

1. INTRODUCTION

Project Overview

Recent Covid-19 Pandemic has raised alarms over one of the most overlooked areas to focus on, which is absolutely Healthcare Data Management. While healthcare management has various use cases for using data science, patient length of stay is one critical parameter to observe and predict if one wants to improve the efficiency of the healthcare management in a hospital. This parameter helps hospitals to identify patients of high LOS-risk (patients who will stay longer) at the time of admission. Once identified, patients with high LOS risk can have their treatment plan optimized to minimize LOS and lower the chance of staff/visitor infection. Also, prior knowledge of LOS can aid in logistics such as room and bed allocation planning. The goal is to accurately predict the Length of Stay for each patient on case by case basis so that the Hospitals can use this information for optimal resource allocation and better functioning. The length of stay is divided into 11 different classes ranging from 0-10 days to more than 100 days. The tools that we are using for data analytics is Cognos Analytics from IBM

Purpose

The main purpose of the project is to provide the patients with all the information possible regarding any beds available in the hospitals. It is built to be the user-friendly dashboard that can facilitate patients to get any information without visiting the hospital directly or calling up the hospital. Hence it essentially tries to eliminate the wasted in the search of the hospital beds and so forth it will save lives of humans.

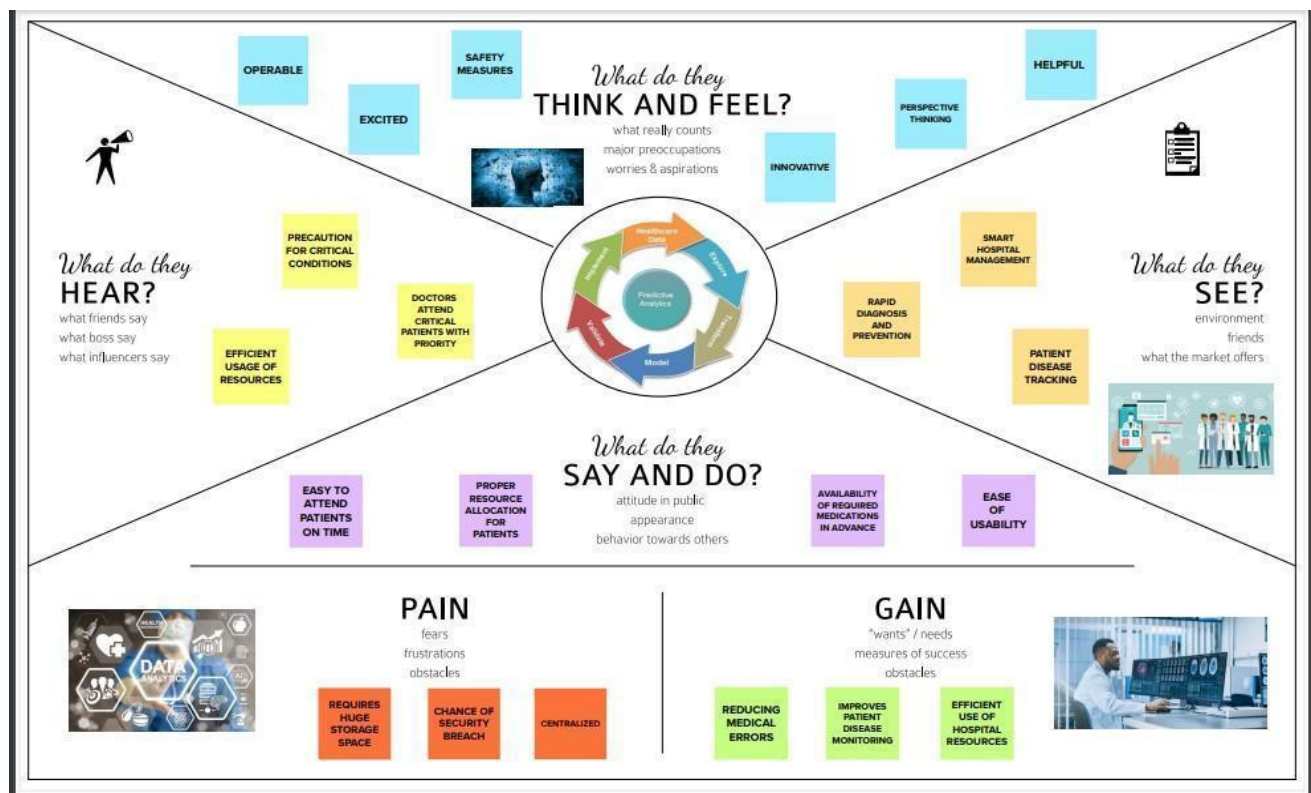
2. LITERATURE SURVEY

s.no	title	Author	Year of Publication	Problem identification	Techniques used	Drawbacks
1	Big data analytics:Understanding its capabilities and potential benefits	Yinchuan Wang et.al	February 2016	Our findings will help healthcare organisation understand the big data analytics capabilities and potential benefits a	Apache	To address this lack,this study examines the historical development,architectural design,and component
2	Big data analytics solution for intelligent health care management	Alejandro Bal dominos,et.al;	March 2017	the users to help able to see understand the valuable information provided by data care the visual	Apache,spar k,Mongodb	Big data can also pose risk and undermine doctors
3	Analysis of healthcare big data	zhihan LV,et.al	march 2020	Hospitalization cost,and the insured population all show a trend of increasing year by year	Hadoop	the hospitalization costs show a trend of increasing year by year
4.	Healthcare analytic in Era: A survey.	Mohamad Zain Khan,et.al.,	March 2019	It helps new data and security models for measuring security & quality of data using the health care environmen	ML	Data sets can gain unwanted attention from hackers and important information can be leaked to competitors.

				t.		
5.	A Framework for Data Analytics- Based Healthcare Systems.	V.Munees waran, et.al.,	February 2021	Data analytics is becoming a future escalating tool of all industries including medicine, robotics, etc.,	generic XML	The term data is unavoidable and certainly, nothing is possible without its usage.

3. IDEATION & PROPOSED SOLUTION


Empathy Map Canvas



Ideation & Brainstorming

Step-1: Team Gathering, Collaboration and Select the Problem Statement

Template



Brainstorm & idea prioritization

Use this template in your own brainstorming sessions so your team can unleash their imagination and start shaping concepts even if you're not sitting in the same room.

- 10 minutes to prepare
- 1 hour to collaborate
- 2-8 people recommended

Before you collaborate

A little bit of preparation goes a long way with this session. Here's what you need to do to get going.

10 minutes

- Team gathering**
Define who should participate in the session and send an invite. Share relevant information or pre-work ahead.
- Set the goal**
Think about the problem you'll be focusing on during the brainstorming session.
- Learn how to use the facilitation tools**
Use the Facilitation Superpowers to run a happy and productive session.

[Open article](#)

1 Define your problem statement

What problem are you trying to solve? Frame your problem as a How Might We statement. This will be the focus of your brainstorm.

5 minutes

PROBLEM

How might we analyze data sets to allocate beds for patients by efficiently utilizing the resources?

PROBLEM

How might we get the data about the availability of the patients requirement?

PROBLEM

How might we analyze the need for the patients?

Key rules of brainstorming

To run a smooth and productive session

- Stay on topic
- Order judgement
- Go for volume
- Encourage wild ideas
- Listen to others
- If possible, be visual

Step-2: Brainstorm, Idea Listing and Grouping

2 Brainstorm

Write down any ideas that come to mind that address your problem statement.

