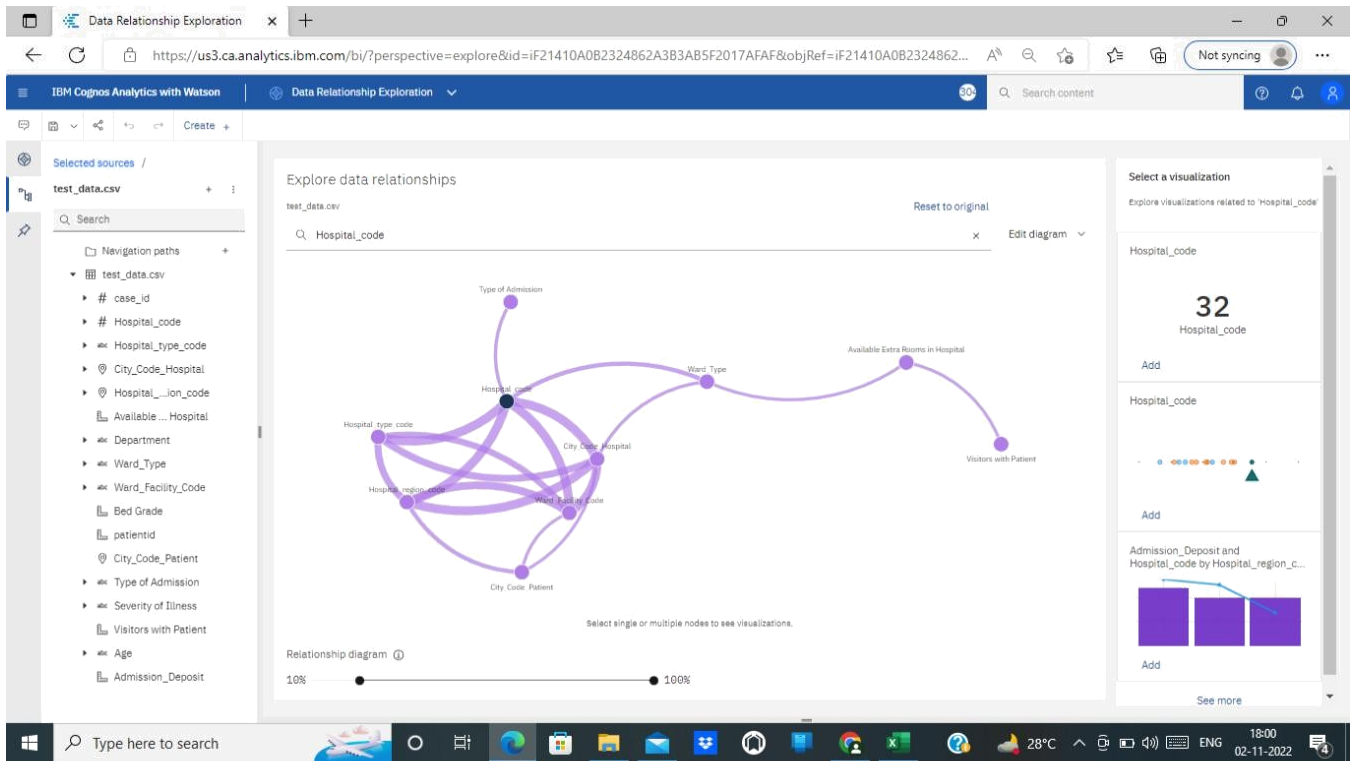


3. Ward_Type

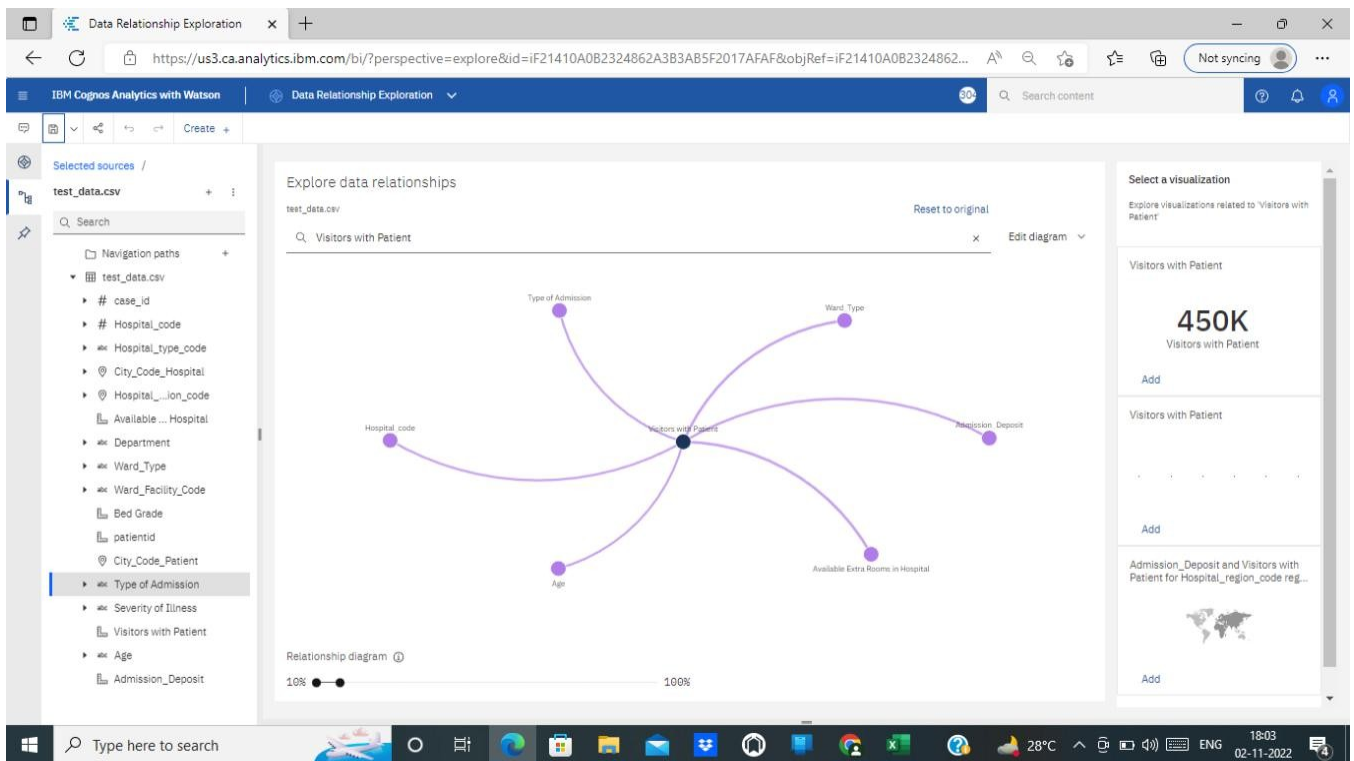


4. Hospital_Code

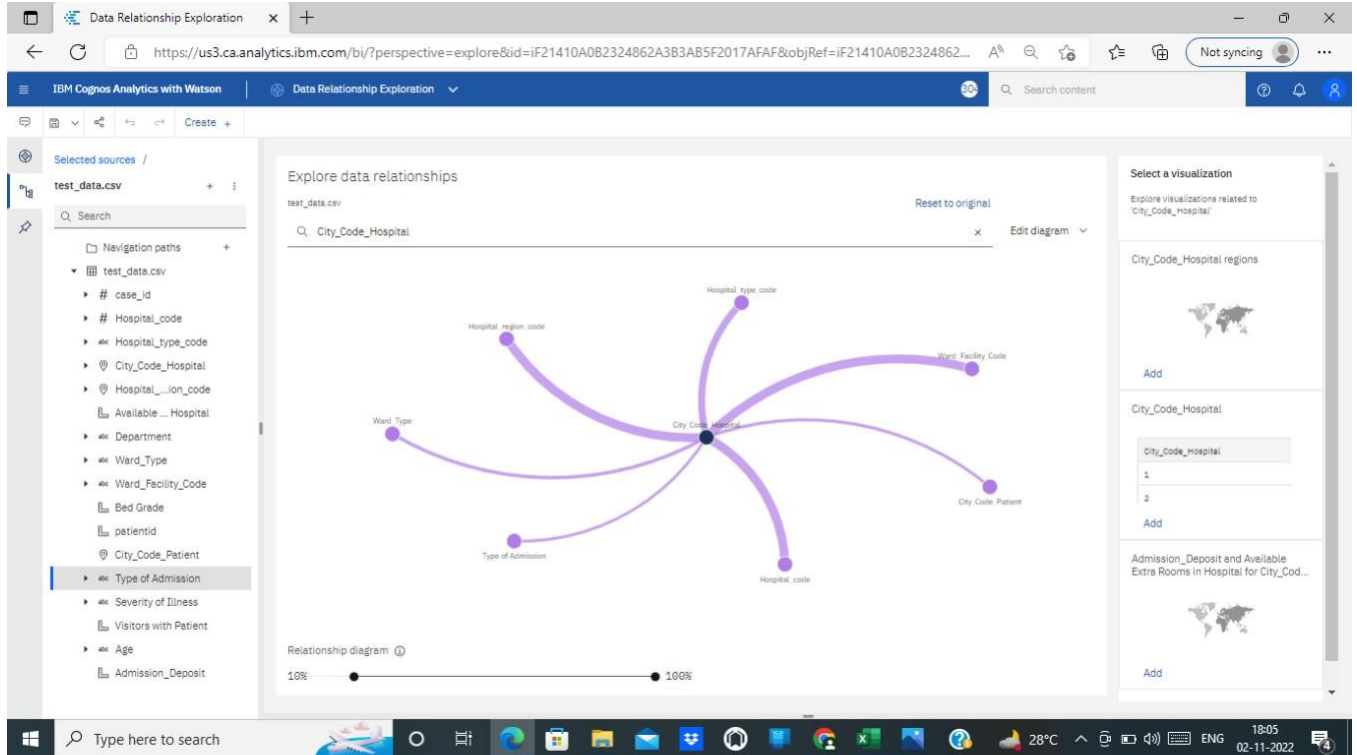




