

ANALYTICS FOR HOSPITALS HEALTH CARE DATA



A PROJECT REPORT

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1.INTRODUCTION

1.1 Project Overview

The data analysis results are visualized through display charts/graphs that make it easier for users to understand the data analysis results and interpretation. This dashboard is useful to facilitate decision making so that stakeholders can find out more quickly to be able to respond appropriately and also improve the quality of health services so as to improve the degree of public health. At the time of admission, it helps the hospitals in identifying patients who are at high LOS-risk (patients who will stay longer). Once identified, patients at high risk for LOS can have their treatment plans improved to reduce LOS and reduce the risk of infection in staff or visitors. It gives us a full-fledged analysis on the hospital data regarding the patient health conditions and case study analysis, which can result in the enormous amount of growth in the health-care industry to analyze the health-care data.

1.2 Purpose

It gives us a full-fledged analysis on the hospital data regarding the patient health conditions and case study analysis, which can result in the enormous amount of growth in the health-care industry to analyze the health-care data. IBM Cognos analytical tool has been used to make the analysis and create an interactive dashboard to make the real-time analysis

on the incoming data from the database. The scope of this project is to make an intuitive dashboard, report and story to present it to the user's perspective to make them understand in a better manner. Apart from the length of stay for each patient, it is used to analyze the various fields related to health using various visualization plots.

1. LITERATURE SURVEY

2.1 Existing Problems

In the existing system of analytics in hospital management it was unable to maintain a large amount of data. The data that needed to be store in the dataset may arrive at a low speed. There is less data privacy in the informations that are stored in the datasets. Inaccuracies in the data lead to poor decision-making. One of the major drawbacks in the application of big data in the healthcare industry is the issue of lack of privacy. As with just about every computer network these days, EHR systems are vulnerable to hacking, which means sensitive patient data could fall into the wrong hands. A drawback of clinical trials is that they are highly controlled and highly monitored to ensure strict adherence to protocol; however, that's not how people take drugs in the real world. Variables used in the clinical prediction model were not clearly reported, or unavailable in routine clinical practice.

2.2 References

[1] Big data analytics for drug discovery, September 2013 IEEE International Conference on Bioinformatics and Biomedicine.

[2] Data analytics in healthcare: management, analysis and future prospects. 19th June 2019.

[3] Electronic Health Records in Chiropractic Practice: Common Challenges and Solutions, Journal of Chiropractic Humanities, Volume 24, Issue 1, 5th December 2017.

[4] Systematic review of clinical prediction models to support the diagnosis of asthma in primary care. NPJ primary care respiratory medicine, Vol. 29, 9th May 2019.

[5] VACCINATED - Visual Analytics for Characterizing a Pandemic Spread
VAST 2010 Mini Challenge 2 Award: Support for Future Detection.

2.3 Problem Statement Definition

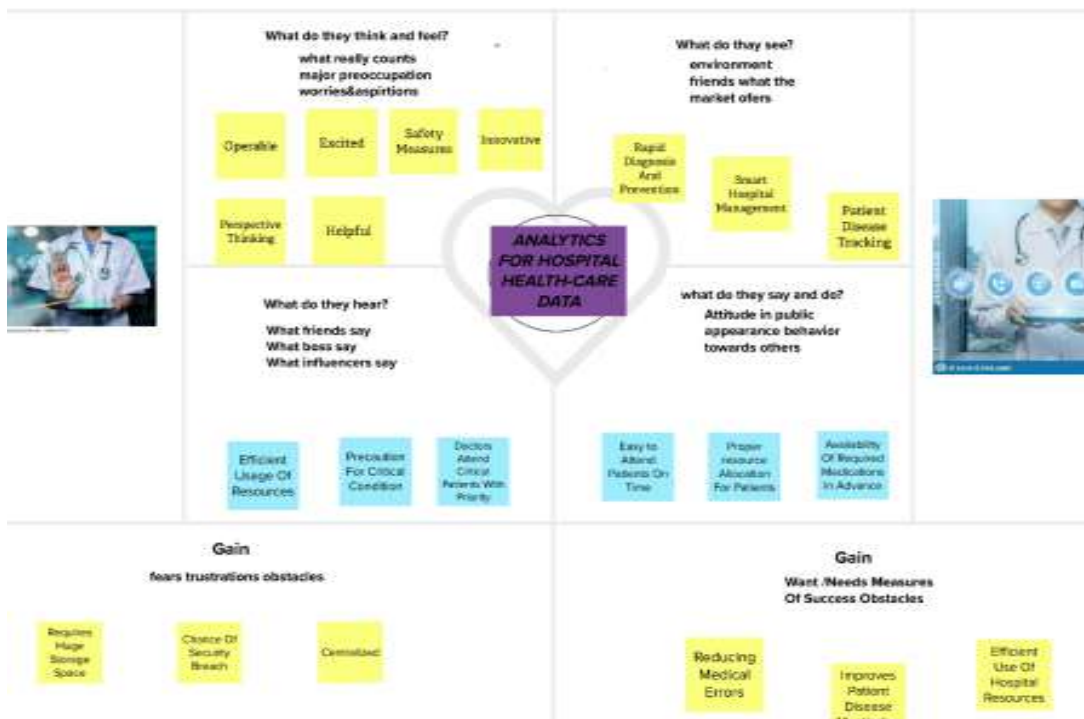
The healthcare costs have been constantly rising, the quality of care provided to the patients in the many states have not seen considerable improvements. Recently, several researchers have conducted studies which showed that by incorporating the current healthcare technologies, they are

able to reduce mortality rates, healthcare costs and medical complications at various hospitals. The recent advances in information technology have led to an increasing ease in the ability to collect various forms of healthcare data. Data analytics, in particular, forms a critical component of these computing technologies.

Healthcare is a multi-dimensional system established with the sole aim for the prevention, diagnosis, and treatment of health-related issues or impairments in human beings. The combined pool of data from healthcare organizations and biomedical researchers has resulted in a better outlook, determination, and treatment of various diseases. This has also helped in building a better and healthier personalized healthcare framework. Modern healthcare fraternity has realized the potential of big data and therefore, have implemented big data analytics in healthcare and clinical practices. Drug discovery is related to big data analytics as the process may require the collection, processing and analysis of extremely large volume of structured and unstructured biomedical data stemming from a wide range of experiments and surveys collected by hospitals, laboratories, pharmaceutical companies or even social media.

3.IDEATION AND PROPOSED SOLUTION

3.1 Empathy Map Canvas



3.2 Ideation and Brainstorming



3.2 Proposed Solution

S.No.	Parameter	Description
1	Problem Statement (Problem to be solved)	During the covid-19 pandemic, we have faced one of the difficult times of our life. Everyone seeks to survive from the great disaster. At the time of pandemic, no one get to know about which hospital has vacant beds(free beds) to admit themselves or others infected by covid. This situation made the death rate higher.
2	Idea / Solution description	Predictive analytics can create patient journey dashboards and disease trajectories that can lead to effective, and result driven healthcare. It improves treatment delivery, cuts costs, improves efficiencies,and so on.
3	Novelty / Uniqueness	Healthcare data frequently resides in several locations. The Collected data should be stored in central system(like centralized storage). This data becomes accessible and usable when it is combined into a single, central system, such as an enterprise data warehouse (EDW). Uniqueness of our project is that we can able to use data for different things such as which medicine is more effective and for understanding behavioral patterns of particular diseases.
4	Social Impact / Customer Satisfaction	<ul style="list-style-type: none"> • effective use of resource • Enhanced diagnosis • Improved Treatment • enhancing the overall quality of treatment and life of patients
5	Business Model (Revenue	With the gathered data, redirecting the patients to particular hospital based on

	Model)	the vacancy, leading retailers used methods like market-basket analysis to discover insights about consumer purchase behavior and used these insights to optimize the physical store experience, target relevant ads and streamline the supply chain, among other strategic initiatives.
6	Scalability of the Solution	A variety of institutions must store, evaluate, and take action on the massive amounts of data being produced by the health care sector as it expands quickly. India is a vast, culturally varied nation with a sizable population that is increasingly able to access centralized health care services.

3.3 Problem Solution Fit

1. Customer Segments + Hospital Management + Patients	6. Customer Limitation Can't assure the effective utilization and allocation of resources	5. Available Solution Text mining Information retrieval
2. Problems/Pains <ul style="list-style-type: none"> Proper allocation of resources Predicting the length of stay of COVID patients Proper utilization and treatment to patients 	9. Problem Efficient less calculation and prediction of occurring situations	7. Behaviour Data tracking with available methodologies such as text mining and information retrieval
3. Triggers to Act Prevailing emergency situations and Pandemic period	10. Your Solution Using predictive analysis powered by the Artificial intelligence which is used in analytics technique	8. Channels of Behaviour 1. Online: Usage of data exploration 2. Offline: Preparing the dataset on the COVID patients.
4. Emotions Tensed and perplexed mind set to get rectified from the pandemic period		

4. REQUIREMENT ANALYSIS

4.1 Functional Requirement

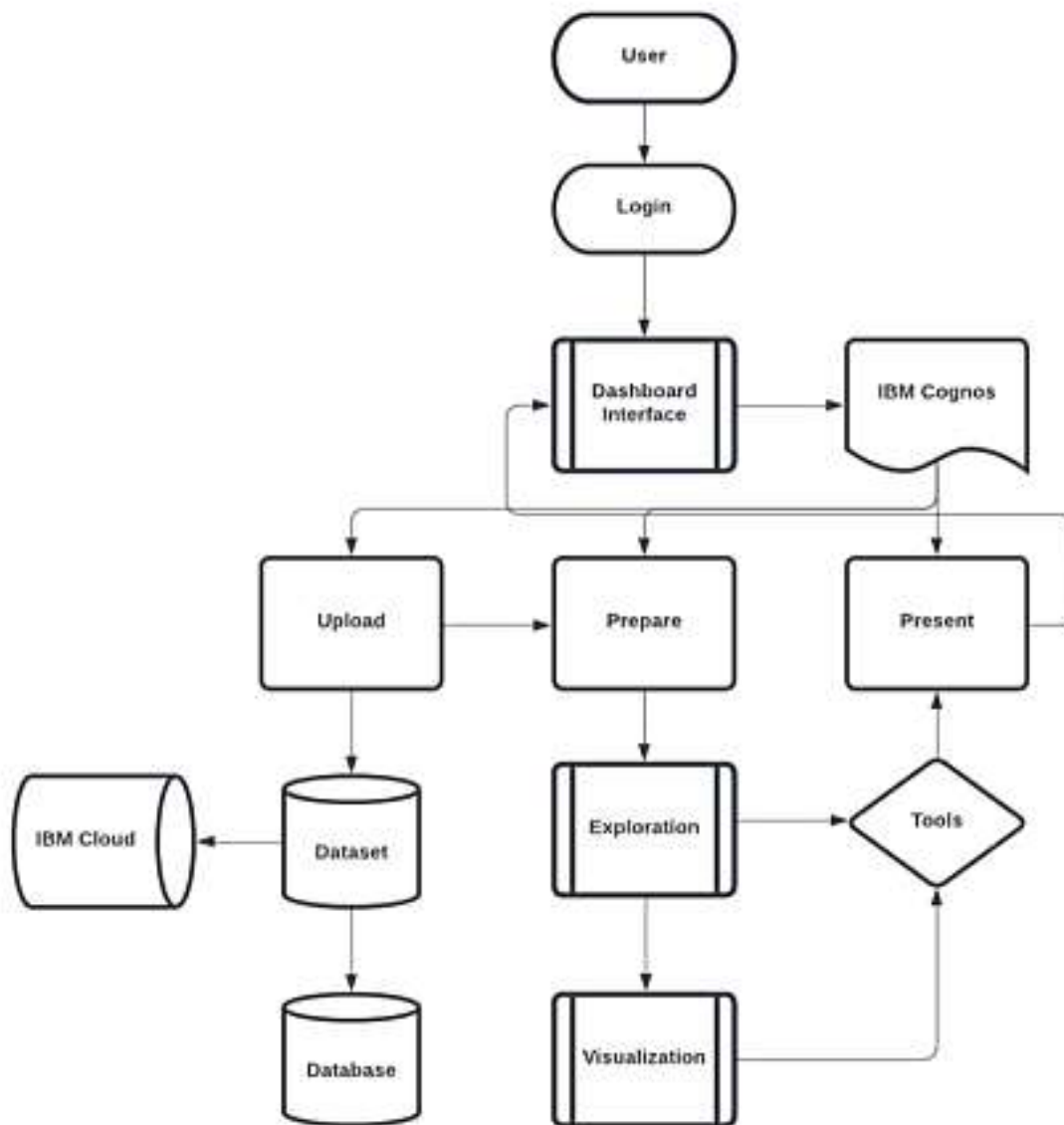
FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	User Registration	Registration through Form Registration through Gmail
FR-2	Interoperability	Dashboard helps to share the patient's information interoperable to the hospitals in timely manner.
FR-3	Accuracy	Dashboard helps predict the patient's Health risks accurately based on LOS (Length of Stay).
FR-4	Compliance	The compliance of a dashboard is like to use very ineractively in real time by the hospitals.
FR-5	Concise	These dashboards are clear, intuitive, and customizable and interactive in manner.