10 minutes

SAFETY

- Don't interrupt
- Don't criticize any ideas
- Don't worry about quantity or quality
- Don't worry about being wrong

COLLABORATION

- Use sticky notes
- Use the facilitation tools
- Use the facilitation tools
- Use the facilitation tools

GROUPING

- Group similar ideas
- Group similar ideas
- Group similar ideas
- Group similar ideas

WEEKEND

- Group similar ideas
- Group similar ideas
- Group similar ideas
- Group similar ideas

3 Group ideas

Take turns sharing your ideas while clustering similar or related notes as you go. Once all sticky notes have been grouped, give each cluster a sentence-like label. If a cluster is bigger than six sticky notes, try and see if you can break it up into smaller sub-groups.

20 minutes

RESOURCE

- Don't interrupt
- Don't criticize any ideas
- Don't worry about quantity or quality
- Don't worry about being wrong

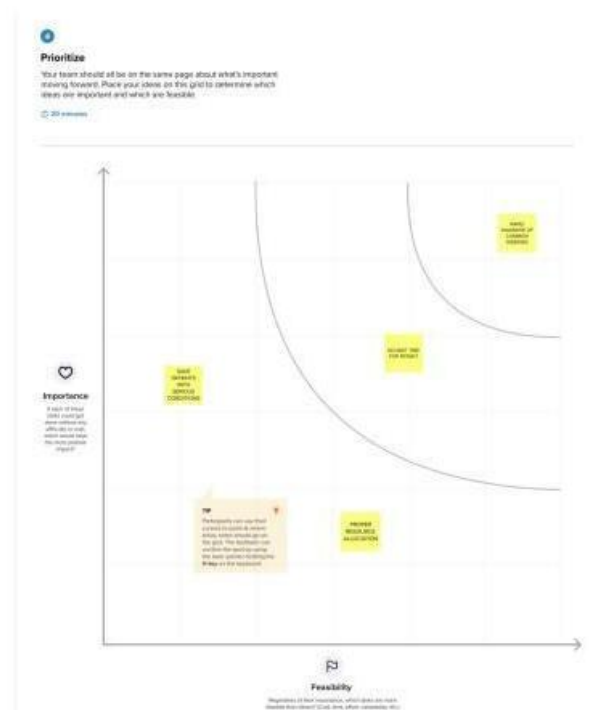
TIME COMPLEXITY

- Don't interrupt
- Don't criticize any ideas
- Don't worry about quantity or quality
- Don't worry about being wrong

DISCUSSION

- Don't interrupt
- Don't criticize any ideas
- Don't worry about quantity or quality
- Don't worry about being wrong

Step-3: Idea Prioritization



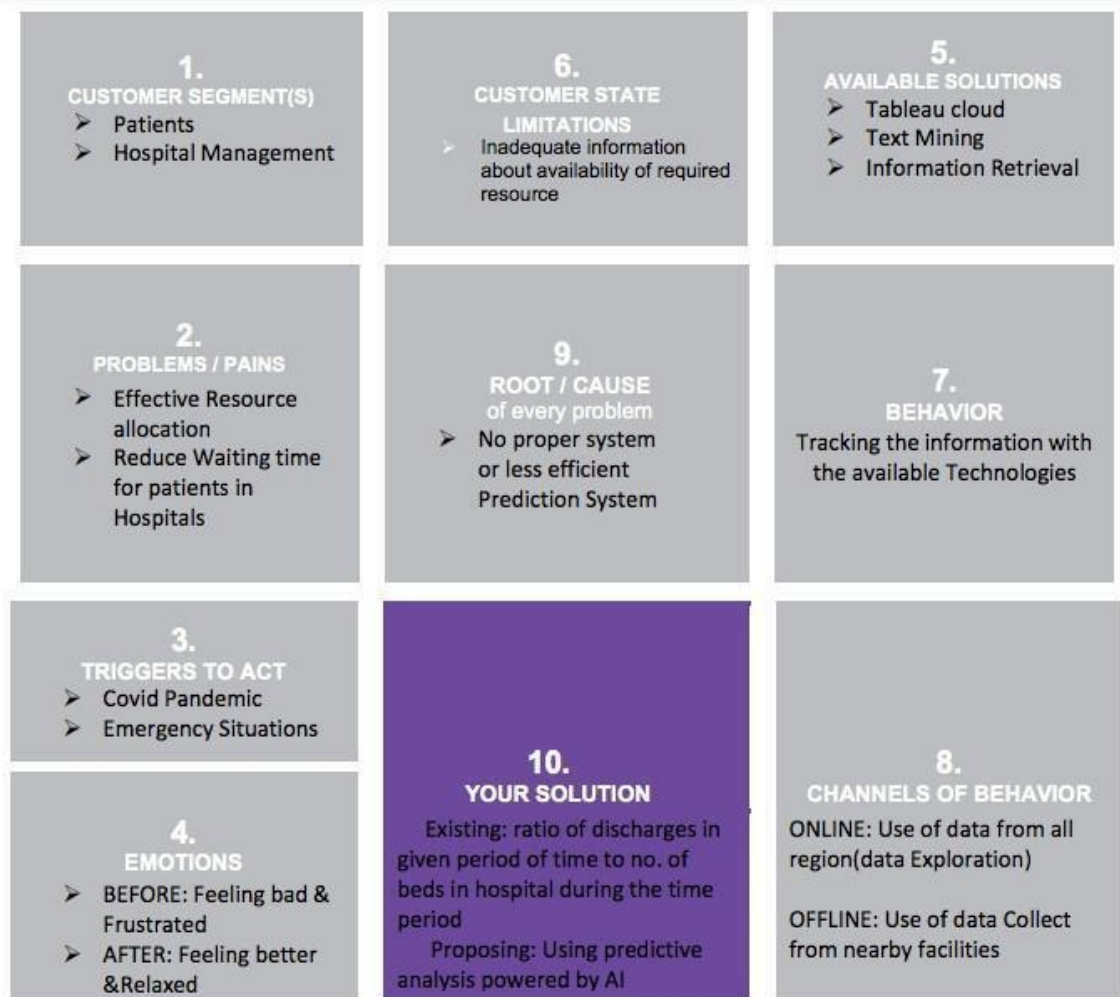
Proposed Solution

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, noone 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 helps us to know about the patient's period of stay. It improves effective allocation of beds and other resources, treatment delivery, 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 behavioural pattern of particular disease.
4.	Social Impact / Customer Satisfaction	effective use of resource Enhanced diagnosis Improved Treatment t enhancing the overall quality of treatment and life of patients.
5.	Business Model (Revenue Model)	With the gathered data, redirecting the patients to particular hospital based on the vacancy, leading retailers used methods like market-basket analysis to discover insights about consumer purchase behaviour 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 centralised healthcare services.
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Problem Solution fit



4. REQUIREMENT ANALYSIS

Functional requirement

The following are the functional requirements of the proposed solution.

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	User Registration	Registration through Form Registration through Gmail
FR-2	User Confirmation	Confirmation via Email Confirmation via Message
FR-3	Interoperability	Dashboard helps to share the patient's information interoperable to the hospitals in a timely manner.
FR-4	Accuracy	Dashboard helps predict the patient's Health risks accurately based on LOS (Length of Stay). .
FR-5	Compliance	The compliance of a dashboard is likely to be used very interactively in real time by the hospitals.
FR-6	Concise	These dashboards are clear, intuitive, and customizable and interactive in manner.