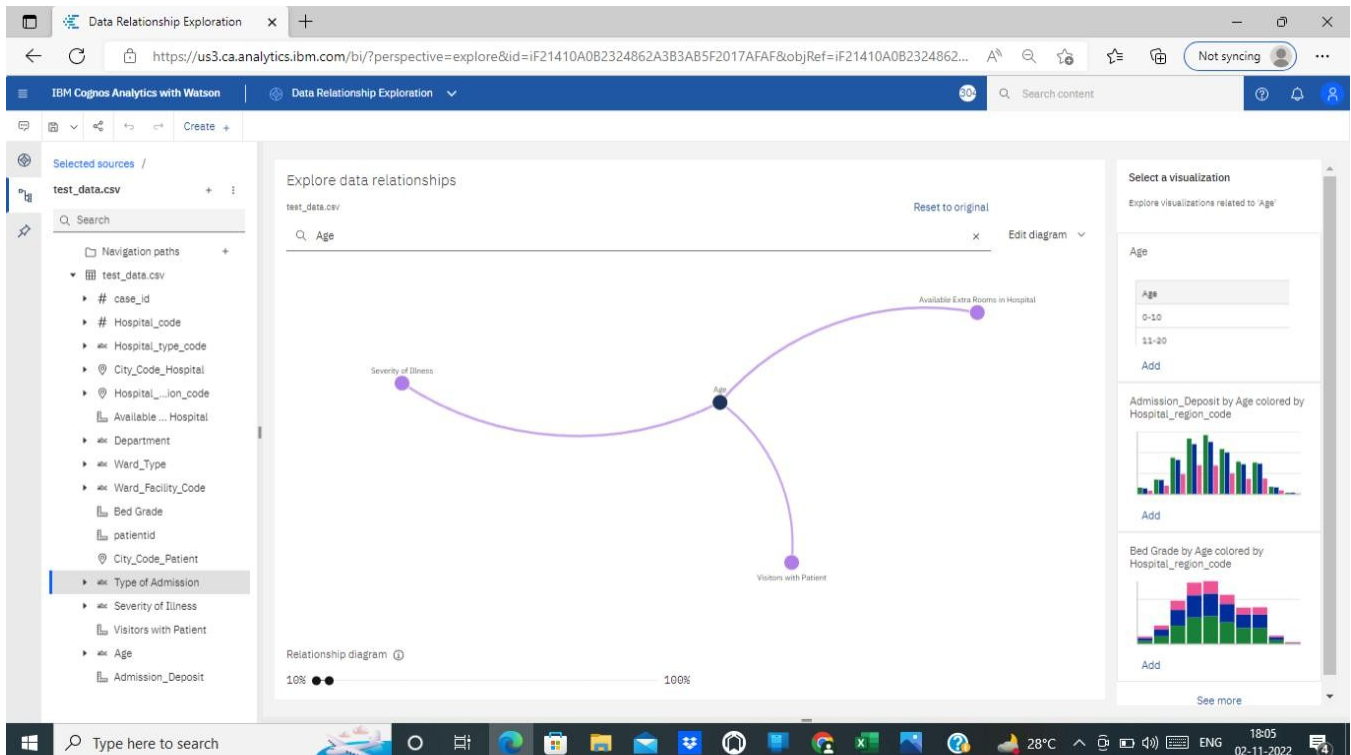
5. Visitor with Patient



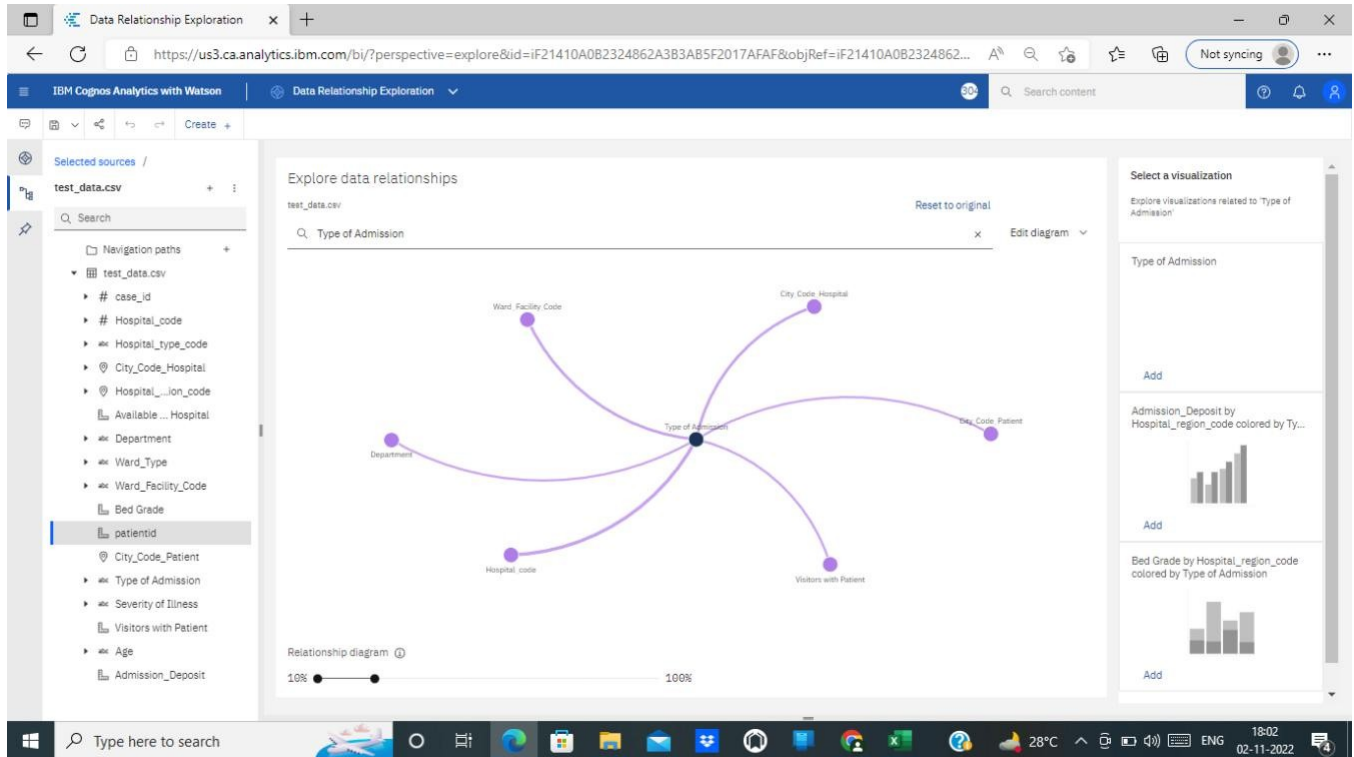