4.2 Non Functional Requirements

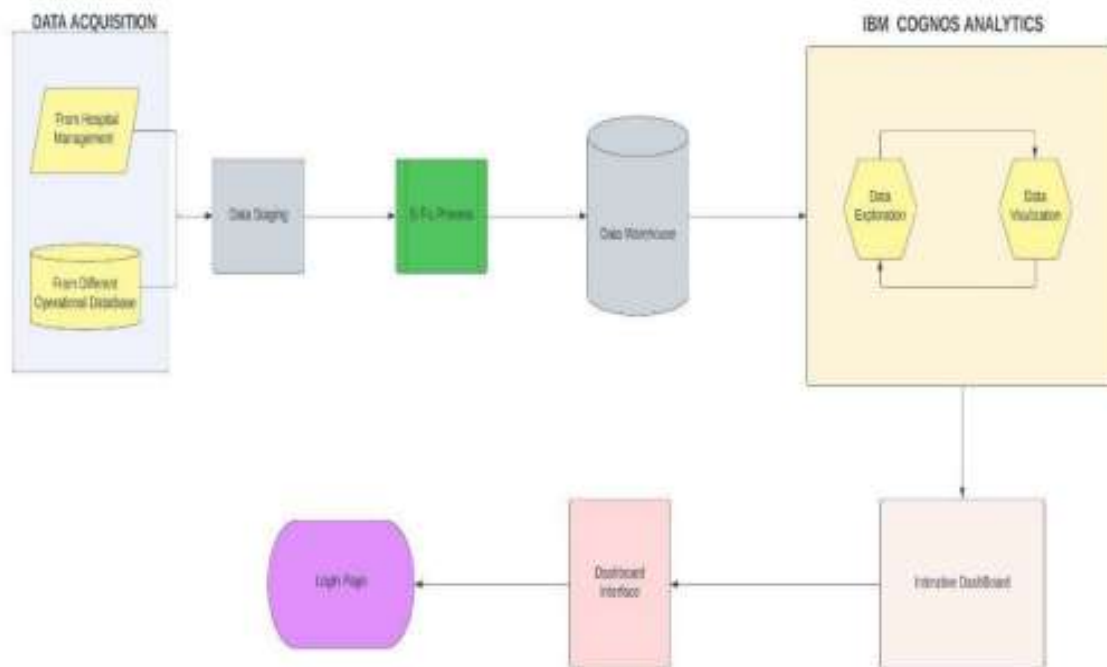
FR No.	Non-Functional Requirement	Description
NFR-1	Usability	This Dashboards are designed to offer a comprehensive overview of patient's LOS, and do so through the use of data visualization tools like charts and graphs.
NFR-2	Security	The Dashboard helps to indicate the current threat level to the Hospitals; an indication of events and incidents that have occurred; a record of authentication errors; unauthorized access
NFR-3	Reliability	This dashboard will be consistent and reliable to the users and helps the user to use in effective, efficient and reliable manner.
NFR-4	Availability	The dashboard can available to meet user's demand in timely manner and it is also helps to provide necessary information to the user's dataset
NFR-5	Availability	The dashboard can available to meet user's demand in timely manner and it is also helps to provide necessary information to the user's dataset
NFR-6	Scalability	The layers used in the dashboard are a hosted feature layer, feature layer view, or hosted tile layer.

5.PROJECT DESIGN

5.1 Data Flow Diagram



5.2 Solution and Technical Architecture



5.3 User Stories

User Stories

Use the below template to list all the user stories for the product.

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
Customer (Mobile user)	Registration	USN-1	As a user, I can register for the dashboard by entering my email, and password, and confirming my password.	I can access my account in the dashboard	High	Sprint-1
		USN-2	As a user, I will receive a confirmation email once I have registered for the dashboard	I can receive a confirmation email & click confirm	High	Sprint-1
		USN-3	As a user, I can register for the dashboard through Social Media	I can register & access the dashboard with Social Media Login	Low	Sprint-2
	Login	USN-4	As a user, I can register for the dashboard through Gmail	I can register and access dashboard with Gmail	Medium	Sprint-2
Customer (Web user)	Dashboard	USN-5	As a user, I can log into the application by entering email & password	I can login to the account in my email login.	High	Sprint-2
		USN-6	As a user ,I can use my account in my dashboard for uploading dataset.	I can login to the account for uploading dataset.	Medium	Sprint-3
	Website	USN-7	As a user ,I can use my dashboard in website	I can login into the dashboard by visiting website.	Medium	Sprint-3
		USN-8	As a user ,I can contact Customer care Executive for my login.	I can contact customer executive for my login.	High	Sprint-4
Customer Care Executive		USN-9	As a user ,I can contact administrator for my queries.	I can contact administrator for solving my queries.	High	Sprint-4
Exploration	Dashboard	USN-10	As a user, I can prepare data by using Exploration Techniques.	I can prepare data by using Exploration Techniques.	High	Sprint-3
Presentation	Dashboard	USN-11	As a user, I can Present data in my dashboard.	I can present data by using my account in dashboard.	High	Sprint-4
Visualization	Dashboard	USN-12	As a user, I can Prepare Data by using Visualization Techniques.	I can prepare data by using Visualization Techniques.	High	Sprint-3

6. PROJECT PLANNING & SCHEDULING

6.1 Sprint Planning & Estimation

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-1	Register	USN-1	As a Admin, I can register users and provide username and password.	10	Medium	Abisha.M
Sprint-1	Login	USN-1	As a user, I can login into the website/ application using username and password	20	High	Raja Suvi.M
Sprint-2	Dashboard	USN-2	As a user, I can add Patient Details like Patient name, contact number, age etc.	10	High	Sneha.P
Sprint-2	Dashboard	USN-3	As a user, I can add bed details, Doctor details and other hospital detail.	10	High	Subasree.N
Sprint-3	Dashboard	USN-4	As a user, I can upload patient medical reports.	20	High	Abisha.M
Sprint-4	Virtualize	USN-5	As a user, I can virtualize the data which are analyzed	20	High	Raja Suvi.M

Sprint-1

Data Preprocessing:

Using Jupyter notebook to remove the null values:

```

jupyter IBM_Project_preprocessing Last Checkpoint: Last Wednesday at 2:13 PM (autosaved)
File Edit View Insert Cell Kernel Widgets Help Not Trusted Python 3 (ipykernel)

In [1]: import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns

In [5]: train = pd.read_csv(r'C:\Users\yashan\OneDrive\Documents\IBM_Project\Healthcare_Data\train_data.csv')

In [7]: train.head()

Out[7]:
   case_id  Hospital_code  Hospital_type_code  City_Code_Hospital  Hospital_region_code  Available
Extra Rooms in Hospital  Department  Ward_Type  Ward_Facility_Code  Bed Grade  patient
0         1             8             1             3             Z             3  radiotherapy  R             F             2.0       311
1         2             2             1             5             Z             2  radiotherapy  S             F             2.0       311
2         3             10            4             1             X             2  anaesthesia  S             E             2.0       311
3         4             26            5             2             Y             2  radiotherapy  R             D             2.0       311
4         5             26            5             2             Y             2  radiotherapy  S             D             2.0       311

In [8]: train.info()

<class 'pandas.core.frame.DataFrame'>
RangeIndex: 318438 entries, 0 to 318437
Data columns (total 18 columns):
 #   Column                                Non-Null Count  Dtype
---  -
 0   case_id                              318438 non-null  int64
 1   Hospital_code                        318438 non-null  int64
 2   Hospital_type_code                  318438 non-null  object
 3   City_Code_Hospital                  318438 non-null  int64
 4   Hospital_region_code                318438 non-null  object
 5   Available Extra Rooms in Hospital    318438 non-null  int64
 6   Department                          318438 non-null  object

```

```

In [17]: train.isnull().sum()
Out[17]: case_id      0
Hospital_code      0
Hospital_type_code  0
City_Code_Hospital  0
Hospital_region_code 0
Available Extra Rooms in Hospital 0
Department         0
Ward_Type          0
Ward_Facility_Code  0
Bed_Grade          0
patientid          0
City_Code_Patient   0
Type of Admission   0
Severity of Illness  0
Visitors with Patient 0
Age               0
Admission_Deposit   0
Stay              0
dtype: int64

In [18]: train = train.to_csv('final_train_data.csv', index=False)

In [19]: test = pd.read_csv(r'C:\Users\mohan\OneDrive\Documents\IBM_Project\Healthcare_Data\test_data.csv')

In [20]: test.head()
Out[20]:

```

	case_id	Hospital_code	Hospital_type_code	City_Code_Hospital	Hospital_region_code	Available Extra Rooms in Hospital	Department	Ward_Type	Ward_Facility_Code	Bed Grade	patien
0	318439	21	c	3	Z	3	gynecology	S	A	2.0	170
1	318440	29	a	4	X	2	gynecology	S	F	2.0	170

```

Stay
dtype: int64
0

In [11]: train['Bed_Grade'].value_counts()
Out[11]: 2.0    123671
3.0    110583
4.0     57566
1.0     26505
Name: Bed_Grade, dtype: int64

In [12]: train['Bed_Grade'].unique()
Out[12]: array([ 2.,  3.,  4.,  1., nan])

In [13]: train.shape
Out[13]: (318438, 18)

In [14]: train.dropna(inplace=True)

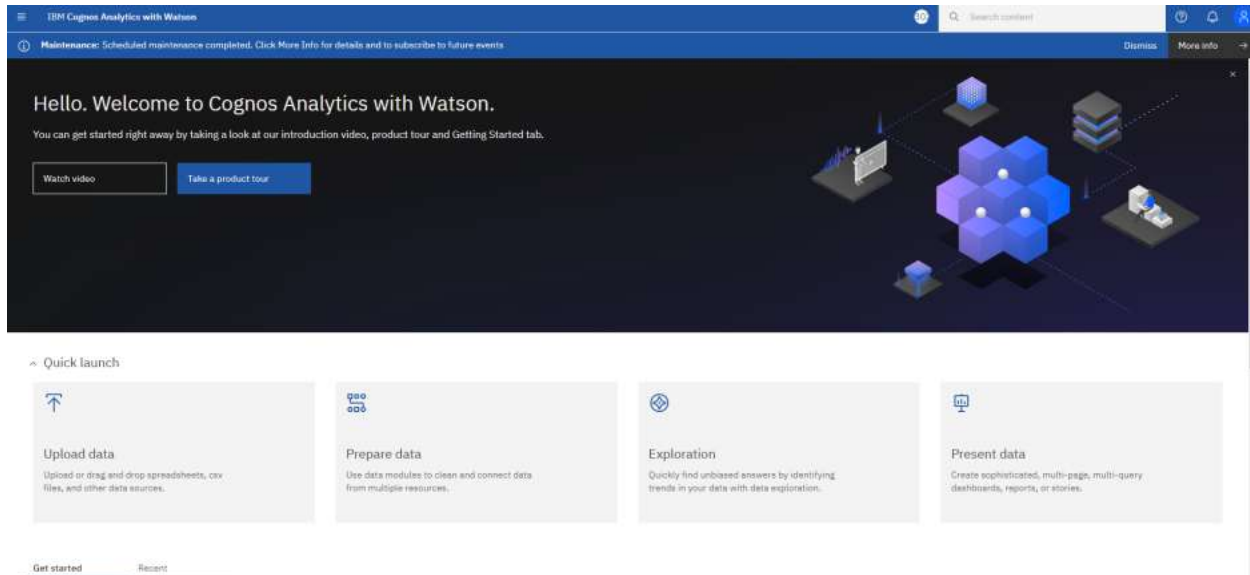
In [15]: train.shape
Out[15]: (313793, 18)

In [16]: train.head()
Out[16]:

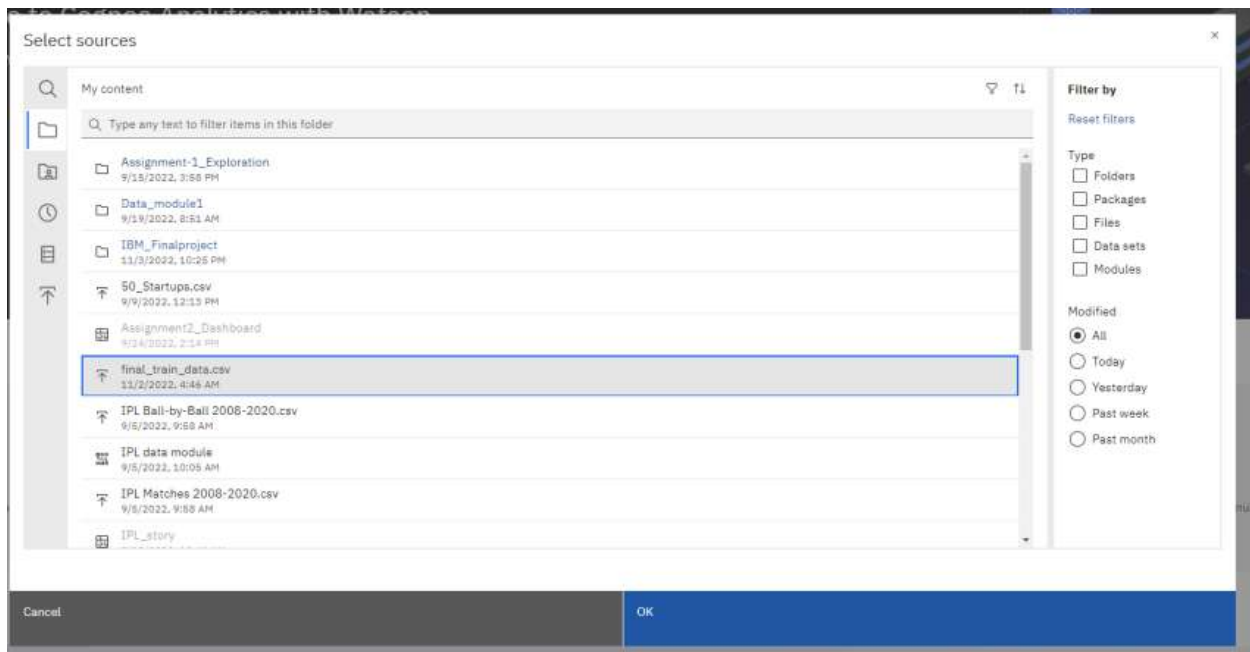
```