Non-Functional requirements

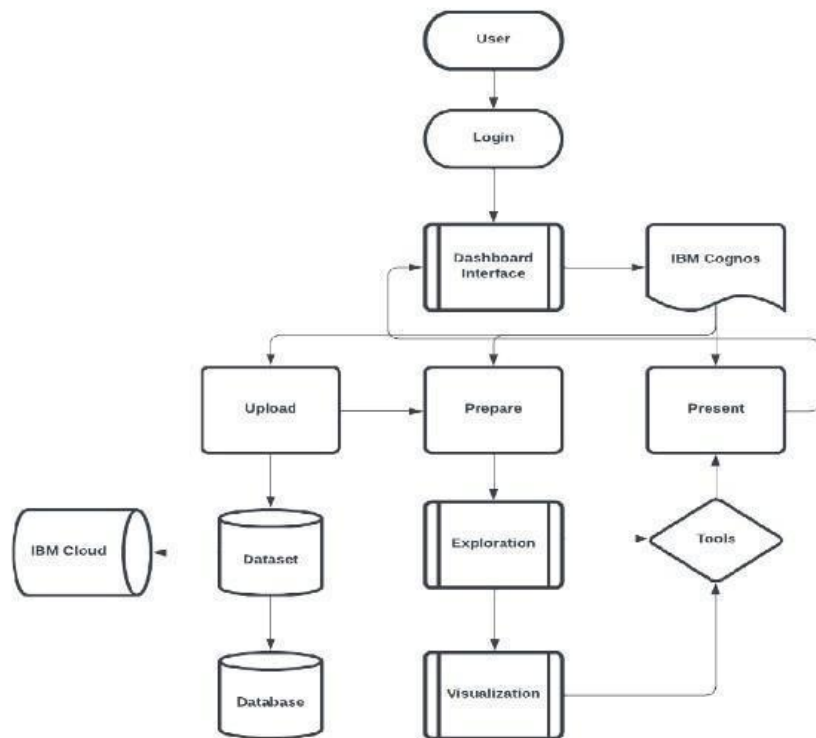
Following are the non-functional requirements of the proposed solution.

FR No.	Non-Functional Requirement	Description
NFR-1	Usability	These Dashboards are designed to offer a comprehensive overview of a 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 an effective, efficient and reliable manner.
NFR-4	Performance	This dashboard can scan the backend users and analyzing the frequency in which they visit the dashboard helps understand how useful and helpful the data displayed is for tasks..
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

Data Flow Diagrams



SOLUTION & TECHNICAL ARCHITECTURE

User Stories

	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 application by entering my email, password, and confirming my password.	I can access my account / dashboard	High	Sprint-1
		USN-2	As a user, I will receive confirmation email once I have registered for the dashboard	I can receive confirmation email & click confirm	High	Sprint-1
		USN-3	As a user, I can register for the application through Social Media	I can register & access the dashboard with Social Media Login	Low	Sprint-2
		USN-4	As a user, I can register for the dashboard through Gmail	I can register & access the dashboard with Gmail Login	Medium	Sprint-1

	Login	USN-5	As a user, I can log into the application by entering email & password	I can access my account / dashboard by Login	High	Sprint-1
	Dashboard	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	High	Sprint-2
Customer (Web user)	Access	USN-7	As a user, I can use my dashboard in website	I can login into the dashboard by visiting	High	Sprint-1

				website		
Customer Care Executive	Clarification	USN-8	As a user ,I can contact the Customer care Executive for my login.	I can contact the customer executive for my login.	Medium	Sprint-3
Administrator	Moderation	USN-9	As a user ,I can contact administrator for my queries	I can contact the administrator to solve my queries.	High	Sprint-3
		USN-10	As a user, I can prepare data by using Exploration Techniques	I can prepare data by using Exploration Techniques.	Medium	Sprint-4
		USN-11	As a user, I can Present data in my dashboard.	I can present data by using my account in the dashboard.	Medium	Sprint-4
		USN-12	As a user, I can Prepare Data by using Visualization Techniques.	I can prepare data by using Visualization Techniques	High	Sprint-4

6.PROJECT PLANNING AND SCHEDULING

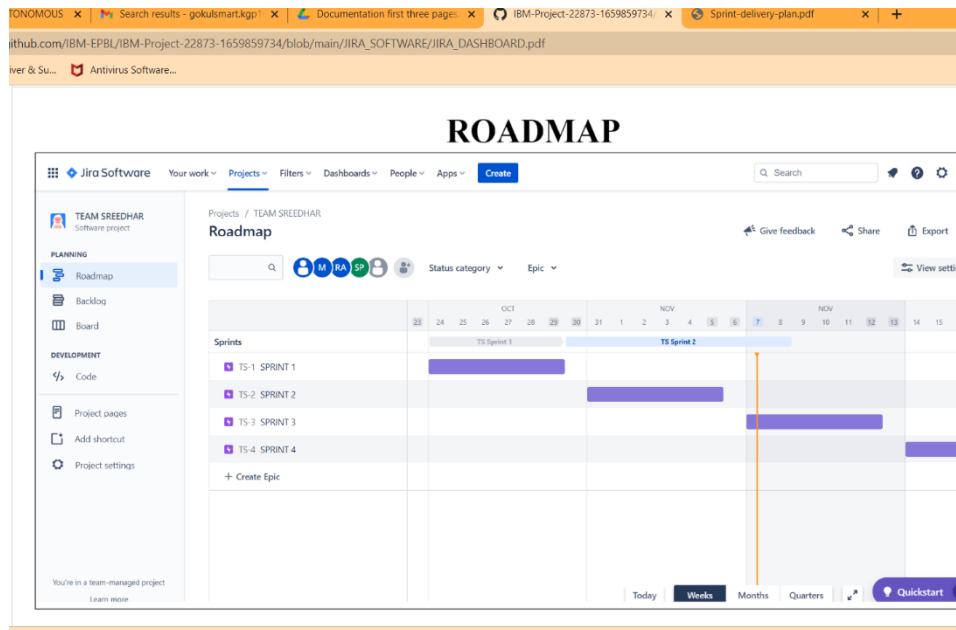
SPRINT PLANNING AND ESTIMATION

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-1	Registration	USN-1	As a health care provider I can create account in IBM cloud and the data are collected.	20	High	2 Members
Sprint-2	Analyze	USN-2	As a health care provider all the data that are collected is cleaned and uploaded in the database or IBM cloud.	20	Medium	2 Members
Sprint-3	Dashboard	USN-3	As a health care provider I can use my account in my dashboard for uploading dataset.	10	Medium	2 Members
Sprint-3	Visualization	USN-4	As a health care provider I can prepare data for Visualization.	10	High	2 Members
Sprint-4	Visualization	USN-5	As a health care provider I can present data in my dashboard.	10	High	2 Members
Sprint-4	Prediction	USN-6	As a health care provider I can predict the length of stay	10	High	2 Members