6. City_Code_Hospital



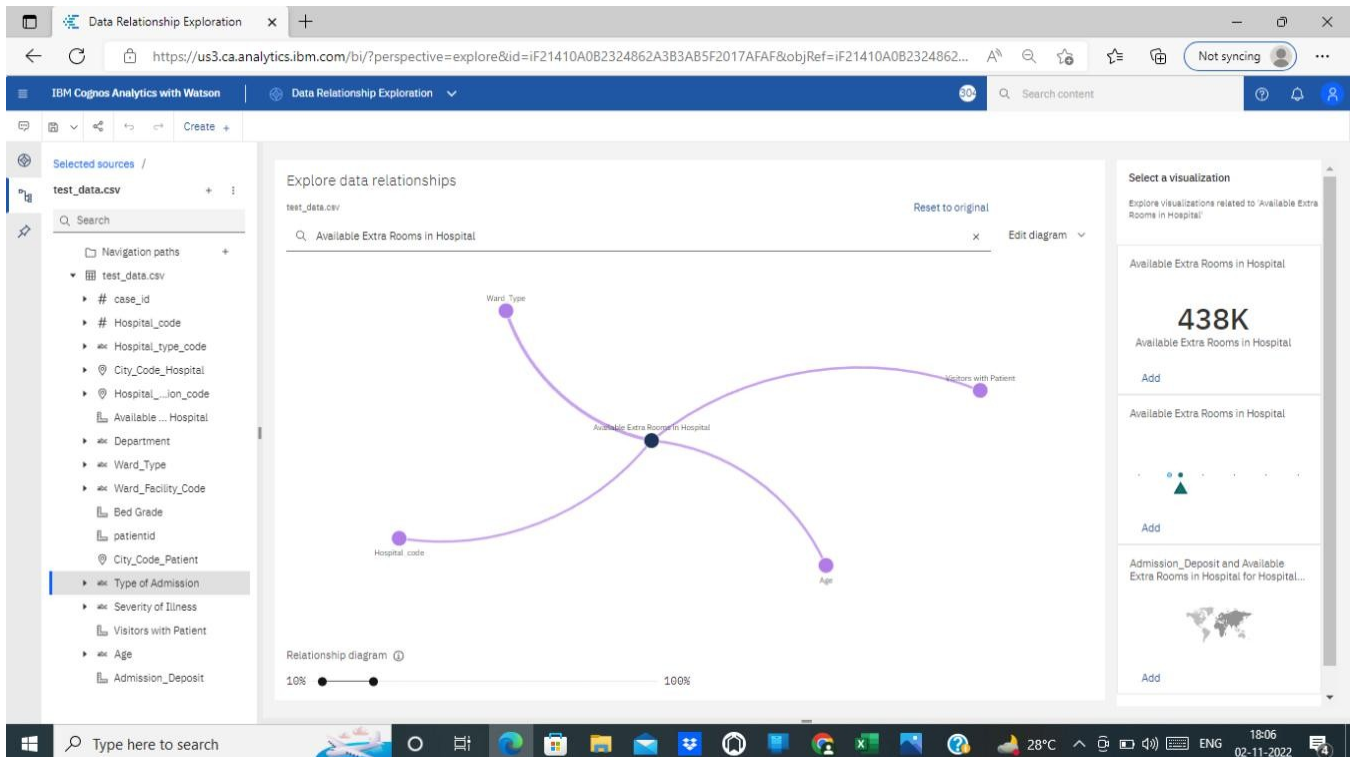
7. Age



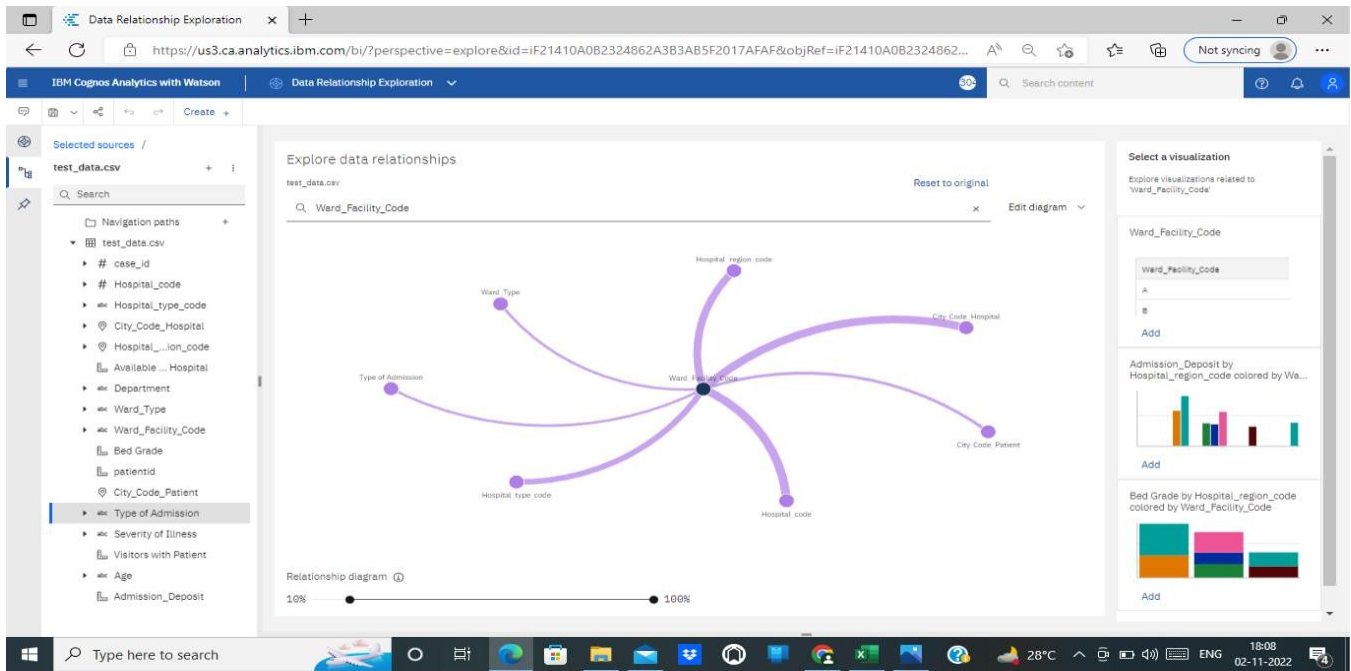
8. Type of Admission