	case_id	Hospital_code	Hospital_type_code	City_Code_Hospital	Hospital_region_code	Available Extra Rooms in Hospital	Department	Ward_Type	Ward_Facility_Code	Bed Grade	patien
0	1	8	c	3	Z	3	radiotherapy	R	F	2.0	313
1	2	2	c	5	Z	2	radiotherapy	S	F	2.0	313
2	3	10	e	1	X	2	anesthesia	S	E	2.0	313
3	4	26	b	2	Y	2	radiotherapy	R	D	2.0	313

Signing in to the IBM Cognos tool:



Selecting the dataset to upload into the Cognos:

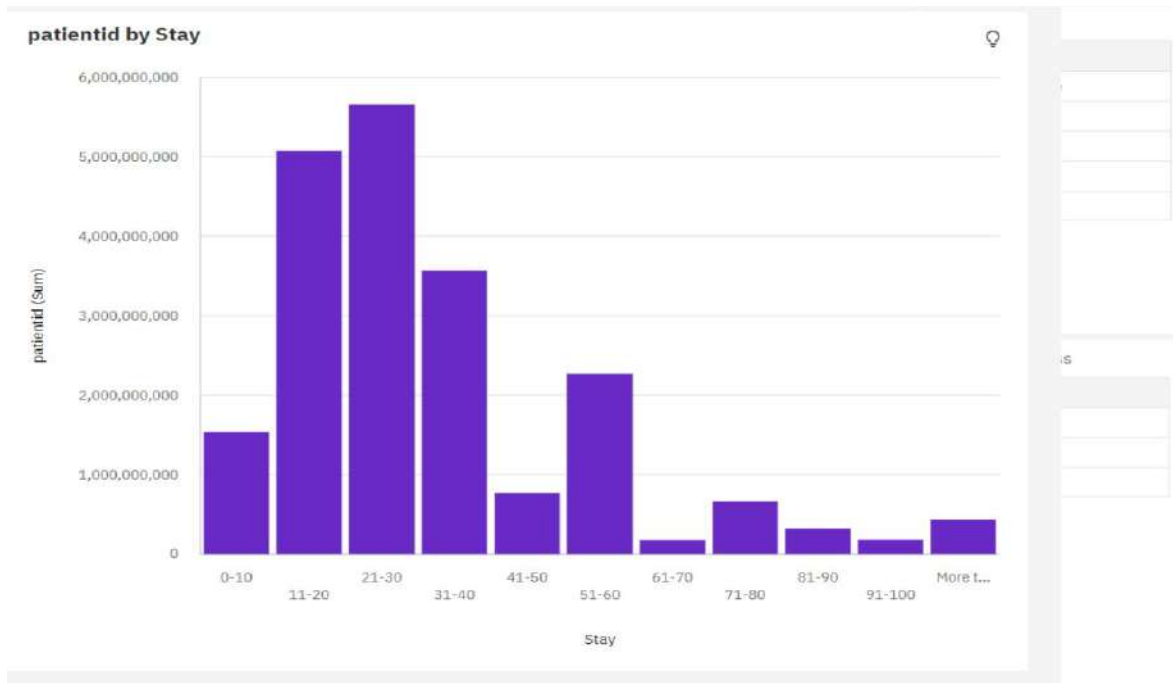


SPRINT-2

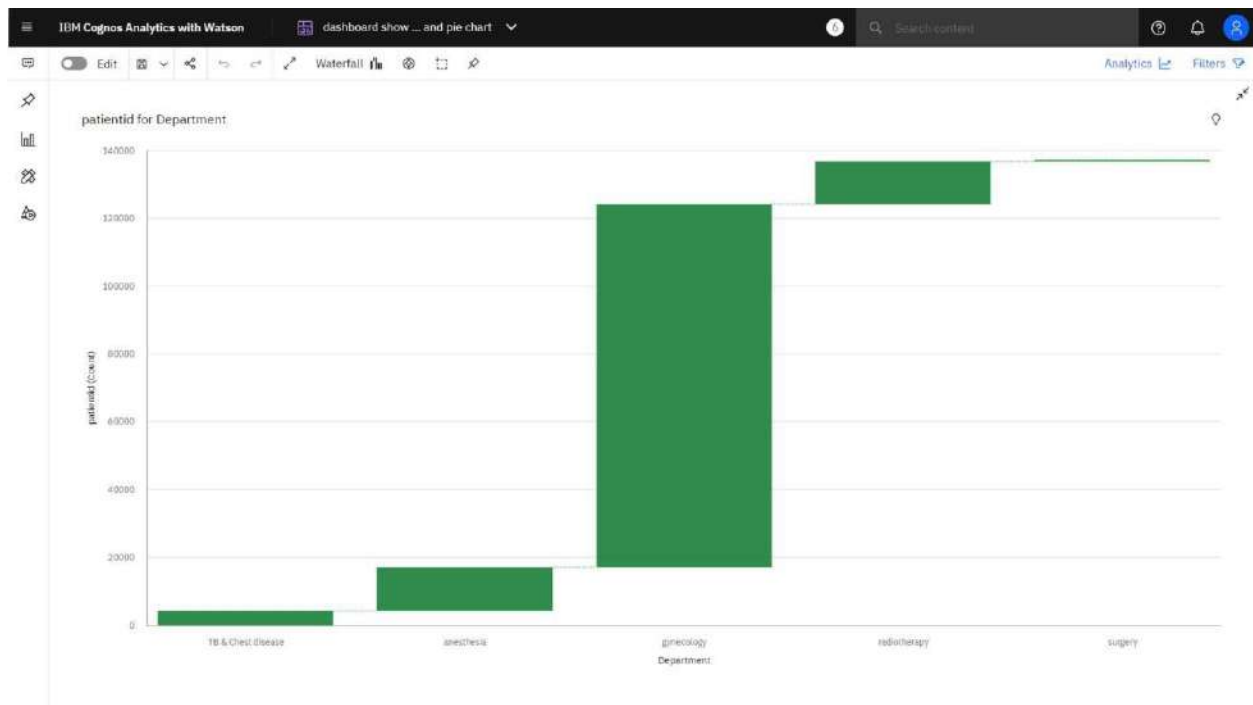
DATA EXPLORATION:

- o Patient id by stay
- o Patient id for department
- o Severity of Illness by Age colored by City Code Hospital
- o Case id by Ward Type
- o Case id by Department
- o Bed Grade by Department
- o Case id by Severity of Illness
- o Patient by Ward Type
- o Available Extra Rooms in Hospital by Ward type
- o Stay by Department
- o Admission count for Department

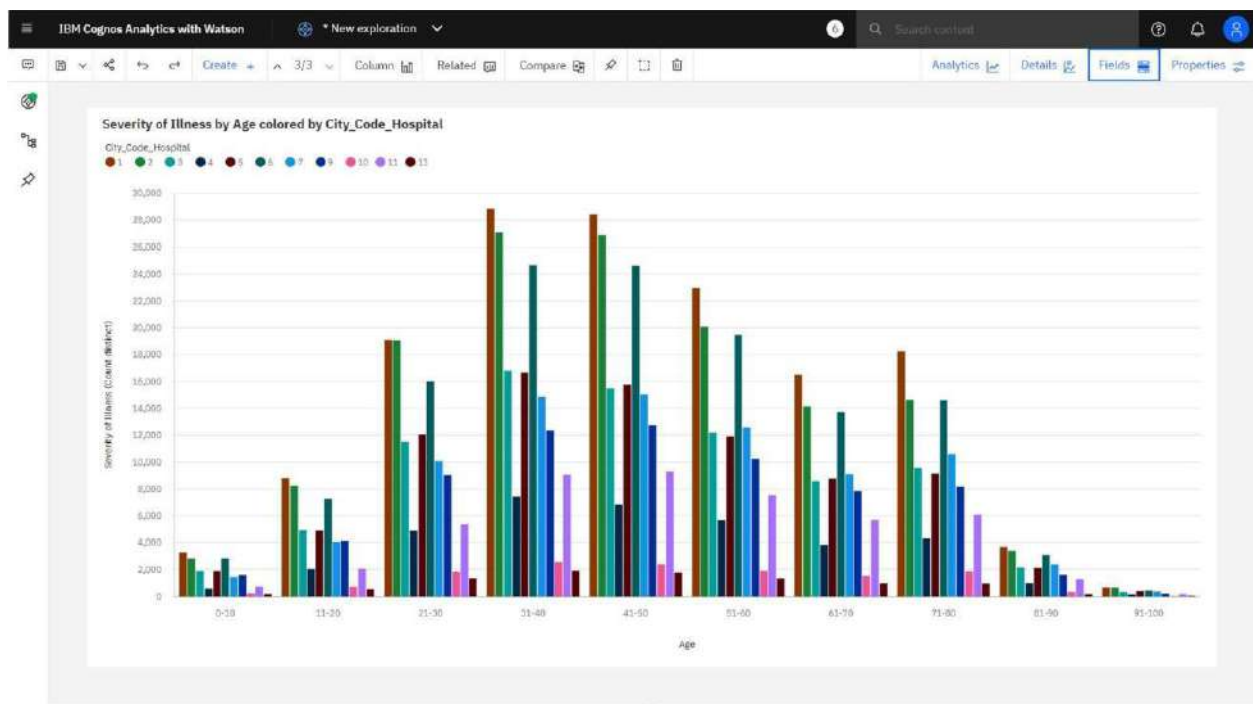
Patient id by stay:



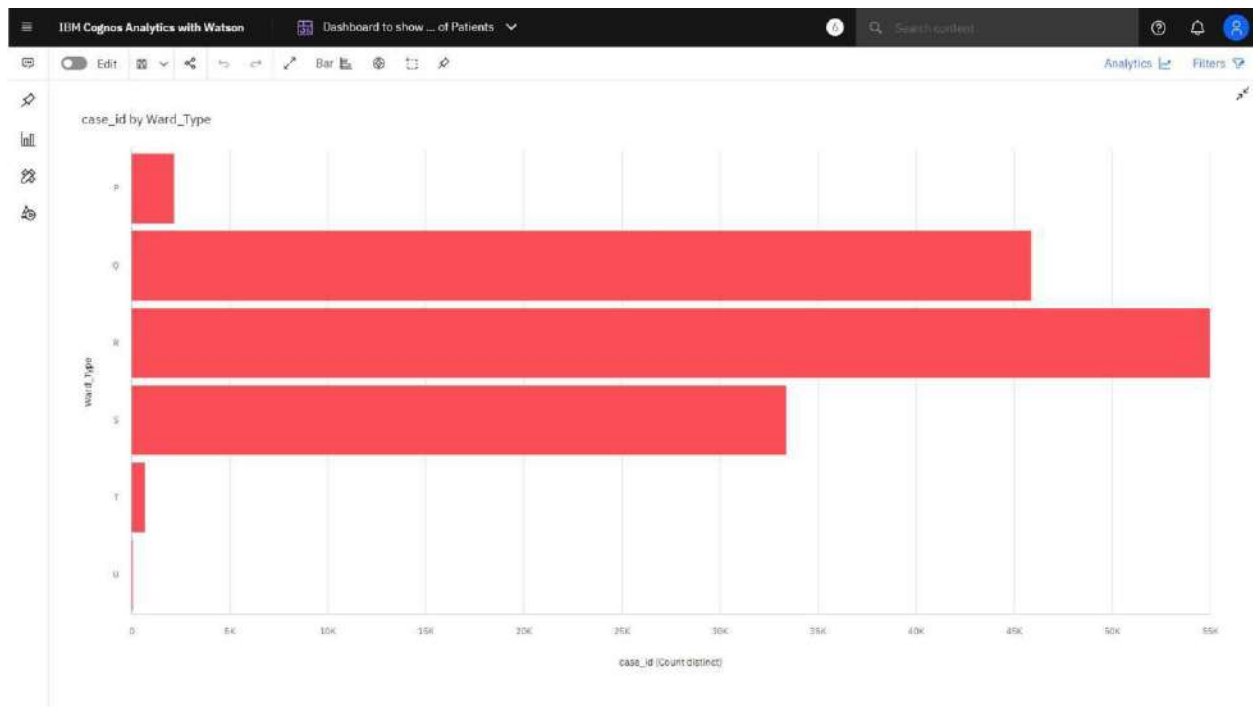
Patient id for department:



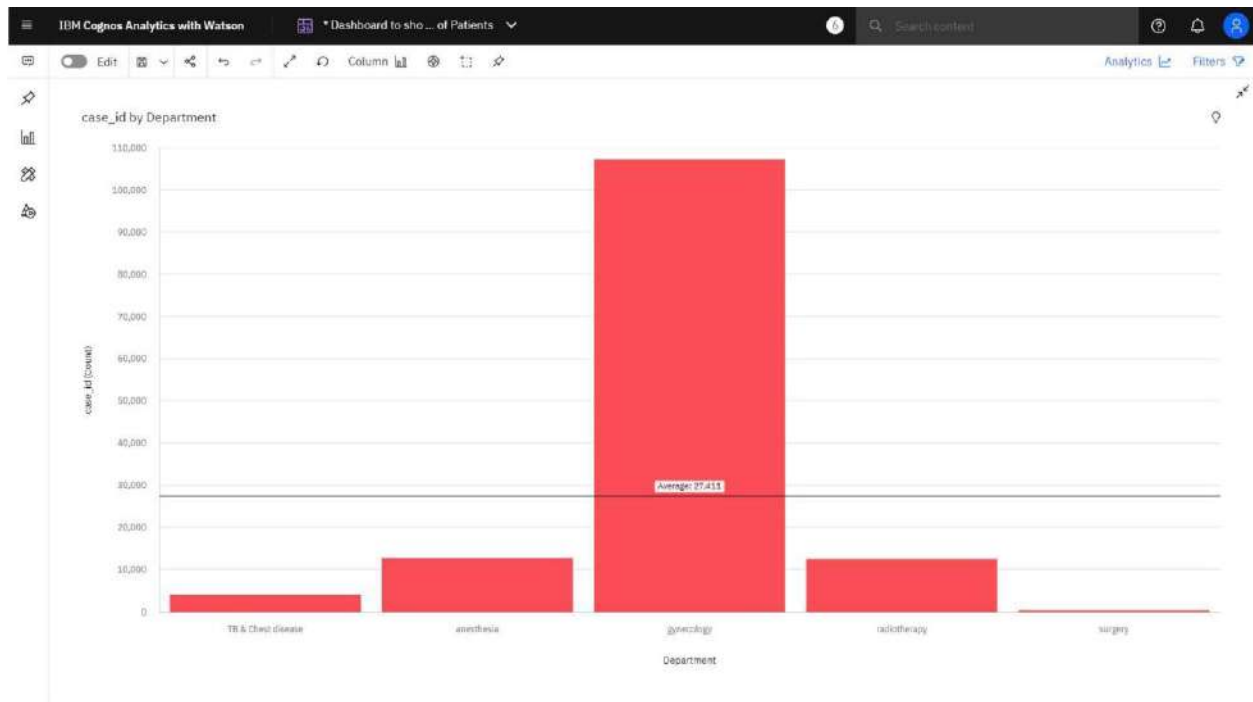
Severity of illness by Age colored by city code Hospital:



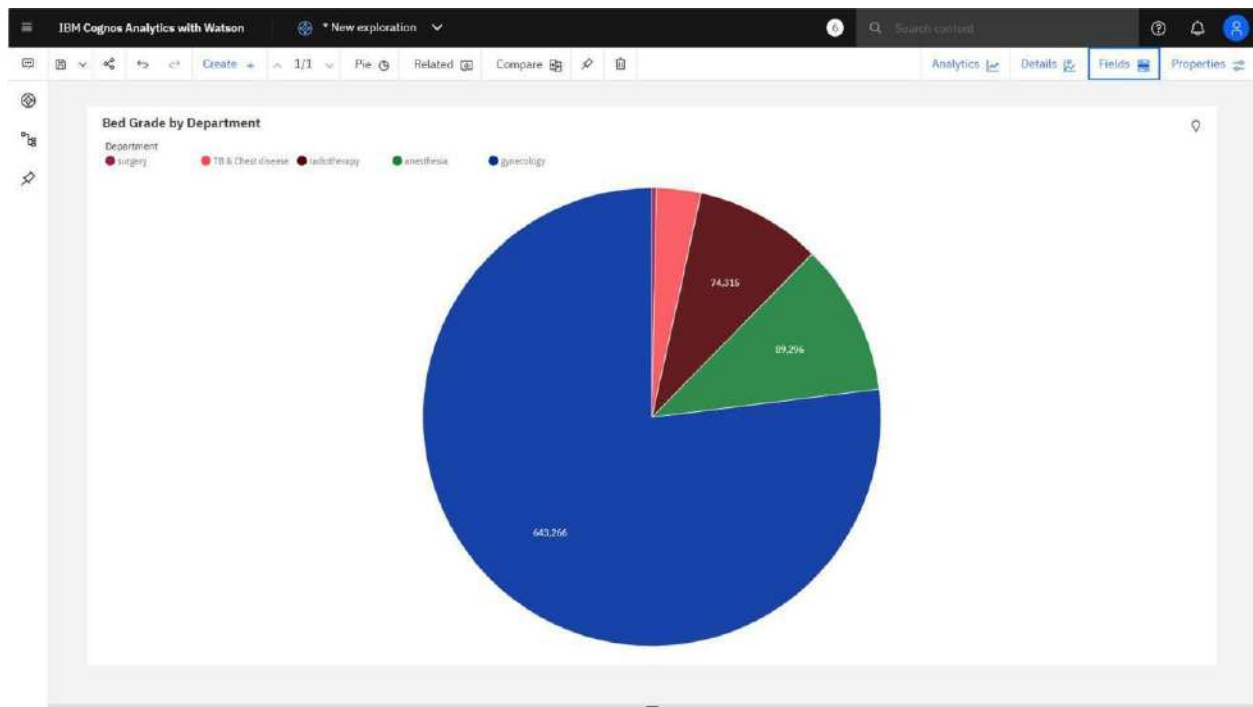
Case id by ward type:



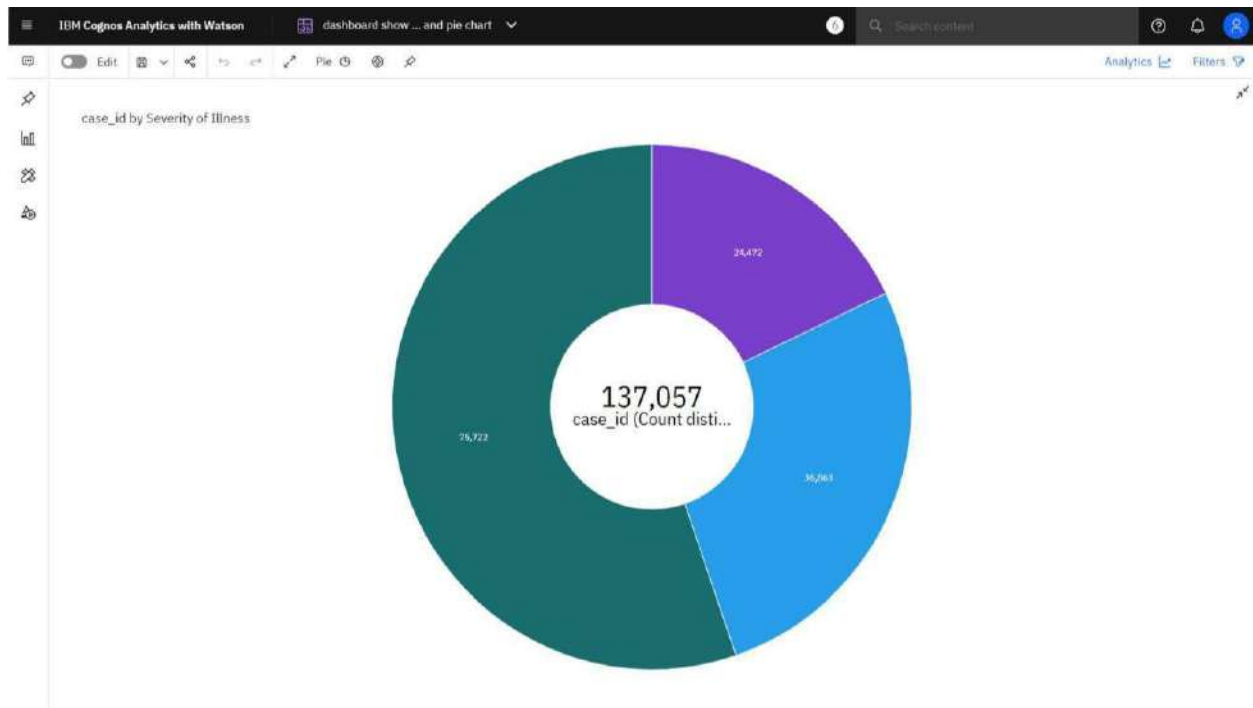
Case id by department:



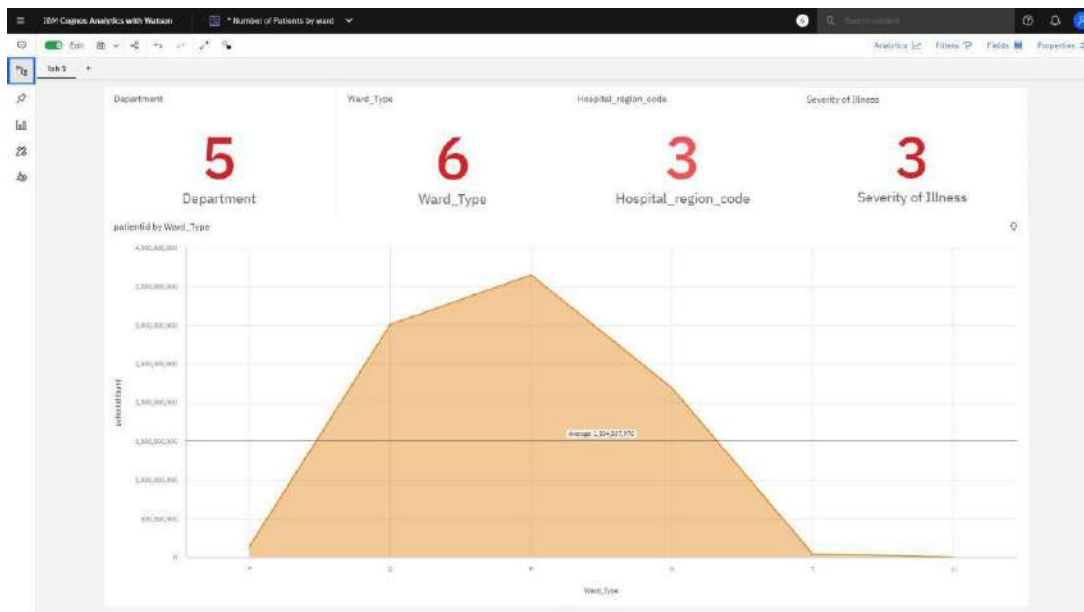
Bed Grade by Department:



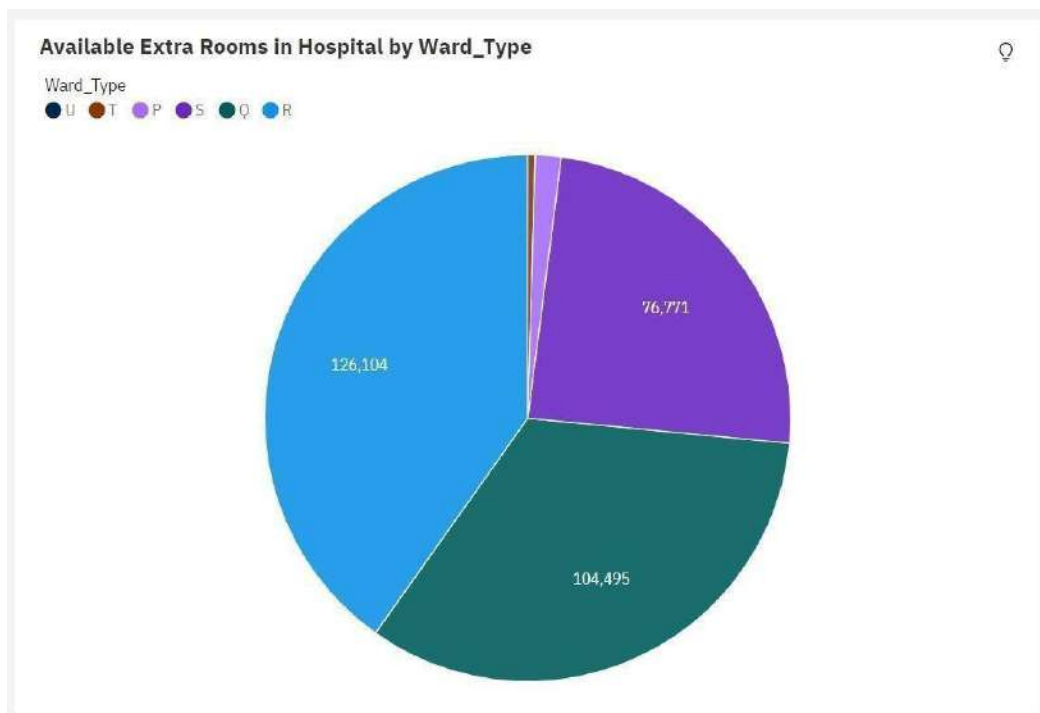
Case Id by severity of illness:



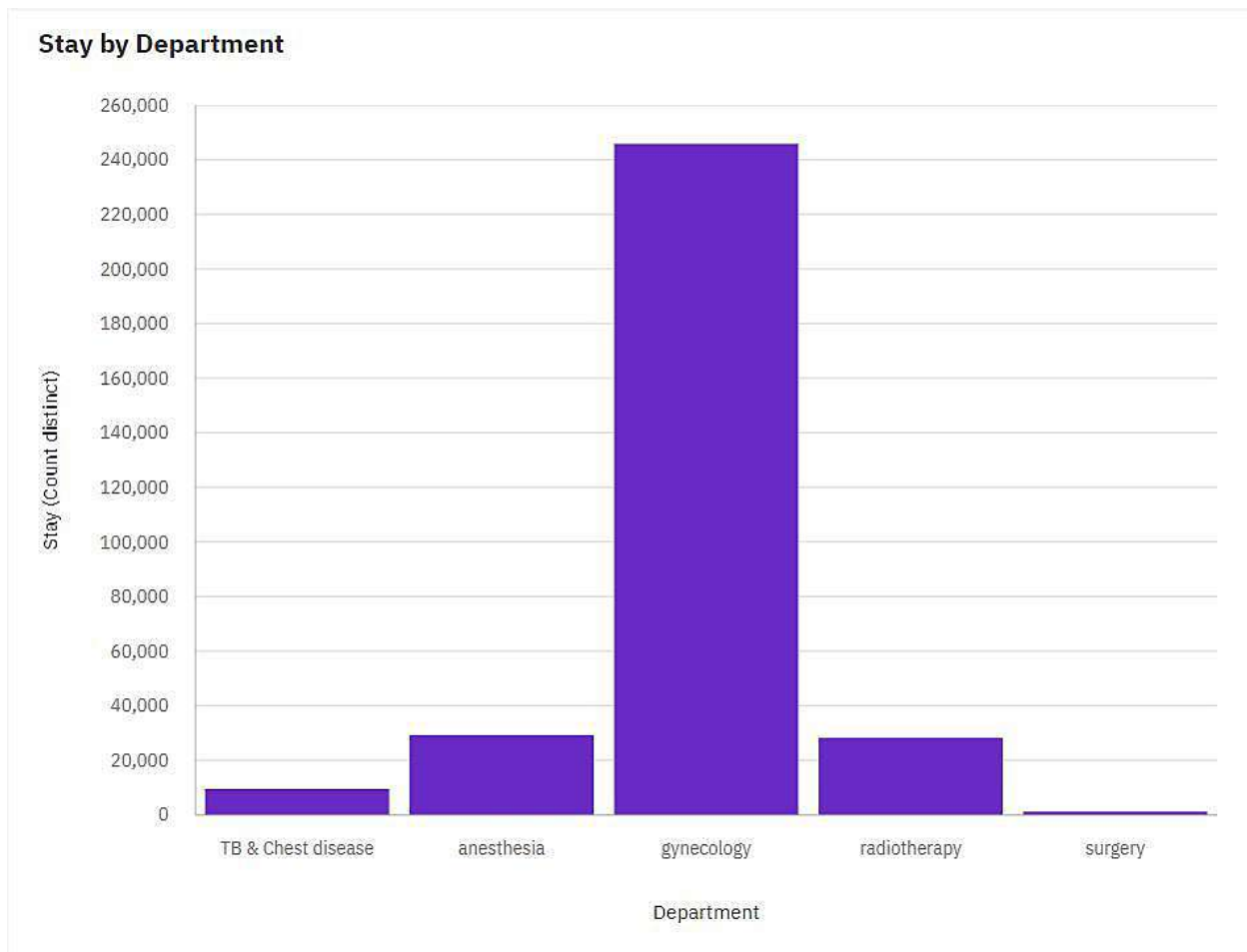
Patient id by ward type:



Available Extra Rooms in Hospital by Ward type:



Stay by Department:

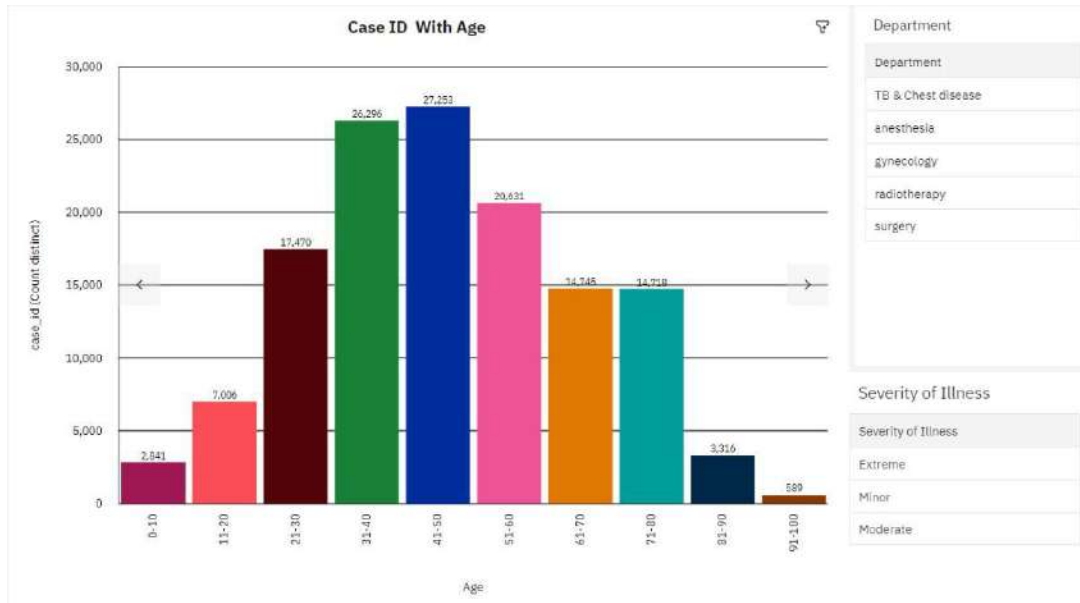


SPRINT 3

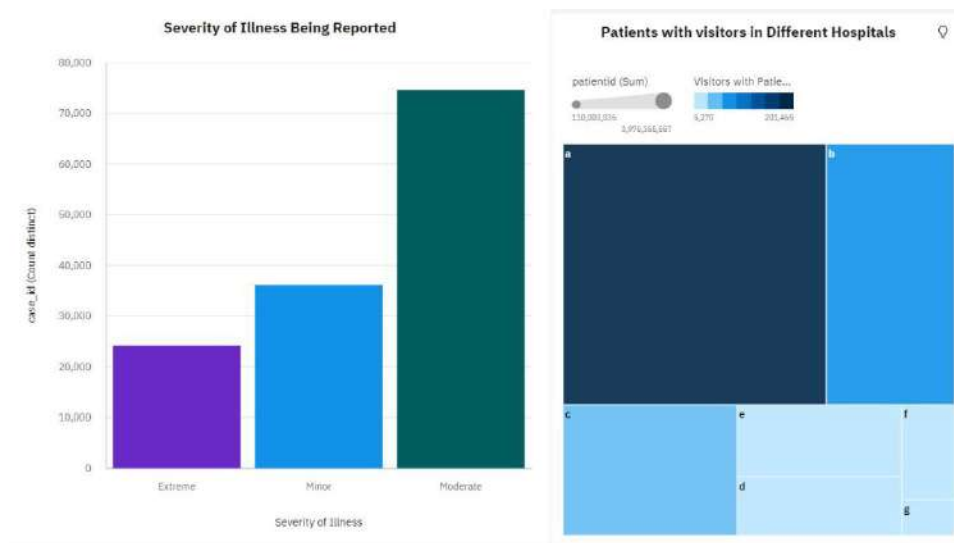
DASHBOARD:



AGE OF PATIENTS WITH CASE ID AND FILTERS OF DEPARTMENTS AND SEVERITY OF ILLNESS:



SEVERITY OF ILLNESS AND VISITORS IN HOSPITALS:



6.2 Sprint Delivery Schedule:

Project Tracker, Velocity & Burndown Chart: (4 Marks)

Sprint	Total Story Points	Duration	Sprint Start Date	Sprint End Date (Planned)	Story Points Completed (as on Planned End Date)	Sprint Release Date (Actual)
Sprint-1	20	6 Days	24 Oct 2022	29 Oct 2022	20	29 Oct 2022
Sprint-2	20	6 Days	31 Oct 2022	05 Nov 2022	20	05 Nov 2022
Sprint-3	20	6 Days	07 Nov 2022	12 Nov 2022	20	12 Nov 2022
Sprint-4	20	6 Days	14 Nov 2022	19 Nov 2022	20	19 Nov 2022

Velocity:

Imagine we have a 10-day sprint duration, and the velocity of the team is 20 (points per sprint). Let's calculate the team's average velocity (AV) per iteration unit (story points per day)