SPRINT DELIVERY SCHEDULE

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

REPORT FROM JIRA



7.CODING & SOLUTIONING

Index.html

```
<!DOCTYPE html>
```

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

```
<head>
```

```
<meta charset="utf-8">
```

```
<meta content="width=device-width, initial-scale=1.0"
name="viewport">
```

```
<title>HOSPITAL DATA ANALYTICS</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="style.css" rel="stylesheet">
```

```
<link rel="stylesheet"
href="https://cdn.jsdelivr.net/npm/bootstrap@4.3.1/dist/css/bootstrap.min.css"
integrity="sha384-
ggOyR0iXCbMQv3Xipma34MD+dH/1fQ784/j6cY/iJTQUOhcWr7x9J
voRxT2MZw1T" crossorigin="anonymous">
```

```
</head>
```

```
<body>
```

```
<!-- ===== Top Bar ===== -->
```

```
<div id="topbar" class="d-flex align-items-center fixed-top">
```

```
<div class="container d-flex justify-content-between">
```

```
<div class="contact-info d-flex align-items-center">
```

```
<i class="bi bi-envelope"></i> <a
href="mailto:sreedharraman23@gmail.com">contact@h1.com</a>
```

```
<i class="bi bi-phone"></i> +91 123457891
```

```
</div>
```

```
<div class="d-none d-lg-flex social-links align-items-center">
```

```
<a href="#" class="twitter"><i class="bi bi-twitter"></i></a>
```

```
<a href="#" class="facebook"><i class="bi bi-facebook"></i></a>
```



```
        <a href="#" class="instagram"><i class="bi bi-  
instagram"></i></a>
```

```
        <a href="#" class="linkedin"><i class="bi bi-  
linkedin"></i></i></a>
```

```
    </div>
```

```
</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">HOSPITAL  
DATA ANALYTICS</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">DASHBOARD</a></li>
```

```
            <li><a class="nav-link scrollto"  
href="#services">REPORT</a></li>
```

```

        </li><a                class="nav-link                scrollTo"
href="#appointment">STORY</a></li>

        </li><a        class="nav-link        scrollTo"        href="#doctors">
TEAM</a></li>

    </ul>

    </li>

    <i class="bi bi-list mobile-nav-toggle"></i>

</nav><!-- .navbar -->

    <a href="#appointment" class="appointment-btn scrollTo"><span
class="d-none d-md-inline">Explore</span> Now</a>

</div>

</header><!-- End Header -->

<!-- ===== Hero Section ===== -->

<section id="hero" class="d-flex align-items-center">

    <div class="container" >

        <h1>Analyze your Data</h1>

        <h2>We are team of talented analyst to understand <br>the Hospital's
Health care data </h2>

        <a href="#about" class="btn-get-started scrollTo">Get Started</a>

    </div>

</section><!-- End Hero -->

```

```
<main id="main">
```

```
<!-- ===== Why Us Section ===== -->
```

```
<section id="why-us" class="why-us">
```

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

```
<div class="row">
```

```
<div class="col-lg-4 d-flex align-items-stretch">
```

```
<div class="content">
```

```
<h3>Problem Statement</h3>
```

```
<p>
```

Patient length of stay is one critical parameter
to observe and predict if one wants to improve the efficiency
of the healthcare management in a hospital.

The parameters helps hospitals to identify patients of high
LOS-risk

(patients who will stay longer) at the time of admission.

Once identified, patients with high LOS risk can have their
treatment

plan optimized to minimize LOS and lower the chance of
staff/visitor infection.

.

```

</p>

<div class="text-center">

    <a href="#" class="more-btn">Learn More <i class="bx bx-
chevron-right"></i></a>

</div>

</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>

                            <p>The goal is to accurately predict the Length of Stay
                                for each patient on case by case basis

                                The length of stay is divided into 11 different
                                classes ranging from 0-10 days to more than 100 days.

                            </p>

                        </div>

                    </div>

                </div>

            <div class="col-xl-4 d-flex align-items-stretch">

                <div class="icon-box mt-4 mt-xl-0">

```

```

        <i class="bx bx-cube-alt"></i>

        <h4>SKILLS REQUIRED</h4>

        <p>Exploratory Data Analysis,IBM Cloud</p>
    </div>

</div>

<div class="col-xl-4 d-flex align-items-stretch">

    <div class="icon-box mt-4 mt-xl-0">

        <i class="bx bx-images"></i>

        <h4>ACTIVITIES</h4>

        <p>1.IBM Cloud Account<br>
        2.Login to Cognos Analytics<br>
        3.Working with the Dataset<br>
        4.Understanding the Dataset<br>
        5.Create multiple analytical Visualizations.<br>
        6.Using the Analytical Visualizations, build the required
Dashboard,Report,
        Story.<br>

        </p>
    </div>

</div>

</div>

</div><!-- End .content-->

</div>

</div>

```

</div>

</section><!-- End Why Us Section -->

<!-- ===== About Section ===== -->

<section id="about" class="about">

<iframe

src="https://us3.ca.analytics.ibm.com/bi/?perspective=dashboard&pathRef=.my_folders%2FSPRINT%2B3&closeWindowOnLastView=true&ui_appbar=false&ui_navbar=false&shareMode=embedded&action=view&mode=dashboard&subView=model0000018490570767_00000000" width="1350" height="800" frameborder="0" gesture="media" allow="encrypted-media" allowfullscreen=""></iframe>

</section><!-- End About Section -->

<!-- --Services Section ===== -->

<section id="services" class="services">

<div class="container">

<div class="section-title">

<h2>REPORT</h2>

</div>

<iframe

src="https://us3.ca.analytics.ibm.com/bi/?pathRef=.my_folders%2FNew%2Breport&closeWindowOnLastView=true&ui_appbar=false&ui_navbar=false&shareMode=embedded&action=run&format=HTML&prompt=false" width="1350" height="800"

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

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

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

```
<section id="appointment">
```

```
<iframe
```

```
src="https://us3.ca.analytics.ibm.com/bi/?perspective=story&pathRef=.my_folders%2FSPRINT-4%2BSTORY&closeWindowOnLastView=true&ui_appbar=false&ui_navbar=false&shareMode=embedded&action=view&sceneId=model00000184914e8ef5_00000000&sceneTime=0" width="1350" height="800" frameborder="0" gesture="media" allow="encrypted-media" allowfullscreen=""></iframe>
```

```
</section>
```

```
<!-- End Appointment Section -->
```

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

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

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

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

```
<h2>HOSPITAL HEALTH CARE</h2>
```

```
<p>Data analytics in the healthcare industry represents the automation of collection, processing, and analysis the
```

```
complex healthcare data, to gain better insights and enable healthcare practitioners to make well-informed decisions</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">Data Collection</a>
      </li>
      <li class="nav-item">
        <a class="nav-link" data-bs-toggle="tab" href="#tab-
2">Visualizations</a>
      </li>
      <li class="nav-item">
        <a class="nav-link" data-bs-toggle="tab" href="#tab-
3">Dashboard</a>
      </li>
      <li class="nav-item">
        <a class="nav-link" data-bs-toggle="tab" href="#tab-
4">Report</a>
      </li>
      <li class="nav-item">
        <a class="nav-link" data-bs-toggle="tab" href="#tab-
5">Story</a>
      </li>
    </ul>

```


</div>

<div class="col-lg-9">

<div class="tab-content">

<div class="tab-pane active show" id="tab-1">

<div class="row gy-4">

<div class="col-lg-8 details order-2 order-lg-1">

<h3>Data Collection</h3>

<p class="fst-italic">The impact COVID-19 has had on the health care industry is evident to anyone and everyone. With digital data collection, there is more and more health care data to be analyzed every second. </p>

<p>Collecting healthcare data is the systematic collection, analysis, and interpretation of health information. Data is essential for action planning, implementation, and evaluation of public health practice. Data is beneficial for doctors or analysts who study statistics or attempt to discover more effective treatments.</p>

</div>

<div class="col-lg-4 text-center order-1 order-lg-2">

</div>

</div>

</div>

<div class="tab-pane" id="tab-2">

<div class="row gy-4">

<div class="col-lg-8 details order-2 order-lg-1">

<h3>Data Visualization</h3>

Data visualization is the graphical representation of information and data. By using visual elements like charts, graphs, and maps, data visualization tools provide an accessible way to see and understand trends, outliers, and patterns in data. Additionally, it provides an excellent way

for employees or business owners to present data to non-technical audiences without confusion.