9. Available Extra Rooms in Hospital



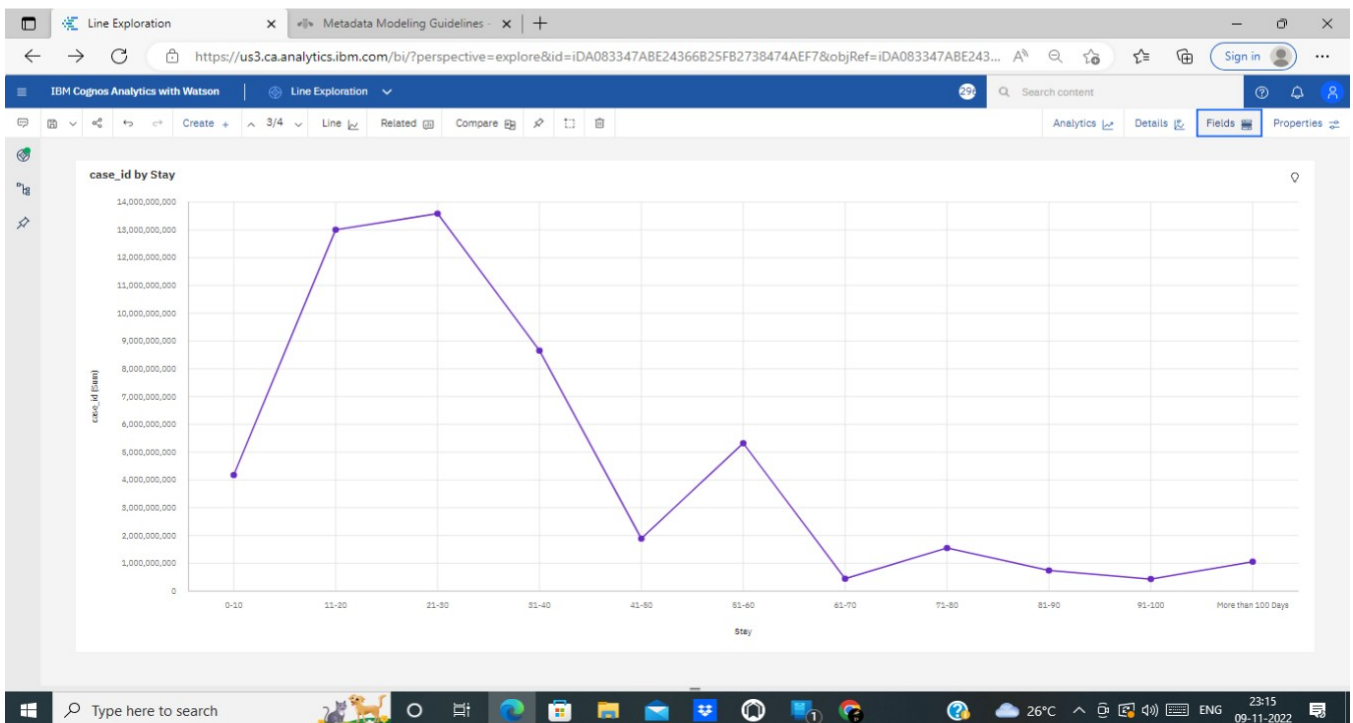
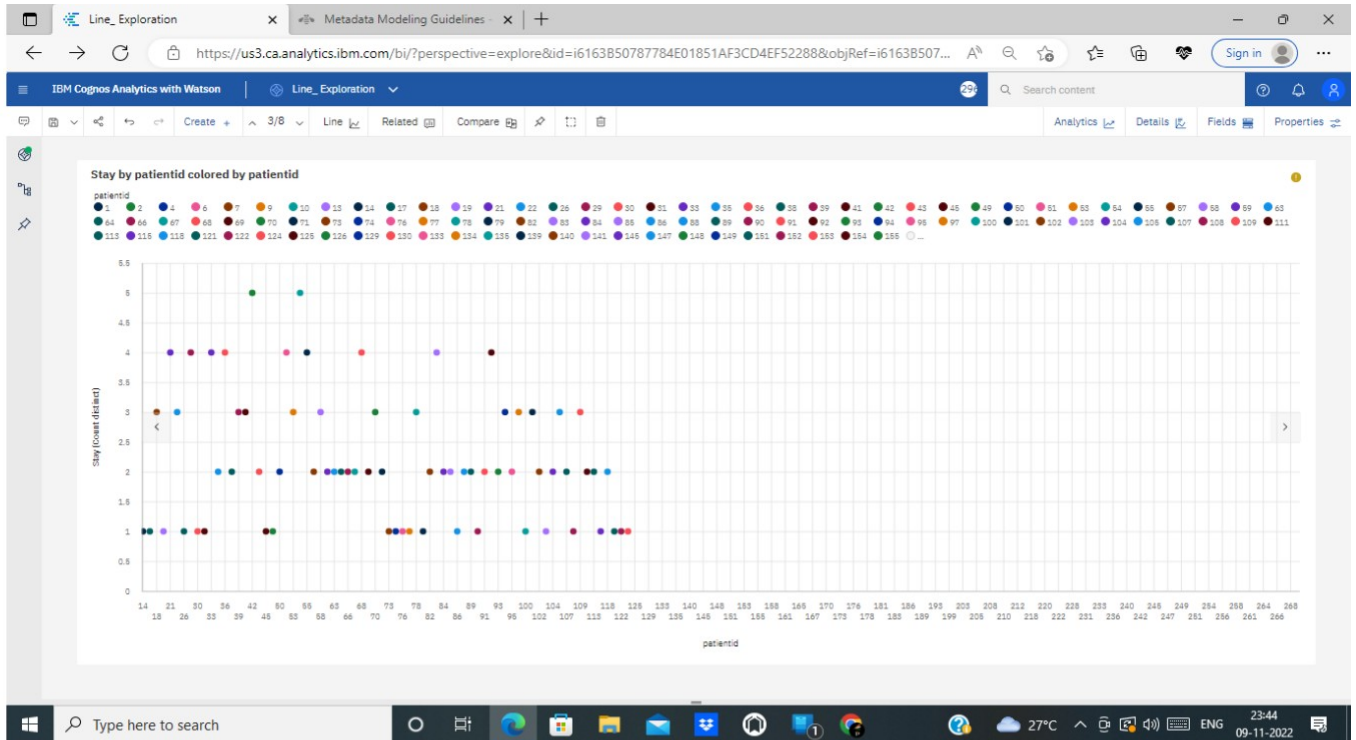
10. Ward_Facility_Code