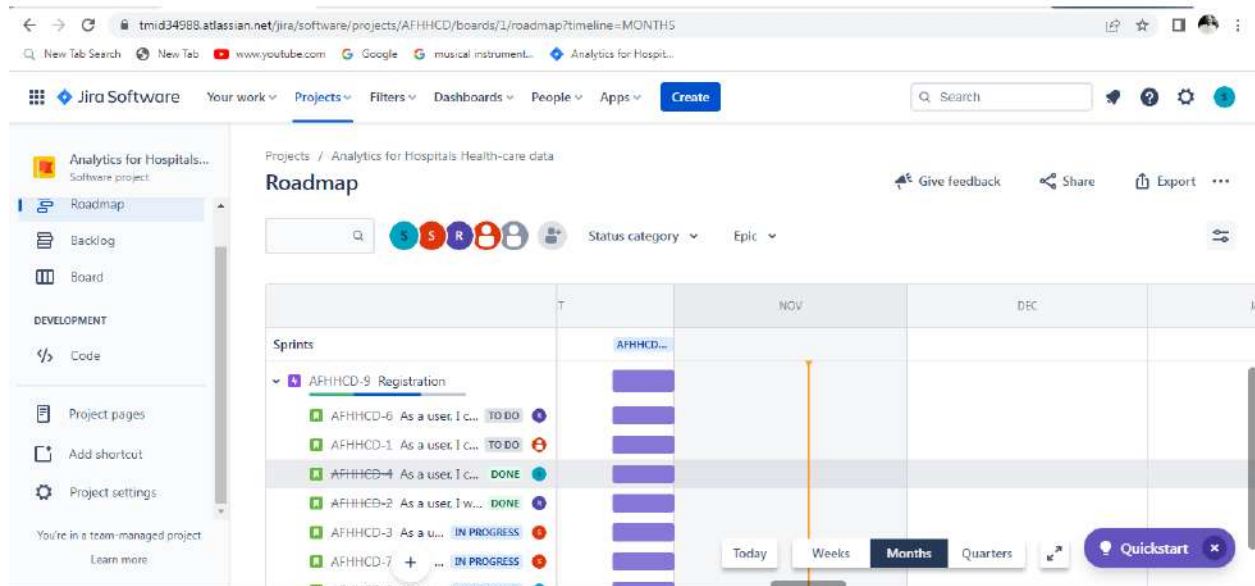
$$AV = \frac{\text{Sprint duration}}{\text{Velocity}} = 20/10 = 2$$

Burndown Chart:

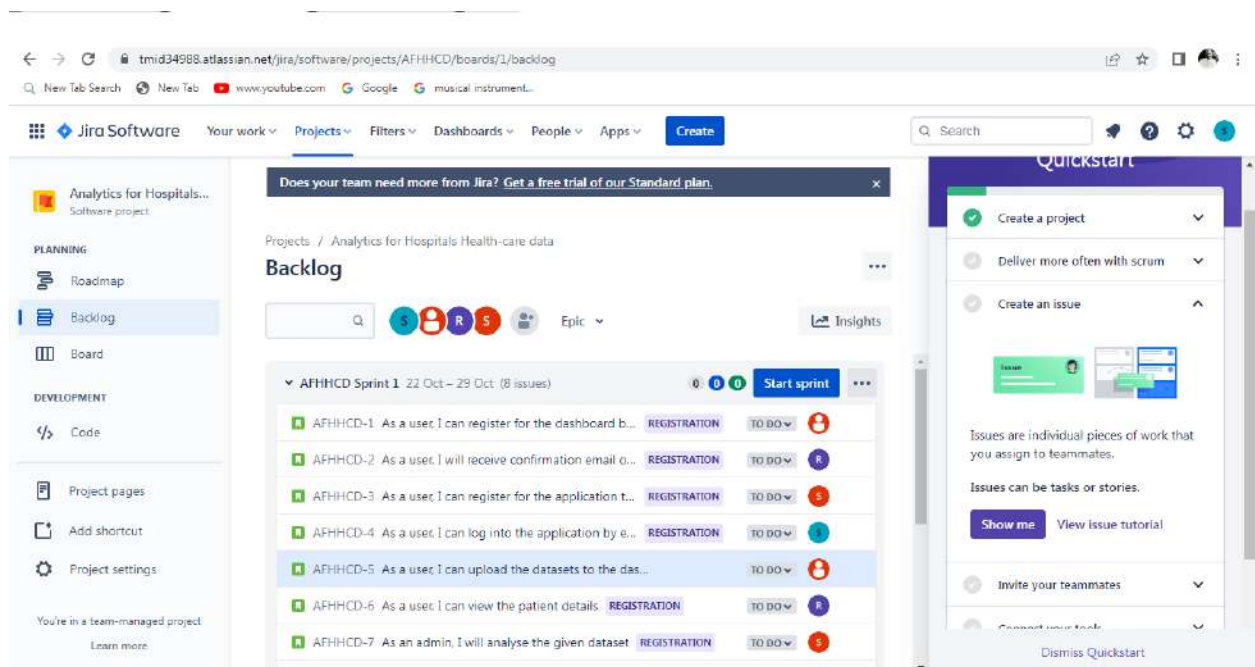
A burn down chart is a graphical representation of work left to do versus time. It is often used in agile software development methodologies such as Scrum. However, burn down charts can be applied to any project containing measurable progress over time.

6.3 Reports from JIRA:

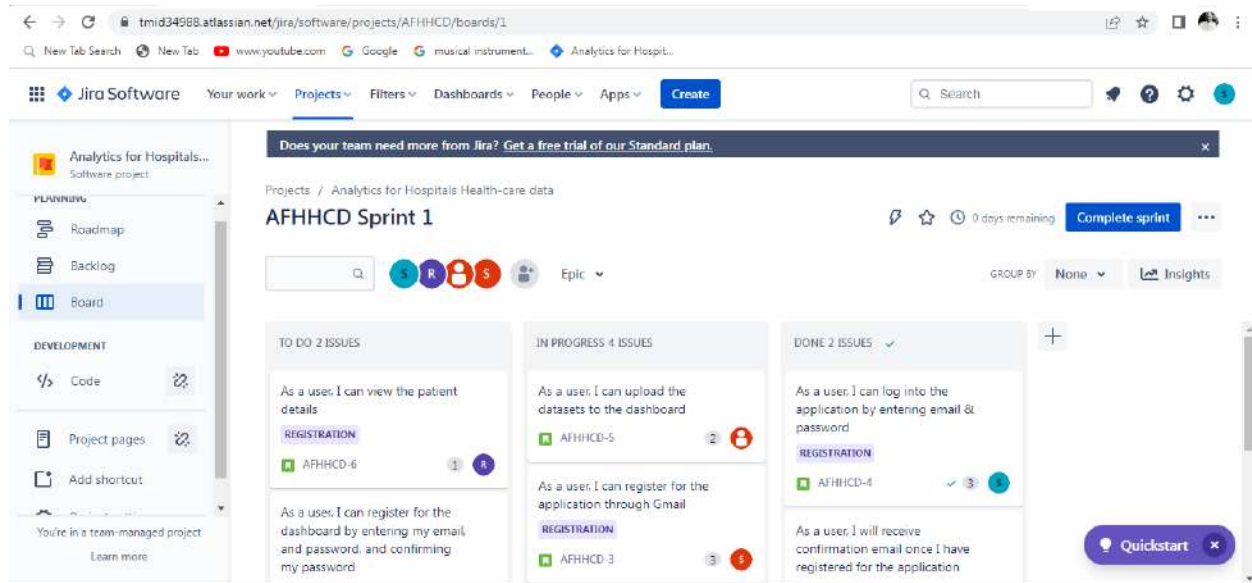
RoadMap:



Backlog:



Board:

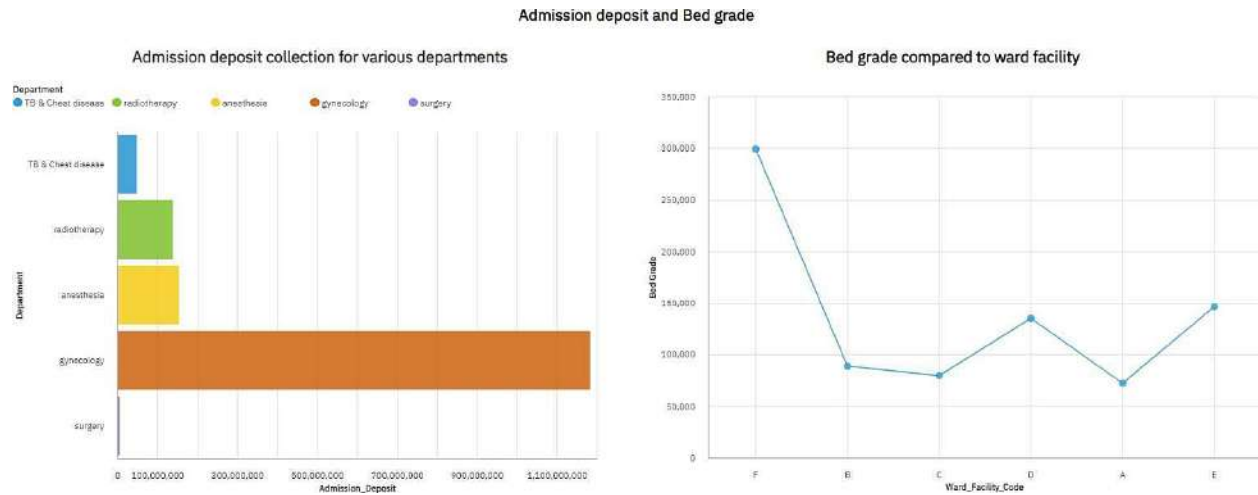


7. CODING & SOLUTIONING

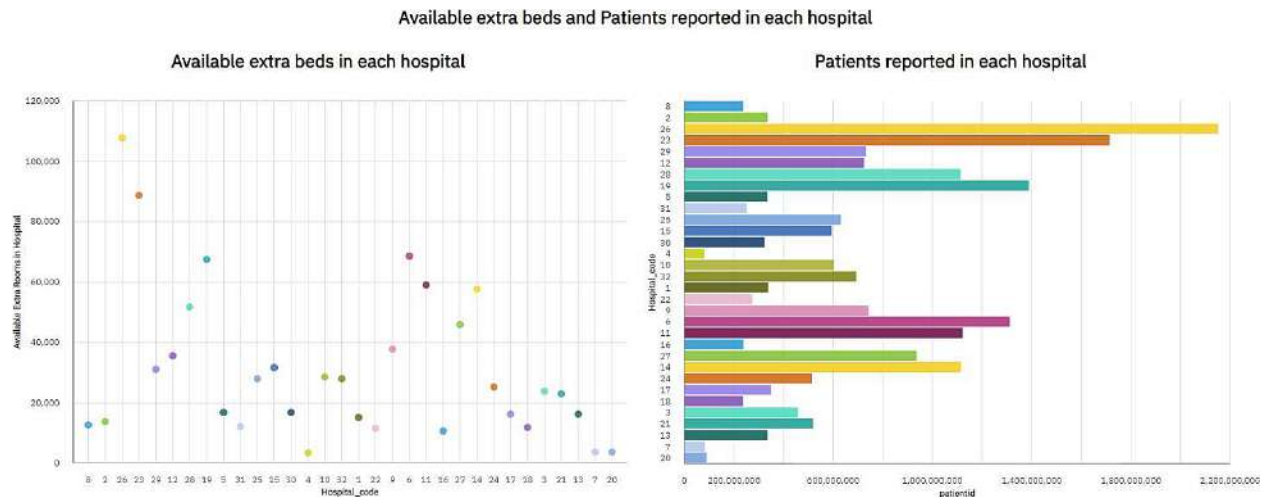
7.1 Feature 1

- Fetched the data from DB2 database.
- Creating responsive dashboard.
- Inserting filter for each chart
- Creating report
- Created reports using multiple graphs and charts

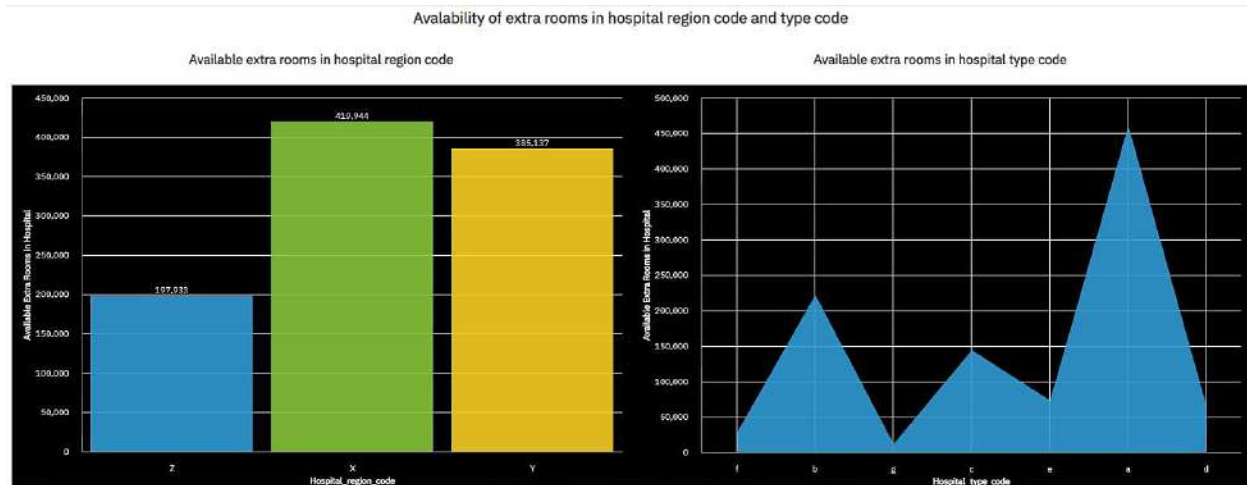
Patient's admission deposit and bed grade compared to ward facility:



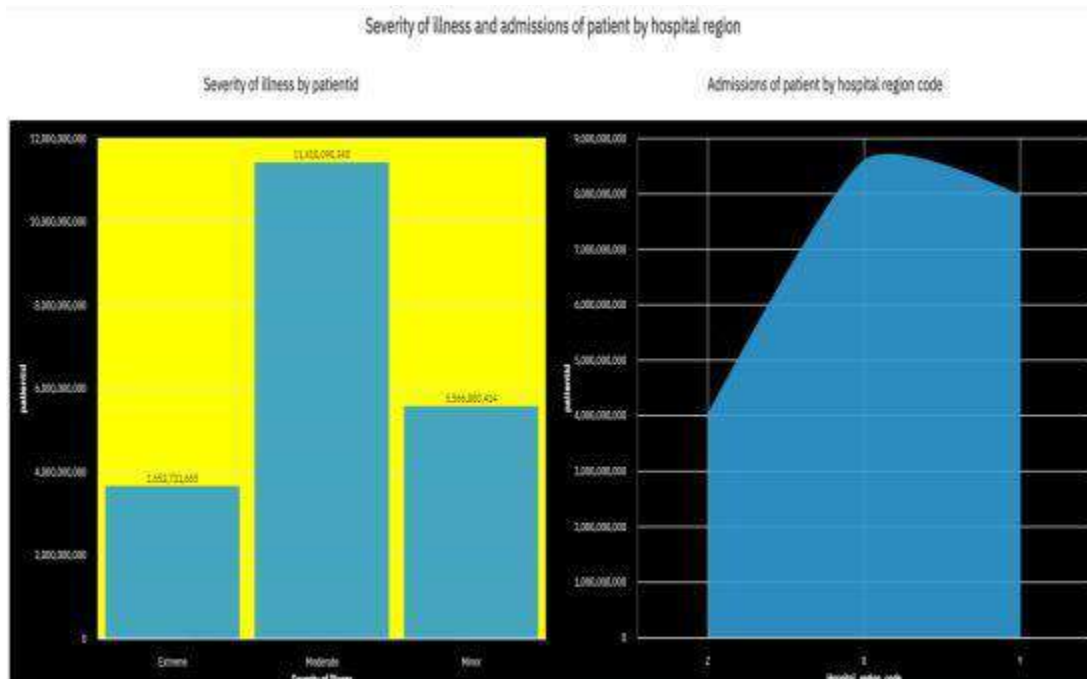
Available extra beds and Patients reported in each hospital:



Availability of extra rooms in hospital region code and type code:



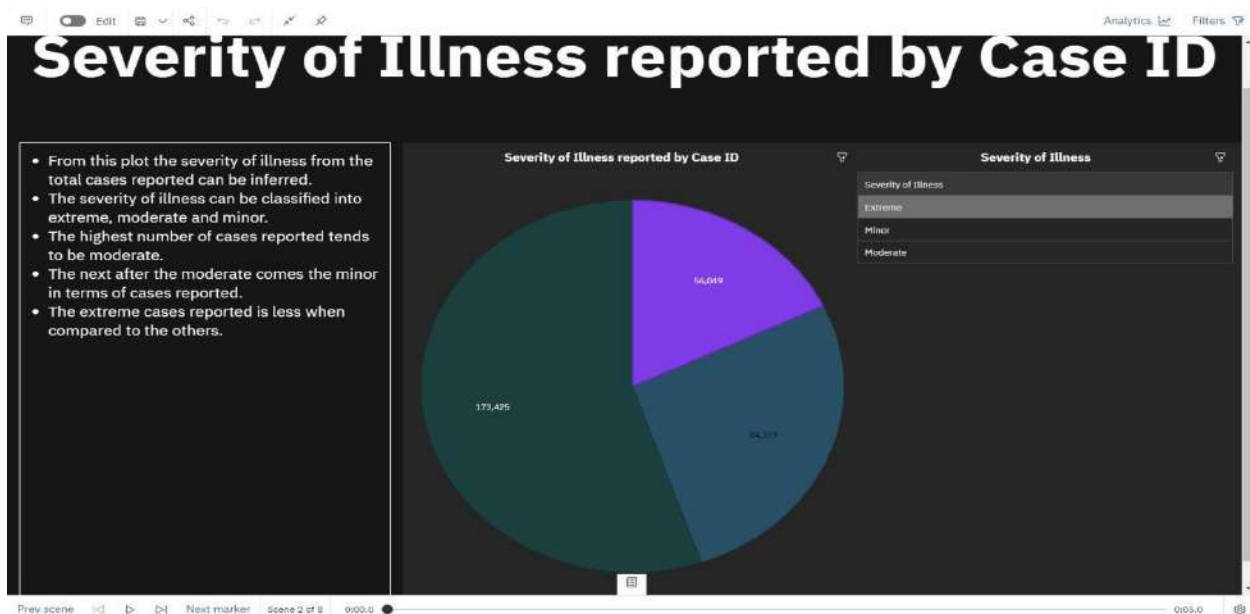
Severity of illness and admissions of patient by hospital region:



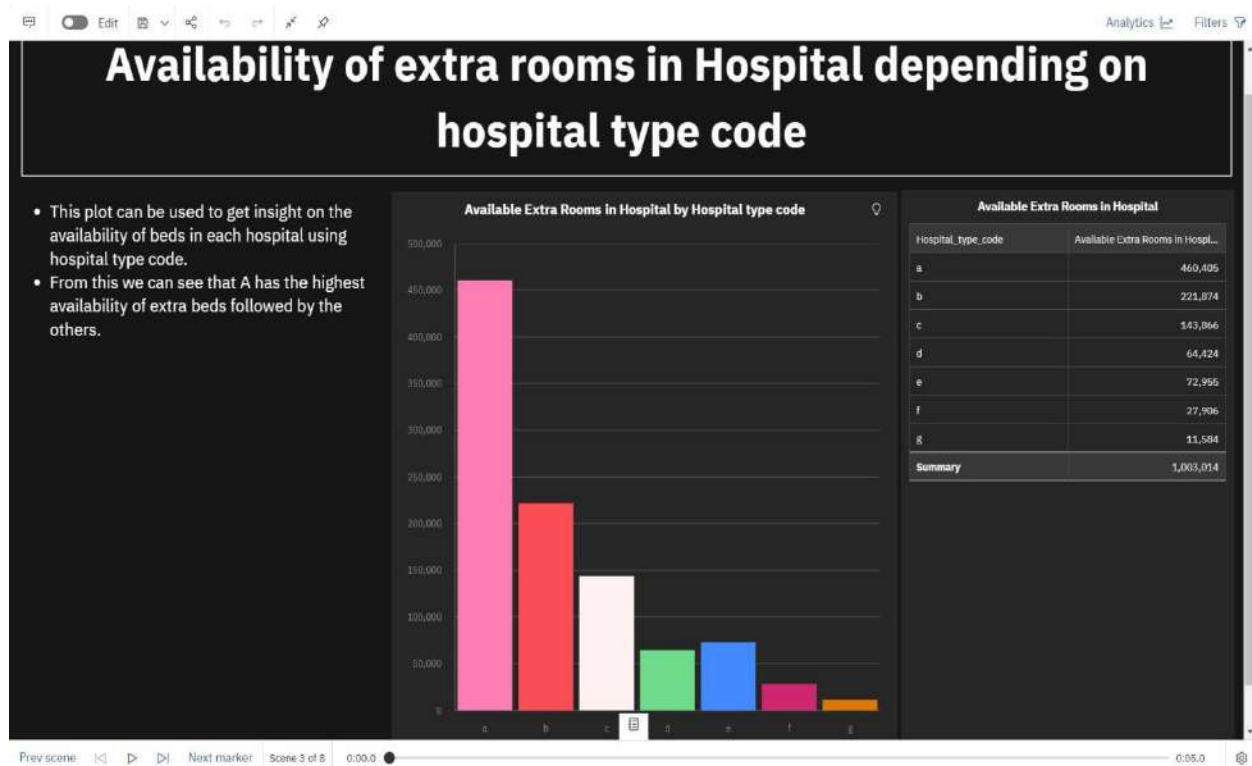
7.2 Feature 2

- Creating stories and performed.
- Perform animation render image from website.
- Included graphs and charts.
- Creating web application using bootstrap.
- Embedded the cognos with web application.

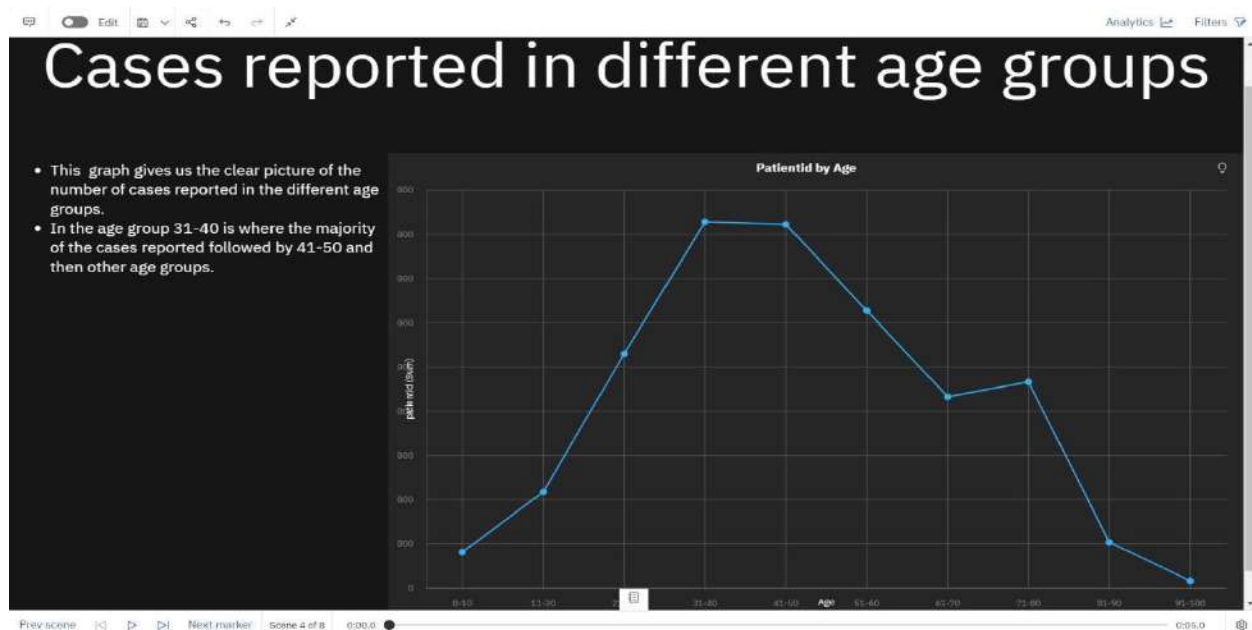
Severity of illness reported by case id:



Availability of extra rooms in hospital depending on hospital type code:



Cases reported in different age groups:



Stay by Patients:



Patients report in the hospital by region code:



Total admission:



7.3 Database Schema

- Casee_id
- Hospital_code
- Hospital_type_code
- City_Code_Hospital
- Hospital_region_code
- Available Extra Rooms in Hospital
- Department
- Ward_Type
- Ward_Facility_Code
- Bed Grade
- Patient id
- City_Code_Patient
- Type of Admission
- Severity of Illness
- Visitors with Patient
- Age
- Admission_Deposit
- Stay

8. TESTING

8.1 Test Cases

1. Verify the user is able to get the responsiveness of all the graphs
2. Verify the user get the entire visualization of the dashboard, report.
3. Verify the user get the complete interaction with the website
4. Check if the entire dashboard, Report is visible.
5. User can view pages in the report.
6. Verify the user is able to access the no of bed based on the region
7. Verify the user is able to access the bed grade with respect to the severity of illness
8. Verify the user is able to access the parameters based on the length of stay
9. Verify the user is able to compare the department based on the Severity of illness.