A dashboard for data analytics is a tool used to multi-task, organize, visualize, analyze, and track data. The overall purpose of a data analytics dashboard is to make it easier for data analysts, decision makers, and average users to understand their data, gain deeper insights, and make better data-driven decisions.

</div>

</div>

<div class="tab-pane" id="tab-4">

<div class="row gy-4">

<div class="col-lg-8 details order-2 order-lg-1">

<h3>Report</h3>

<p>A data analysis report is a type of business report in which you present quantitative and qualitative data to evaluate your strategies and performance. Based on this data, you give recommendations for further steps and business decisions while using the data as evidence that backs up your evaluation.</p>

</div>

<div class="col-lg-4 text-center order-1 order-lg-2">

</div>

</div>

</div>

<div class="tab-pane" id="tab-5">

<div class="row gy-4">

<div class="col-lg-8 details order-2 order-lg-1">

<h3>STORY</h3>

<p>Data storytelling is the ability to effectively communicate insights from a dataset using narratives and visualizations. It can be used to put data insights into context for and inspire action from your audience</p>

```
</div>

<div class="col-lg-4 text-center order-1 order-lg-2">

</div>

</div>

</div>

</div>

</div>

</div>

</div>

</div>

</section><!-- End Departments Section -->

<!-- ===== Doctors Section ===== -->

<section id="doctors" class="doctors">

<div class="container">

    <div class="section-title">

        <h2>TEAM </h2>

    </div>

<div class="row">
```

```
<div class="col-lg-6">

  <div class="member d-flex align-items-start">

    <div class="member-info">

      <h4>SREEDHAR P</h4>

      <span>TEAM LEAD</span>


    <div class="social">

      <a href=""><i class="ri-twitter-fill"></i></a>

      <a href=""><i class="ri-facebook-fill"></i></a>

      <a href=""><i class="ri-instagram-fill"></i></a>

      <a href=""><i class="ri-linkedin-box-fill"></i></a>

    </div>

  </div>

</div>

</div>
```

```
<div class="col-lg-6 mt-4 mt-lg-0">

  <div class="member d-flex align-items-start">

    <div class="member-info">

      <h4>GOKULAPRIYAN K</h4>

      <span>TEAM MEMBER 1</span>


    <div class="social">
```

```

        <a href=""><i class="ri-twitter-fill"></i></a>
        <a href=""><i class="ri-facebook-fill"></i></a>
        <a href=""><i class="ri-instagram-fill"></i></a>
        <a href=""> <i class="ri-linkedin-box-fill"></i> </a>
    </div>
</div>
</div>
</div>

```

```

<div class="col-lg-6 mt-4">
    <div class="member d-flex align-items-start">
        <div class="member-info">
            <h4>MANORANJAN S V</h4>
            <span>TEAM MEMBER 2</span>

```

```

        <div class="social">
            <a href=""><i class="ri-twitter-fill"></i></a>
            <a href=""><i class="ri-facebook-fill"></i></a>
            <a href=""><i class="ri-instagram-fill"></i></a>
            <a href=""> <i class="ri-linkedin-box-fill"></i> </a>
        </div>
    </div>
</div>

```

</div>

<div class="col-lg-6 mt-4">

<div class="member d-flex align-items-start">

<div class="member-info">

<h4>RAHUL A</h4>

TEAM MEMBER 3

<div class="social">

<i class="ri-twitter-fill"></i>

<i class="ri-facebook-fill"></i>

<i class="ri-instagram-fill"></i>

 <i class="ri-linkedin-box-fill"></i>

</div>

</div>

</div>

</div>

</div>

</div>

</section><!-- End Doctors Section -->

```
<!-- ===== Footer ===== -->
```

```
<footer id="footer">
```

```
<div class="footer-top">
```

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

```
<div class="row">
```

```
<div class="col-lg-3 col-md-6 footer-contact">
```

```
<h3>Data Analytics</h3>
```

```
<strong>Phone:</strong> +91 1111111111<br>
```

```
<strong>Email:</strong> info@example.com<br>
```

```
</p>
```

```
</div>
```

```
<div class="col-lg-2 col-md-6 footer-links">
```

```
<h4>Useful Links</h4>
```

```
<ul>
```

```
<li><i class="bx bx-chevron-right"></i> <a href="#">Home</a></li>
```

```
<li><i class="bx bx-chevron-right"></i> <a href="#">Dashboard</a></li>
```

```
<li><i class="bx bx-chevron-right"></i> <a href="#">Report</a></li>
```

```
<li><i class="bx bx-chevron-right"></i> <a
```



```

href="#">Story</a></li>

      <li><i      class="bx      bx-chevron-right"></i>      <a
href="#">Team</a></li>

    </ul>

  </div>

</div>

</div>

</div>

<div class="container d-md-flex py-4">

  <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="Github"><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>
```

```
<!-- 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="main.js"></script>
```

```
</body>
```

```
</html>
```

Style.CSS

```
/*-----  
---  
# General  
-----  
-*/  
body {  
    font-family: "Open Sans", sans-serif;
```

```

        color: #444444;
    }

    a {
        color: #1977cc;
        text-decoration: none;
    }

    a:hover {
        color: #3291e6;
        text-decoration: none;
    }

    h1,
    h2,
    h3,
    h4,
    h5,
    h6 {
        font-family: "Raleway", sans-serif;
    }

    /*-----
    ---
    # Preloader
    -----
    -*/
    #preloader {
        position: fixed;
        top: 0;
        left: 0;
        right: 0;
        bottom: 0;
        z-index: 9999;
        overflow: hidden;
        background: #fff;
    }

    #preloader:before {
        content: "";
        position: fixed;
        top: calc(50% - 30px);
        left: calc(50% - 30px);
        border: 6px solid #1977cc;
        border-top-color: #d1e6f9;
        border-radius: 50%;
        width: 60px;
        height: 60px;
        -webkit-animation: animate-preloader 1s linear infinite;
        animation: animate-preloader 1s linear infinite;
    }

```

```

@-webkit-keyframes animate-preloader {
  0% {
    transform: rotate(0deg);
  }

  100% {
    transform: rotate(360deg);
  }
}

@keyframes animate-preloader {
  0% {
    transform: rotate(0deg);
  }

  100% {
    transform: rotate(360deg);
  }
}

/*-----
---
# Back to top button
-----
-*/
.back-to-top {
  position: fixed;
  visibility: hidden;
  opacity: 0;
  right: 15px;
  bottom: 15px;
  z-index: 996;
  background: #1977cc;
  width: 40px;
  height: 40px;
  border-radius: 4px;
  transition: all 0.4s;
}

.back-to-top i {
  font-size: 28px;
  color: #fff;
  line-height: 0;
}

.back-to-top:hover {
  background: #298ce5;
  color: #fff;
}

.back-to-top.active {
  visibility: visible;
}