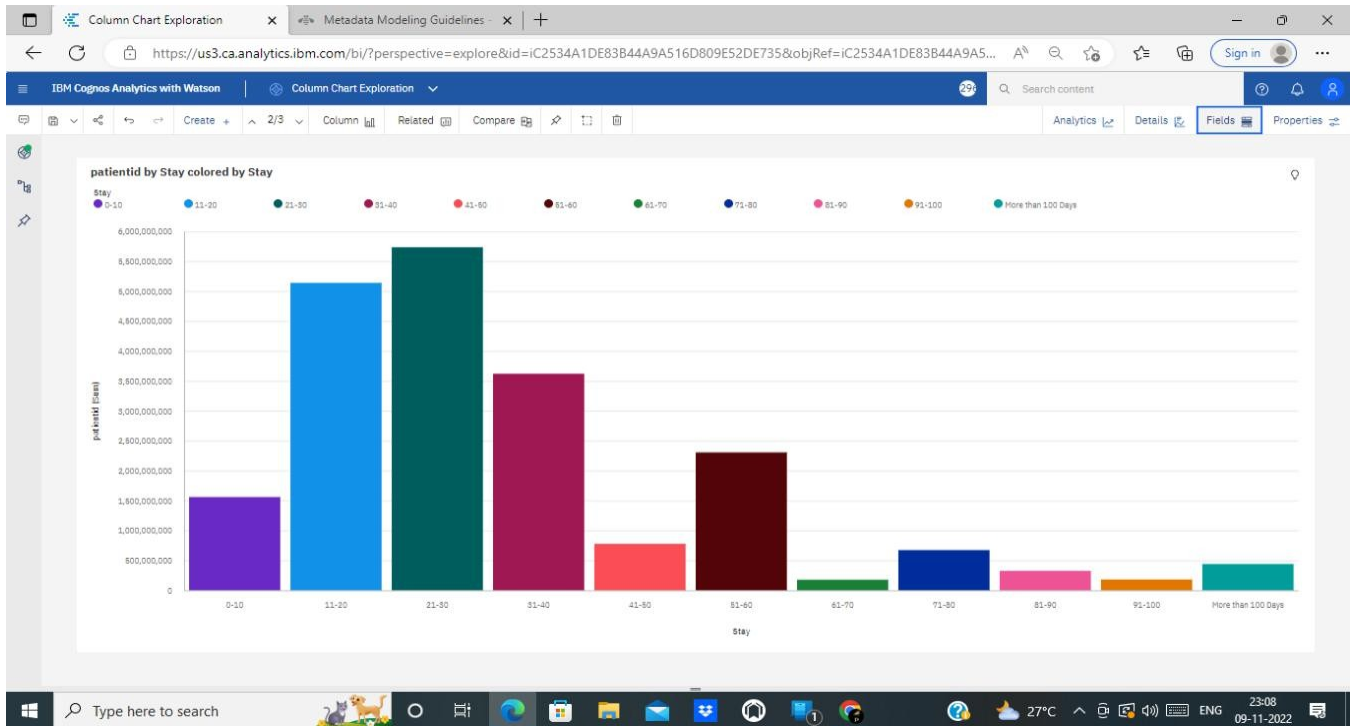
Exploratory Data Analysis

Step 5: Data Exploration

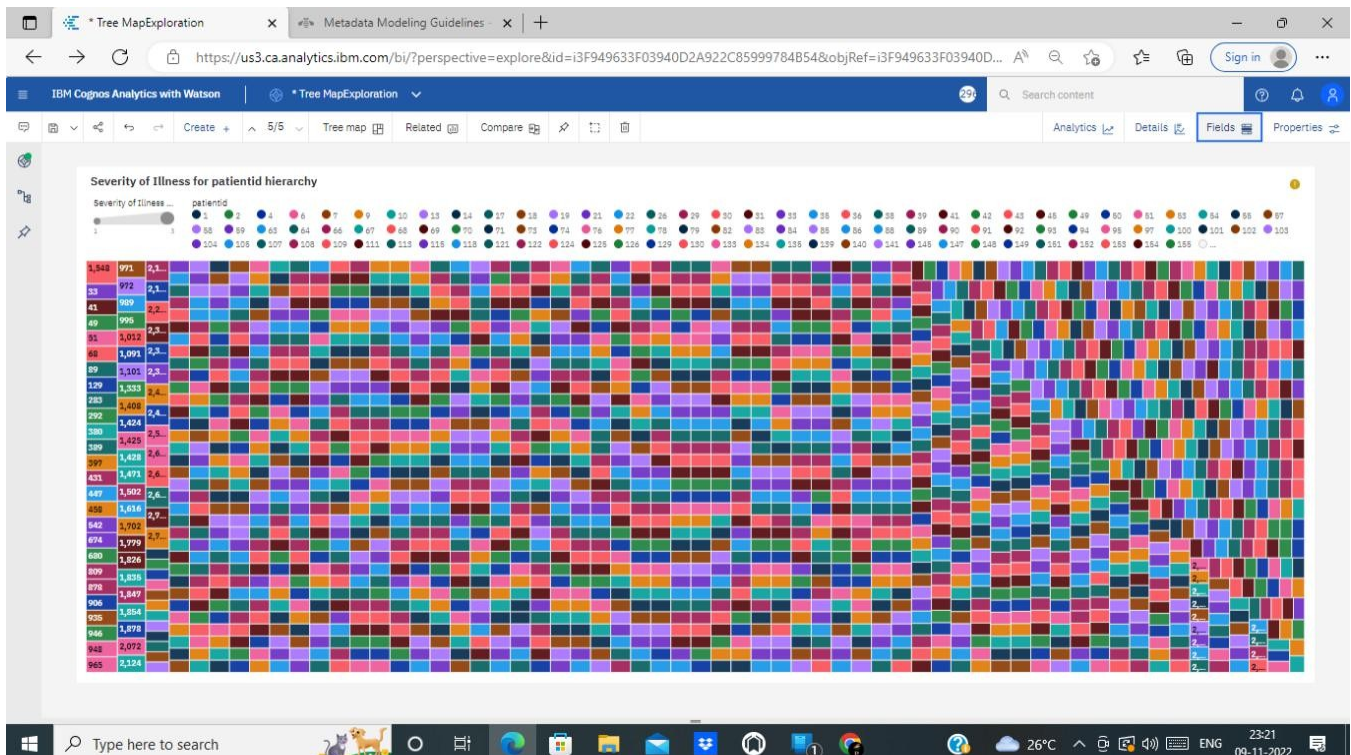
1. Length of Stay for Each case of Patient



2. Stay of Patient ID using Column Chart



3. Severity of Illness by Patient ID using Tree Map



4. Age, Department wise Patient using Table

Table Exploration interface showing a table titled "Age, Department and patientid". The table displays patient counts by age group and department. The 'Fields' tab is selected in the top right.

Age	Department	patientid
0-10	TB & Chest disease	23,680,982
	anesthesia	30,694,534
	gynecology	284,678,432
	radiotherapy	64,116,014
	surgery	6,617,214
Summary		409,787,176
11-20	TB & Chest disease	48,330,331
	anesthesia	83,063,011
	gynecology	888,899,345
	radiotherapy	110,385,216
	surgery	2,327,198
Summary		1,102,975,101
21-30	TB & Chest disease	77,882,312
	anesthesia	218,910,306
	gynecology	2,202,927,507
	radiotherapy	182,409,301
	surgery	5,983,878
Summary		2,684,213,304

Table Exploration interface showing a table titled "Age, Department and patientid". The table displays patient counts by age group and department. The 'Fields' tab is selected in the top right.