8.2 User Acceptance Testing

1. Purpose of Document

The purpose of this document is to briefly explain the test coverage and open issues of the [ProductName] project at the time of the release to User Acceptance Testing (UAT).

2. Defect Analysis

This report shows the number of resolved or closed bugs at each severity level, and how they were resolved.

Resolution	Severity 1	Severity 2	Severity 3	Severity 4	Subtotal
By Design	8	5	0	3	16
Duplicate	1	0	5	0	6
External	0	3	2	1	6
Fixed	13	4	3	16	36
Not Reproduced	0	1	0	0	1
Skipped	0	1	0	1	2
Won't Fix	1	4	2	1	8
Totals	23	18	12	22	75

3. Test Case Analysis

This report shows the number of test cases that have passed, failed, and untested.

Section	Total Cases	Not Tested	Fail	Pass
Print Engine	9	0	0	9
Client Application	43	0	0	43
Security	1	0	0	1
Outsource Shipping	1	0	0	1

Exception Reporting	9	0	0	9
Final Report Output	10	0	0	10
Version Control	1	0	0	1

9. RESULTS

9.1 Performance Metrics:

Spearhead hospital and health system improvements by using standardized data and analytics on a variety of topics what are healthcare performance measurements Healthcare performance measurements are aggregated, quantified and analyzed data on a particular healthcare- related activity. Their purpose is to identify opportunities for reducing costs, improving quality of care and increasing efficiency of care delivery. They're also used to monitor other initiatives that an institution wants to track- or needs to track- to satisfy regulatory requirements. These measurement initiatives are typically developed and operated with the active involvement of the physicians and hospital staff whose performance is being measured- as well as government and other third party agencies- to ensure that the measures are meaningful, and the data are accurate.

Types of healthcare performance measurements include:

- 1) Quality and efficiency of patient care
- 2) Cost of healthcare services
- 3) Disparities in performance
- 4) Care outcomes

10. ADVANTAGES & DISADVANTAGES

ADVANTAGES:

The work processes and organization structures of healthcare providers directly impact the quality of care patients receive and the likelihood of positive patient outcomes. Measuring the effect of process and organization changes on outcomes and operational efficiencies requires the ability to collect and analyze healthcare provider data related to these processes and structures in complex healthcare environments.

DISADVANTAGES:

Realizing the potential of data analytics to transform the healthcare industry begins by understanding how the technology can be applied to address healthcare providers' challenges, including staff recruitment and utilization, operational efficiencies, and enhanced patient experiences. Patient-centered healthcare depends on knowing what patients want and need. Data analytics holds the key to unlocking this vital information.

11.CONCLUSION

Health-care data Analytics Dashboard can improve the ability of health service facilities and stakeholders to predict disease epidemics and health-related events, prevent human errors, improve early preventive care, provide warning signs to the public, facilitate evaluation of programs and related policies health, and facilitate decision making to find out faster and respond appropriately.

12. FUTURE SCOPE

Healthcare data analytics refers to the process of working on raw datasets related to healthcare and analyzing them to find hidden patterns, trends, etc., thus paving a way for further improvements at patient-level as well as business-level. Since we talked about healthcare-related data in the above definition, let us now understand what healthcare data is. Healthcare data is nothing but any data that is related to the patient and the healthcare facilities such as medical records, scan and test reports, hospital records, etc. Different tools are used to collect this data. Some of the important tools and ways are electronic health records (EHRs), patient portals, master patient indexes (MPIs), online health-related mobile applications, etc. Not only does this help in data-driven informed decision-making, but it also helps in providing a personalized experience and treatment to the patients.

13. APPENDIX

```
<!DOCTYPE html>
<html lang="en">

<head>
  <meta charset="utf-8">
  <meta content="width=device-width, initial-scale=1.0" name="viewport">

  <title>Hospital Health Care</title>
  <meta content="" name="description">
  <meta content="" name="keywords">

  <!-- Favicons -->
  <link href="assets/img/favicon.png" rel="icon">
  <link href="assets/img/apple-touch-icon.png" rel="apple-touch-icon">

  <!-- Google Fonts -->
  <link
href="https://fonts.googleapis.com/css?family=Open+Sans:300,300i,400,400i,600,600i,700,700i|Raleway:300,300i,400,400i,500,500i,600,600i,700,700i|Poppins:300,300i,400,400i,500,500i,600,600i,700,700i"
rel="stylesheet">

  <!-- Vendor CSS Files -->
  <link href="assets/vendor/fontawesome-free/css/all.min.css" rel="stylesheet">
  <link href="assets/vendor/animate.css/animate.min.css" rel="stylesheet">
  <link href="assets/vendor/bootstrap/css/bootstrap.min.css" rel="stylesheet">
  <link href="assets/vendor/bootstrap-icons/bootstrap-icons.css" rel="stylesheet">
  <link href="assets/vendor/boxicons/css/boxicons.min.css" rel="stylesheet">
  <link href="assets/vendor/glightbox/css/glightbox.min.css" rel="stylesheet">
  <link href="assets/vendor/remixicon/remixicon.css" rel="stylesheet">
  <link href="assets/vendor/swiper/swiper-bundle.min.css" rel="stylesheet">

  <!-- Template Main CSS File -->
  <link href="assets/css/style.css" rel="stylesheet">
```



```

<!-- =====
* Template Name: Medilab - v4.9.1
* Template URL: https://bootstrapmade.com/medilab-free-medical-bootstrap-theme/
* Author: BootstrapMade.com
* License: https://bootstrapmade.com/license/
===== -->
</head>

<body>

<!-- ===== Top Bar ===== -->
<div id="topbar" class="d-flex align-items-center fixed-top">
  <div class="container d-flex justify-content-between">

</div>
</div>

<!-- ===== Header ===== -->
<header id="header" class="fixed-top">
  <div class="container d-flex align-items-center">

    <h1 class="logo me-auto"><a href="index.html"> SSRA Hospital Health Care Service</a></h1>
    <!-- Uncomment below if you prefer to use an image logo -->
    <!-- <a href="index.html" class="logo me-auto"></a>-->

    <nav id="navbar" class="navbar order-last order-lg-0">
      <ul>
        <li><a class="nav-link scrollto active" href="#hero">Home</a></li>
        <li><a class="nav-link scrollto" href="#about">About</a></li>
        <li><a class="nav-link scrollto" href="#services">Services</a></li>
        <li><a class="nav-link scrollto" href="#departments">Departments</a></li>

      </ul>
      <i class="bi bi-list mobile-nav-toggle"></i>
    </nav><!-- .navbar --> </p>

```

```

    </div>
  </div>
  <div class="col-lg-8 d-flex align-items-stretch">
    <div class="icon-boxes d-flex flex-column justify-content-center">
      <div class="row">
        <div class="col-xl-4 d-flex align-items-stretch">
          <div class="icon-box mt-4 mt-xl-0">
            <i class="bx bx-receipt"></i>
            <h4>Goal</h4>
          </div>
        </div>
        <div class="col-xl-4 d-flex align-items-stretch">
          <iframe
src="https://eu2.ca.analytics.ibm.com/bi/?perspective=explore&pathRef=.my_folders%2Ffin&closeWindowOnLastView=true&ui_appbar=false&ui_navbar=false&shareMode=embedded&subView=model000001848e8ee871_00000000" width="500" height="600" frameborder="0" gesture="media"
allow="encrypted-media" allowfullscreen=""></iframe>
          </div>
        </div>
      </div>
    </div>
    <!-- End .content-->
  </div>
</div>

```

```

    <p>Provide information to the user through visualisation.</p>
  </div>
<div>
  <iframe
src="https://eu2.ca.analytics.ibm.com/bi/?perspective=explore&pathRef=.my_folders%2Ffinal&closeWindowOnLastView=true&ui_appbar=false&ui_navbar=false&shareMode=embedded&subView=model000001848e02faaf_00000000" width="1000" height="600" frameborder="0"
gesture="media" allow="encrypted-media" allowfullscreen="">
  </iframe>
</div>

```

```
src="https://eu2.ca.analytics.ibm.com/bi/?perspective=explore&pathRef=.my_folders%2Ffina&closeWindowOnLastView=true&ui_appbar=false&ui_navbar=false&shareMode=embedded&subView=model000001848e7a58c1_00000004" width="1000" height="600" frameborder="0"
```

```
gesture="media" allow="encrypted-media" allowfullscreen=""></iframe>
```

```
<iframe
```

```
src="https://eu2.ca.analytics.ibm.com/bi/?perspective=dashboard&pathRef=.my_folders%2Fsivi&closeWindowOnLastView=true&ui_appbar=false&ui_navbar=false&shareMode=embedded&mp;action=view&mode=dashboard&subView=model000001848ef76350_00000000" width="1000"
```

```
height="600" frameborder="0" gesture="media" allow="encrypted-media" allowfullscreen=""></iframe>
```

```
</div>
```

```
</section><!-- End Services Section -->
```

```
<!-- ===== Appointment Section ===== -->
```

```
<!-- ===== Departments Section ===== -->
```

```
<section id="departments" class="departments">
```

```
<div class="container">
```

```
<div class="section-title">
```

```
<h2>Departments</h2>
```

```
<p>We are providing services for five departments.</p>
```

```
</div>
```

```
<div class="row gy-4">
```

```
<div class="col-lg-3">
```

```
<ul class="nav nav-tabs flex-column">
```

```
<li class="nav-item">
```

```
<a class="nav-link active show" data-bs-toggle="tab" href="#tab-1">TB and Chest Disease</a>
```

```
</li>
```

```
<li class="nav-item">
```

```
<a class="nav-link" data-bs-toggle="tab" href="#tab-2">Genecology</a>
```

```
</li>
```

```
<li class="nav-item">
```

```
<a class="nav-link" data-bs-toggle="tab" href="#tab-3">Anesthesia</a>
```

```
</li>
```

```
<li class="nav-item">
```

```
<a class="nav-link" data-bs-toggle="tab" href="#tab-4">Radiotherapy</a>
```

```

        </li>
        <li class="nav-item">
            <a class="nav-link" data-bs-toggle="tab" href="#tab-5">Surgery</a>
        </li>
    </ul>
</div>
<div class="credits">

```

```

<!-- All the links in the footer should remain intact. -->
    <!-- You can delete the links only if you purchased the pro version. -->
    <!-- Licensing information: https://bootstrapmade.com/license/ -->
    <!-- Purchase the pro version with working PHP/AJAX contact form:
https://bootstrapmade.com/medilab-free-medical-bootstrap-theme/ -->

```

```

Designed by <a href="https://bootstrapmade.com/">BootstrapMade</a>
</div>
</div>

```

```

<div class="social-links text-center text-md-right pt-3 pt-md-0">
    <a href="#" class="twitter"><i class="bx bxl-twitter"></i></a>
    <a href="#" class="facebook"><i class="bx bxl-facebook"></i></a>
    <a href="#" class="instagram"><i class="bx bxl-instagram"></i></a>
    <a href="#" class="google-plus"><i class="bx bxl-skype"></i></a>

```

```

<a href="#" class="linkedin"><i class="bx bxl-linkedin"></i></a>
</div>
</div>

```

```

</footer><!-- End Footer -->

```

```

<div id="preloader"></div>
<a href="#" class="back-to-top d-flex align-items-center justify-content-center"><i class="bi bi-arrow-up-short"></i></a>

```

```

<!-- Vendor JS Files -->

```

```

<script src="assets/vendor/purecounter/purecounter_vanilla.js"></script>

```

```
<script src="assets/vendor/bootstrap/js/bootstrap.bundle.min.js"></script>
<script src="assets/vendor/glightbox/js/glightbox.min.js"></script>
<script src="assets/vendor/swiper/swiper-bundle.min.js"></script>
<script src="assets/vendor/php-email-form/validate.js"></script>
```

```
<!-- Template Main JS File -->
```

```
<script src="assets/js/main.js"></script>
```

```
</body>
```

```
</html>
```

GitHub link:

<https://github.com/IBM-EPBL/IBM-Project-40866-1660636807>

Project Demo Link:

https://drive.google.com/file/d/1aowiG2zh42OH-hb-bn9MqPi_hT9nw4lX/view?usp=drivesdk