```

```

        opacity: 1;
    }

    .datepicker-dropdown {
        padding: 20px !important;
    }

    /*-----
    ---
    # Top Bar
    -----
    -*/
    #topbar {
        background: #fff;
        height: 40px;
        font-size: 14px;
        transition: all 0.5s;
        z-index: 996;
    }

    #topbar.topbar-scrolled {
        top: -40px;
    }

    #topbar .contact-info a {
        line-height: 1;
        color: #444444;
        transition: 0.3s;
    }

    #topbar .contact-info a:hover {
        color: #1977cc;
    }

    #topbar .contact-info i {
        color: #1977cc;
        padding-right: 4px;
        margin-left: 15px;
        line-height: 0;
    }

    #topbar .contact-info i:first-child {
        margin-left: 0;
    }

    #topbar .social-links a {
        color: #437099;
        padding-left: 15px;
        display: inline-block;
        line-height: 1px;
        transition: 0.3s;
    }

```

```

#topbar .social-links a:hover {
    color: #1977cc;
}

#topbar .social-links a:first-child {
    border-left: 0;
}

/*-----
---
# Header
-----
-*/
#header {
    background: #fff;
    transition: all 0.5s;
    z-index: 997;
    padding: 15px 0;
    top: 40px;
    box-shadow: 0px 2px 15px rgba(25, 119, 204, 0.1);
}

#header.header-scrolled {
    top: 0;
}

#header .logo {
    font-size: 30px;
    margin: 0;
    padding: 0;
    line-height: 1;
    font-weight: 700;
    letter-spacing: 0.5px;
    font-family: "Poppins", sans-serif;
}

#header .logo a {
    color: #2c4964;
}

#header .logo img {
    max-height: 40px;
}

/**
 * Appointment Button *
 */
.appointment-btn {
    margin-left: 25px;
    background: #1977cc;
    color: #fff;

```

```

        border-radius: 50px;
        padding: 8px 25px;
        white-space: nowrap;
        transition: 0.3s;
        font-size: 14px;
        display: inline-block;
    }

    .appointment-btn:hover {
        background: #166ab5;
        color: #fff;
    }

    @media (max-width: 768px) {
        .appointment-btn {
            margin: 0 15px 0 0;
            padding: 6px 18px;
        }
    }

    /*-----
    ---
    # Navigation Menu
    -----
    -*/
    /**
    * Desktop Navigation
    */
    .navbar {
        padding: 0;
    }

    .navbar ul {
        margin: 0;
        padding: 0;
        display: flex;
        list-style: none;
        align-items: center;
    }

    .navbar li {
        position: relative;
    }

    .navbar>ul>li {
        position: relative;
        white-space: nowrap;
        padding: 8px 0 8px 20px;
    }

    .navbar a,
    .navbar a:focus {

```

```

display: flex;
align-items: center;
justify-content: space-between;
font-size: 14px;
color: #2c4964;
white-space: nowrap;
transition: 0.3s;
border-bottom: 2px solid #fff;
padding: 5px 2px;
}

.navbar a i,
.navbar a:focus i {
font-size: 12px;
line-height: 0;
margin-left: 5px;
}

.navbar a:hover,
.navbar .active,
.navbar .active:focus,
.navbar li:hover>a {
color: #1977cc;
border-color: #1977cc;
}

.navbar .dropdown ul {
display: block;
position: absolute;
left: 20px;
top: calc(100% + 30px);
margin: 0;
padding: 10px 0;
z-index: 99;
opacity: 0;
visibility: hidden;
background: #fff;
box-shadow: 0px 0px 30px rgba(127, 137, 161, 0.25);
transition: 0.3s;
}

.navbar .dropdown ul li {
min-width: 200px;
}

.navbar .dropdown ul a {
padding: 10px 20px;
font-size: 14px;
font-weight: 500;
text-transform: none;
color: #082744;
border: none;

```



```

}

.navbar .dropdown ul a i {
  font-size: 12px;
}

.navbar .dropdown ul a:hover,
.navbar .dropdown ul .active:hover,
.navbar .dropdown ul li:hover>a {
  color: #1977cc;
}

.navbar .dropdown:hover>ul {
  opacity: 1;
  top: 100%;
  visibility: visible;
}

.navbar .dropdown .dropdown ul {
  top: 0;
  left: calc(100% - 30px);
  visibility: hidden;
}

.navbar .dropdown .dropdown:hover>ul {
  opacity: 1;
  top: 0;
  left: 100%;
  visibility: visible;
}

@media (max-width: 1366px) {
  .navbar .dropdown .dropdown ul {
    left: -90%;
  }

  .navbar .dropdown .dropdown:hover>ul {
    left: -100%;
  }
}

/**
 * Mobile Navigation
 */
.mobile-nav-toggle {
  color: #2c4964;
  font-size: 28px;
  cursor: pointer;
  display: none;
  line-height: 0;
  transition: 0.5s;
}

```

```

.mobile-nav-toggle.bi-x {
  color: #fff;
}

@media (max-width: 991px) {
  .mobile-nav-toggle {
    display: block;
  }

  .navbar ul {
    display: none;
  }
}

.navbar-mobile {
  position: fixed;
  overflow: hidden;
  top: 0;
  right: 0;
  left: 0;
  bottom: 0;
  background: rgba(28, 47, 65, 0.9);
  transition: 0.3s;
  z-index: 999;
}

.navbar-mobile .mobile-nav-toggle {
  position: absolute;
  top: 15px;
  right: 15px;
}

.navbar-mobile ul {
  display: block;
  position: absolute;
  top: 55px;
  right: 15px;
  bottom: 15px;
  left: 15px;
  padding: 10px 0;
  background-color: #fff;
  overflow-y: auto;
  transition: 0.3s;
}

.navbar-mobile>ul>li {
  padding: 0;
}

.navbar-mobile a,
.navbar-mobile a:focus {

```

```

padding: 10px 20px;
font-size: 15px;
color: #2c4964;
border: none;
}

.navbar-mobile a:hover,
.navbar-mobile .active,
.navbar-mobile li:hover>a {
    color: #1977cc;
}

.navbar-mobile .getstarted,
.navbar-mobile .getstarted:focus {
    margin: 15px;
}

.navbar-mobile .dropdown ul {
    position: static;
    display: none;
    margin: 10px 20px;
    padding: 10px 0;
    z-index: 99;
    opacity: 1;
    visibility: visible;
    background: #fff;
    box-shadow: 0px 0px 30px rgba(127, 137, 161, 0.25);
}

.navbar-mobile .dropdown ul li {
    min-width: 200px;
}

.navbar-mobile .dropdown ul a {
    padding: 10px 20px;
}

.navbar-mobile .dropdown ul a i {
    font-size: 12px;
}

.navbar-mobile .dropdown ul a:hover,
.navbar-mobile .dropdown ul .active:hover,
.navbar-mobile .dropdown ul li:hover>a {
    color: #1977cc;
}

.navbar-mobile .dropdown>.dropdown-active {
    display: block;
}

```

```

/*-----
---
# Hero Section
-----
-*/
#hero {
  width: 100%;
  height: 90vh;
  background: url("images/ha1.jpg") top center;
  background-size: cover;
  margin-bottom: -10px;
}

#hero .container {
  position: relative;
}

#hero h1 {
  margin: 0;
  font-size: 38px;
  font-weight: 500;
  line-height: 56px;
  text-transform: uppercase;
  color: #33FFAA;
}

#hero h2 {
  color: black;
  margin: 10px 0 0 0;
  font-size: 24px;
}

#hero .btn-get-started {
  font-family: "Raleway", sans-serif;
  text-transform: uppercase;
  font-weight: 500;
  font-size: 14px;
  letter-spacing: 1px;
  display: inline-block;
  padding: 12px 55px;
  margin-top: 30px;
  border-radius: 50px;
  transition: 0.5s;
  color: #fff;
  background: #1977cc;
}

#hero .btn-get-started:hover {
  background: #3291e6;
}

@media (min-width: 1024px) {