Age	Department	patientid
51-60	anesthesia	318,896,282
	gynecology	2,480,534,712
	radiotherapy	280,829,445
	surgery	13,400,007
Summary		3,188,192,500
61-70	TB & Chest disease	87,174,984
	anesthesia	289,938,034
	gynecology	1,874,618,921
	radiotherapy	289,189,540
	surgery	13,997,212
Summary		2,294,918,291
71-80	TB & Chest disease	48,066,939
	anesthesia	263,201,600
	gynecology	1,645,164,854
	radiotherapy	388,328,417
	surgery	13,980,869
Summary		2,388,789,679
	TB & Chest disease	5,054,654

Table Exploration

https://us3.ca.analytics.ibm.com/bi/?perspective=explore&id=iA648DE658B5A4D028E730D6868F8123D&objRef=iA648DE658B5A4...

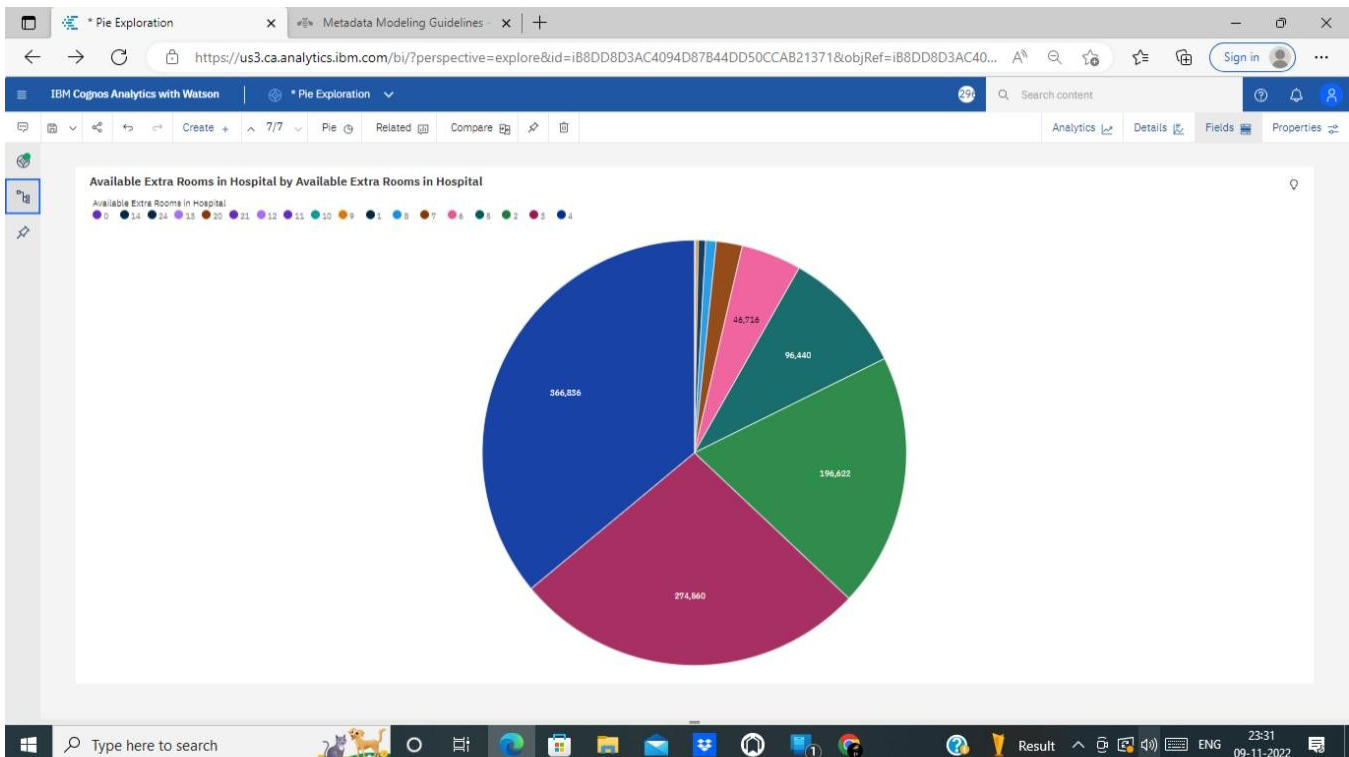
IBM Cognos Analytics with Watson

Search content

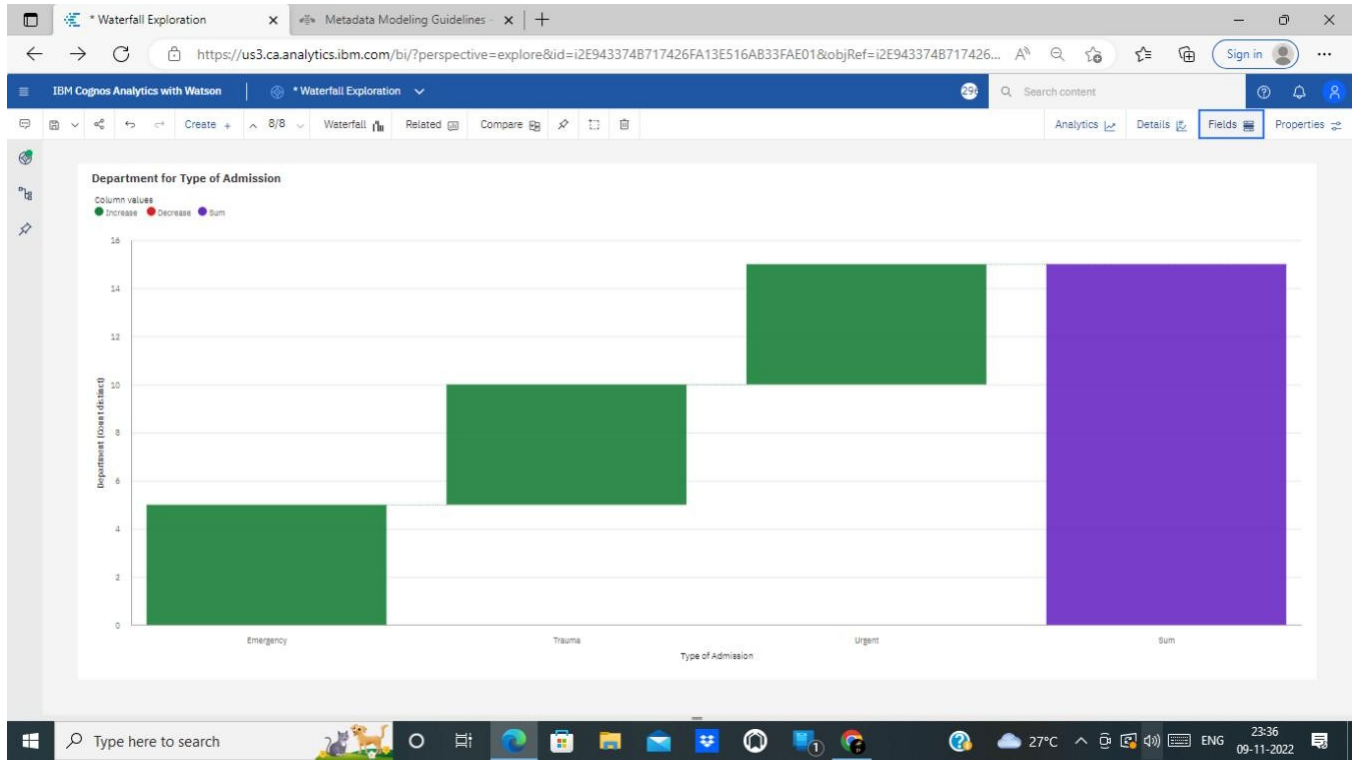
Age, Department and patientid

Age	Department	patientid
71-80	is a Chest disease	40,068,939
	anesthesia	263,201,600
	gynecology	1,645,164,854
	radiotherapy	388,526,417
	surgery	15,980,869
Summary		2,356,759,679
81-90	TB & Chest disease	5,084,654
	anesthesia	60,835,877
	gynecology	345,364,515
	radiotherapy	110,047,064
	surgery	5,976,917
Summary		523,279,330
91-100	TB & Chest disease	2,492,225
	anesthesia	13,490,888
	gynecology	45,305,369
	radiotherapy	21,111,187
	surgery	610,657
Summary		82,910,496
Summary		20,936,527,712