```

```

    #hero {
      background-attachment: fixed;
    }
  }

```

```

@media (max-width: 992px) {
  #hero {
    margin-bottom: 0;
    height: 100vh;
  }

```

```

  #hero .container {
    padding-bottom: 63px;
  }

```

```

  #hero h1 {
    font-size: 28px;
    line-height: 36px;
  }

```

```

  #hero h2 {
    font-size: 18px;
    line-height: 24px;
    margin-bottom: 30px;
  }
}

```

```

@media (max-height: 600px) {
  #hero {
    height: 110vh;
  }
}

```

```

/*-----
---

```

```

# Sections General
-----

```

```

-*/
section {
  padding: 60px 0;
  overflow: hidden;
}

```

```

.section-bg {
  background-color: #f1f7fd;
}

```

```

.section-title {
  text-align: center;
  padding-bottom: 30px;
}

```

```

.section-title h2 {
  font-size: 32px;
  font-weight: bold;
  margin-bottom: 20px;
  padding-bottom: 20px;
  position: relative;
  color: #2c4964;
}

.section-title h2::before {
  content: "";
  position: absolute;
  display: block;
  width: 120px;
  height: 1px;
  background: #ddd;
  bottom: 1px;
  left: calc(50% - 60px);
}

.section-title h2::after {
  content: "";
  position: absolute;
  display: block;
  width: 40px;
  height: 3px;
  background: #1977cc;
  bottom: 0;
  left: calc(50% - 20px);
}

.section-title p {
  margin-bottom: 0;
}

/*-----
---
# Breadcrumbs
-----
-*/
.breadcrumbs {
  padding: 20px 0;
  background-color: #f1f7fd;
  min-height: 40px;
  margin-top: 120px;
}

@media (max-width: 992px) {
  .breadcrumbs {
    margin-top: 100px;
  }
}

```

```

.breadcrumbs h2 {
  font-size: 24px;
  font-weight: 300;
  margin: 0;
}

@media (max-width: 992px) {
  .breadcrumbs h2 {
    margin: 0 0 10px 0;
  }
}

.breadcrumbs ol {
  display: flex;
  flex-wrap: wrap;
  list-style: none;
  padding: 0;
  margin: 0;
  font-size: 14px;
}

.breadcrumbs ol li+li {
  padding-left: 10px;
}

.breadcrumbs ol li+li::before {
  display: inline-block;
  padding-right: 10px;
  color: #6c757d;
  content: "/";
}

@media (max-width: 768px) {
  .breadcrumbs .d-flex {
    display: block !important;
  }

  .breadcrumbs ol {
    display: block;
  }

  .breadcrumbs ol li {
    display: inline-block;
  }
}

/*-----
---
# Why Us
-----
-*/

```

```

.why-us .content {
  padding: 10px;
  background: #1977cc;
  border-radius: 4px;
  color: #fff;
}

.why-us .content h3 {
  font-weight: 700;
  font-size: 34px;
  margin-bottom: 30px;
}

.why-us .content p {
  margin-bottom: 30px;
}

.why-us .content .more-btn {
  display: inline-block;
  background: rgba(255, 255, 255, 0.2);
  padding: 6px 30px 8px 30px;
  color: #fff;
  border-radius: 50px;
  transition: all ease-in-out 0.4s;
}

.why-us .content .more-btn i {
  font-size: 14px;
}

.why-us .content .more-btn:hover {
  color: #1977cc;
  background: #fff;
}

.why-us .icon-boxes .icon-box {
  text-align: center;
  border-radius: 10px;
  background: #fff;
  box-shadow: 0px 2px 15px rgba(0, 0, 0, 0.1);
  padding: 10px 30px;
  width: 100%;
}

.why-us .icon-boxes .icon-box i {
  font-size: 40px;
  color: #1977cc;
  margin-bottom: 30px;
}

.why-us .icon-boxes .icon-box h4 {
  font-size: 20px;
}

```



```

        font-weight: 700;
        margin: 0 0 30px 0;
    }

    .why-us .icon-boxes .icon-box p {
        font-size: 15px;
        color: #848484;
    }

    /*-----
    ---
    @-webkit-keyframes pulsate-btn {
        0% {
            transform: scale(0.6, 0.6);
            opacity: 1;
        }
        100% {
            transform: scale(1, 1);
            opacity: 0;
        }
    }
    @keyframes pulsate-btn {
        0% {
            transform: scale(0.6, 0.6);
            opacity: 1;
        }
        100% {
            transform: scale(1, 1);
            opacity: 0;
        }
    }

    /*-----
    ---
    # Services
    -----
    -*/
    .services .icon-box {
        text-align: center;
        border: 1px solid #d5e1ed;
        padding: 80px 20px;
        transition: all ease-in-out 0.3s;
    }

    .services .icon-box .icon {
        margin: 0 auto;
        width: 64px;
        height: 64px;
        background: #1977cc;
        border-radius: 5px;
        transition: all 0.3s ease-out 0s;
        display: flex;

```

```

    align-items: center;
    justify-content: center;
    margin-bottom: 20px;
    transform-style: preserve-3d;
}

.services .icon-box .icon i {
    color: #fff;
    font-size: 28px;
}

.services .icon-box .icon::before {
    position: absolute;
    content: "";
    left: -8px;
    top: -8px;
    height: 100%;
    width: 100%;
    background: #badaf7;
    border-radius: 5px;
    transition: all 0.3s ease-out 0s;
    transform: translateZ(-1px);
}

.services .icon-box h4 {
    font-weight: 700;
    margin-bottom: 15px;
    font-size: 24px;
}

.services .icon-box h4 a {
    color: #2c4964;
}

.services .icon-box p {
    line-height: 24px;
    font-size: 14px;
    margin-bottom: 0;
}

.services .icon-box:hover {
    background: #1977cc;
    border-color: #1977cc;
}

.services .icon-box:hover .icon {
    background: #fff;
}

.services .icon-box:hover .icon i {
    color: #1977cc;
}

```

```

.services .icon-box:hover .icon::before {
    background: #3291e6;
}

.services .icon-box:hover h4 a,
.services .icon-box:hover p {
    color: #fff;
}

/*-----
---
# Departments
-----
-*/
.departments {
    overflow: hidden;
}

.departments .nav-tabs {
    border: 0;
}

.departments .nav-link {
    border: 0;
    padding: 12px 15px 12px 0;
    transition: 0.3s;
    color: #2c4964;
    border-radius: 0;
    border-right: 2px solid #ebf1f6;
    font-weight: 600;
    font-size: 15px;
}

.departments .nav-link:hover {
    color: #1977cc;
}

.departments .nav-link.active {
    color: #1977cc;
    border-color: #1977cc;
}

.departments .tab-pane.active {
    -webkit-animation: fadeIn 0.5s ease-out;
    animation: fadeIn 0.5s ease-out;
}

.departments .details h3 {
    font-size: 26px;
    font-weight: 600;
}