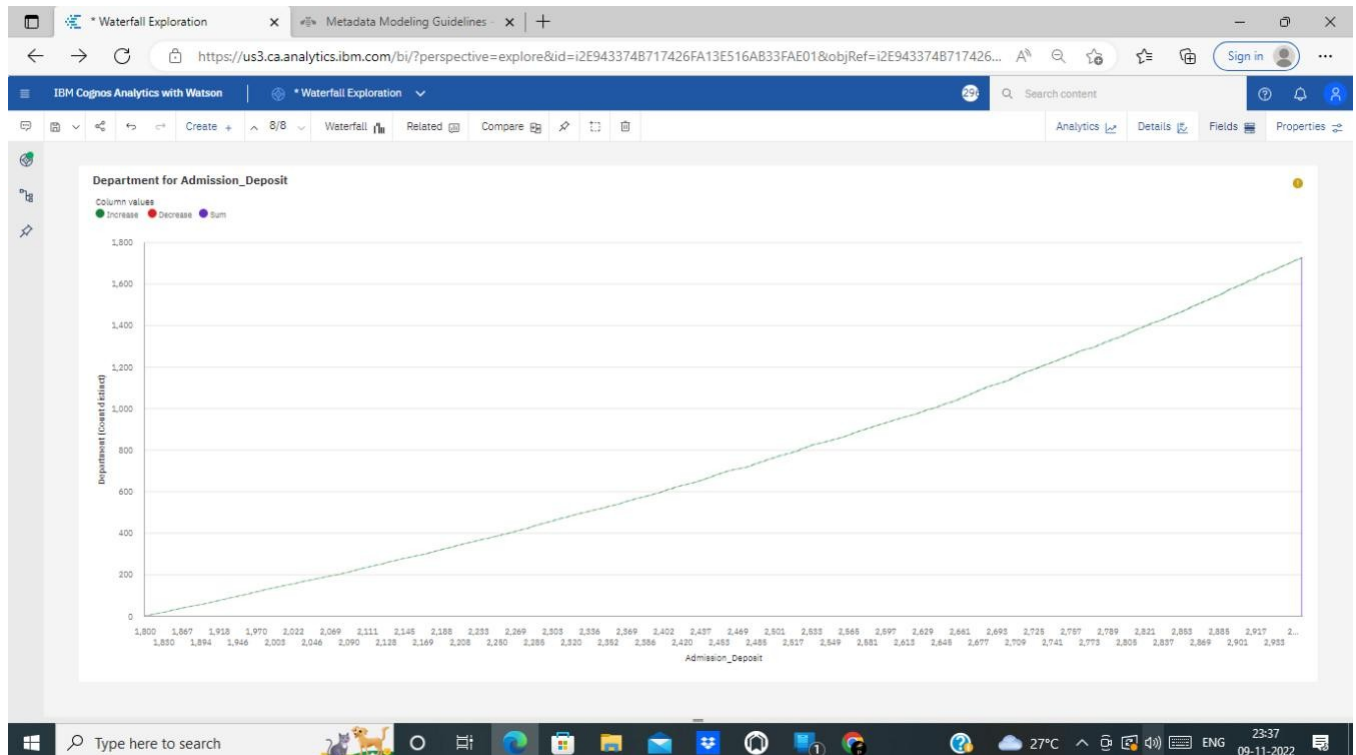
5. Room Availability by Pie Chart



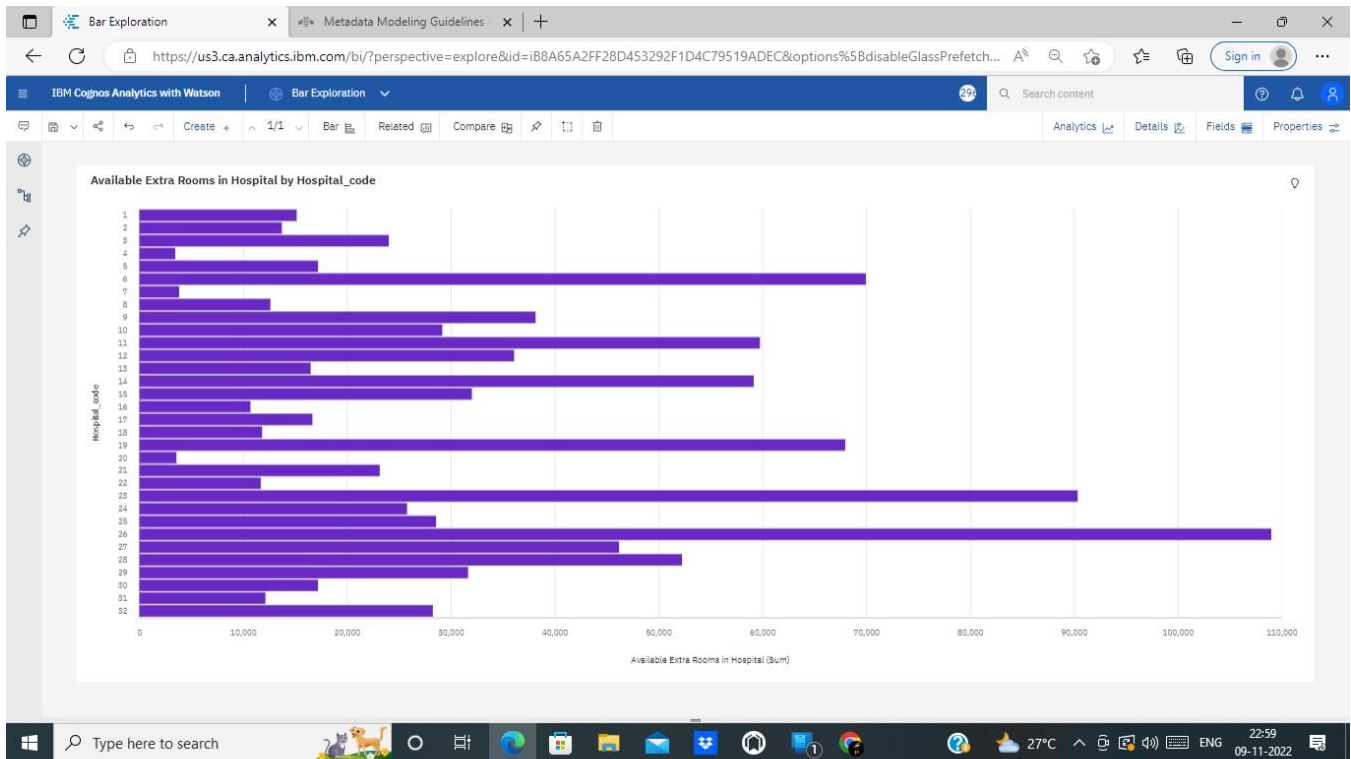
6. Department wise number of Admissions by Waterfall Chart



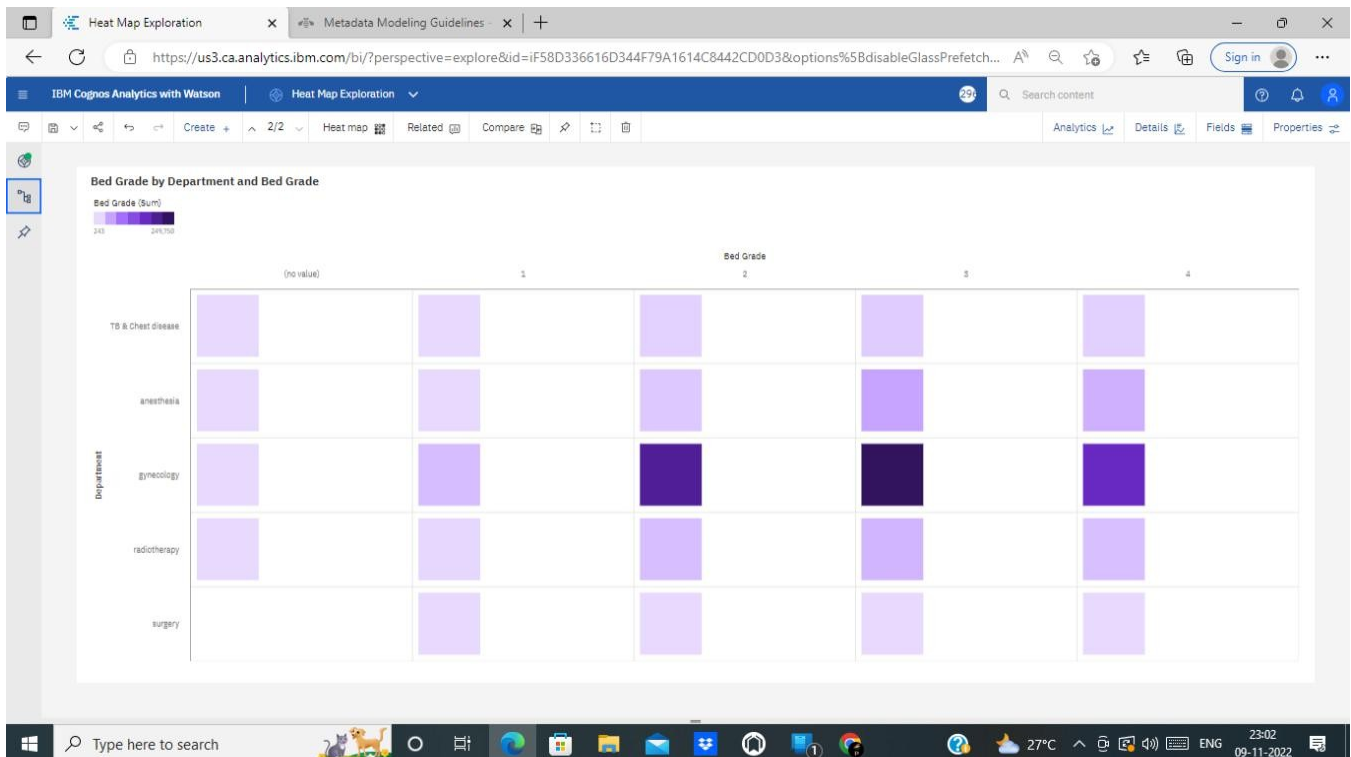
7. Admission_Deposit for Department



8. Available Extra Rooms in Hospital



9. Bed Grade by Department



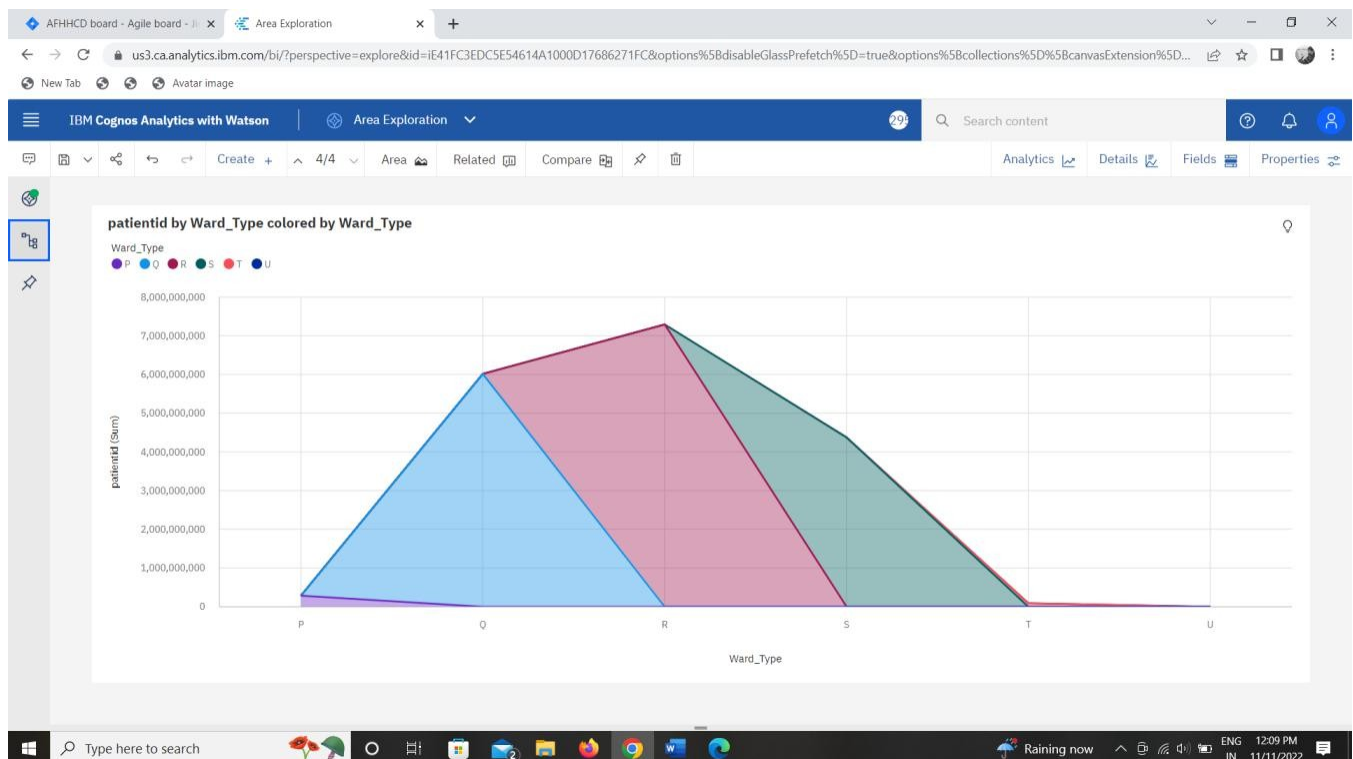
10. Age, Department and ward_Type

The screenshot displays the IBM Cognos Analytics web application. The browser address bar shows the URL: <https://us3.ca.analytics.ibm.com/bj/?perspective=explore&id=iA648DE658B5A4D028E730D68B6BF8123D&objRef=iA648DE658B5A4...>. The application header includes the 'Table Exploration' tab and a search bar. The main content area shows a table titled 'Age, Department and Ward_Type'. The table is structured as follows:

Age	Department	Ward_Type
0-10	TB & Chest disease	P
		Q
		R
		S
		T
	anesthesia	P
		Q
		R
		S
		T
	gynecology	P
		Q
		R
		S
		T
	radiotherapy	P
		Q
		R
		S
		T

The bottom of the image shows a Windows taskbar with a search bar, system icons, and the date/time display (23:27, 09-11-2022).

11. Number of Patient by Ward_Types



12. Age wise Patients with Department and Severity Filter