```

```

        margin-bottom: 20px;
        color: #2c4964;
    }

    .departments .details p {
        color: #777777;
    }

    .departments .details p:last-child {
        margin-bottom: 0;
    }

    @media (max-width: 992px) {
        .departments .nav-link {
            border: 0;
            padding: 15px;
        }

        .departments .nav-link.active {
            color: #fff;
            background: #1977cc;
        }
    }

    /*-----
    ---
    # Doctors
    -----
    -*/
    .doctors {
        background: #fff;
    }

    .doctors .member {
        position: relative;
        box-shadow: 0px 2px 15px rgba(44, 73, 100, 0.08);
        padding: 30px;
        border-radius: 10px;
    }

    .doctors .member .pic {
        overflow: hidden;
        width: 190px;
        border-radius: 50%;
    }

    .doctors .member .pic img {
        transition: ease-in-out 0.3s;
    }

    .doctors .member:hover img {
        transform: scale(1.1);
    }

```

```

}

.doctors .member .member-info {
  padding-left: 30px;
}

.doctors .member h4 {
  font-weight: 700;
  margin-bottom: 5px;
  font-size: 20px;
  color: #2c4964;
}

.doctors .member span {
  display: block;
  font-size: 15px;
  padding-bottom: 10px;
  position: relative;
  font-weight: 500;
}

.doctors .member span::after {
  content: "";
  position: absolute;
  display: block;
  width: 50px;
  height: 1px;
  background: #b2c8dd;
  bottom: 0;
  left: 0;
}

.doctors .member p {
  margin: 10px 0 0 0;
  font-size: 14px;
}

.doctors .member .social {
  margin-top: 12px;
  display: flex;
  align-items: center;
  justify-content: flex-start;
}

.doctors .member .social a {
  transition: ease-in-out 0.3s;
  display: flex;
  align-items: center;
  justify-content: center;
  border-radius: 50px;
  width: 32px;
  height: 32px;
}

```

```

        background: #a0bcd5;
    }

.doctors .member .social a i {
    color: #fff;
    font-size: 16px;
    margin: 0 2px;
}

.doctors .member .social a:hover {
    background: #1977cc;
}

.doctors .member .social a+a {
    margin-left: 8px;
}

/*-----
/*-----
---
/*-----
---
# Contact
-----
-*/
.contact .info {
    width: 100%;
    background: #fff;
}

.contact .info i {
    font-size: 20px;
    color: #1977cc;
    float: left;
    width: 44px;
    height: 44px;
    background: #d6e9fa;
    display: flex;
    justify-content: center;
    align-items: center;
    border-radius: 50px;
    transition: all 0.3s ease-in-out;
}

.contact .info h4 {
    padding: 0 0 0 60px;
    font-size: 22px;
    font-weight: 600;
    margin-bottom: 5px;
    color: #2c4964;
}

```

```

.contact .info p {
    padding: 0 0 0 60px;
    margin-bottom: 0;
    font-size: 14px;
    color: #4b7dab;
}

.contact .info .email,
.contact .info .phone {
    margin-top: 40px;
}

.contact .info .email:hover i,
.contact .info .address:hover i,
.contact .info .phone:hover i {
    background: #1977cc;
    color: #fff;
}

.contact .php-email-form {
    width: 100%;
    background: #fff;
}

.contact .php-email-form .form-group {
    padding-bottom: 8px;
}

.contact .php-email-form .error-message {
    display: none;
    color: #fff;
    background: #ed3c0d;
    text-align: left;
    padding: 15px;
    font-weight: 600;
}

.contact .php-email-form .error-message br+br {
    margin-top: 25px;
}

.contact .php-email-form .sent-message {
    display: none;
    color: #fff;
    background: #18d26e;
    text-align: center;
    padding: 15px;
    font-weight: 600;
}

.contact .php-email-form .loading {
    display: none;
}

```

```

    background: #fff;
    text-align: center;
    padding: 15px;
}

.contact .php-email-form .loading:before {
    content: "";
    display: inline-block;
    border-radius: 50%;
    width: 24px;
    height: 24px;
    margin: 0 10px -6px 0;
    border: 3px solid #18d26e;
    border-top-color: #eee;
    -webkit-animation: animate-loading 1s linear infinite;
    animation: animate-loading 1s linear infinite;
}

.contact .php-email-form input,
.contact .php-email-form textarea {
    border-radius: 0;
    box-shadow: none;
    font-size: 14px;
}

.contact .php-email-form input {
    height: 44px;
}

.contact .php-email-form textarea {
    padding: 10px 12px;
}

.contact .php-email-form button[type=submit] {
    background: #1977cc;
    border: 0;
    padding: 10px 35px;
    color: #fff;
    transition: 0.4s;
    border-radius: 50px;
}

.contact .php-email-form button[type=submit]:hover {
    background: #1c84e3;
}

@-webkit-keyframes animate-loading {
    0% {
        transform: rotate(0deg);
    }

    100% {

```



```

        transform: rotate(360deg);
    }
}

@keyframes animate-loading {
    0% {
        transform: rotate(0deg);
    }

    100% {
        transform: rotate(360deg);
    }
}

/*-----
---
# Footer
-----
-*/
#footer {
    color: #444444;
    font-size: 14px;
    background: #f1f7fd;
}

#footer .footer-top {
    padding: 60px 0 30px 0;
    background: #fff;
    box-shadow: 0px 2px 15px rgba(25, 119, 204, 0.1);
}

#footer .footer-top .footer-contact {
    margin-bottom: 30px;
}

#footer .footer-top .footer-contact h4 {
    font-size: 22px;
    margin: 0 0 30px 0;
    padding: 2px 0 2px 0;
    line-height: 1;
    font-weight: 700;
}

#footer .footer-top .footer-contact p {
    font-size: 14px;
    line-height: 24px;
    margin-bottom: 0;
    font-family: "Raleway", sans-serif;
    color: #777777;
}

#footer .footer-top h4 {

```

```

    font-size: 16px;
    font-weight: bold;
    color: #444444;
    position: relative;
    padding-bottom: 12px;
}

#footer .footer-top .footer-links {
    margin-bottom: 30px;
}

#footer .footer-top .footer-links ul {
    list-style: none;
    padding: 0;
    margin: 0;
}

#footer .footer-top .footer-links ul i {
    padding-right: 2px;
    color: #1c84e3;
    font-size: 18px;
    line-height: 1;
}

#footer .footer-top .footer-links ul li {
    padding: 10px 0;
    display: flex;
    align-items: center;
}

#footer .footer-top .footer-links ul li:first-child {
    padding-top: 0;
}

#footer .footer-top .footer-links ul a {
    color: #777777;
    transition: 0.3s;
    display: inline-block;
    line-height: 1;
}

#footer .footer-top .footer-links ul a:hover {
    text-decoration: none;
    color: #1977cc;
}

```

JAVACR

LOS.pynb

```
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
np.set_printoptions(suppress=True)
import warnings
warnings.filterwarnings('ignore')
from google.colab import drive
drive.mount('/content/drive')
#load data
d1 = pd.read_csv('/content/drive/My
Drive/Healthcare_Data/sample_sub.csv')
d2 = pd.read_csv('/content/drive/My
Drive/Healthcare_Data/train_data_dictionary.csv')
test = pd.read_csv('/content/drive/My
Drive/Healthcare_Data/test_data.csv')
train = pd.read_csv('/content/drive/My
Drive/Healthcare_Data/train_data.csv')
train.head()
train.info()
train.Stay.unique()
# NA values in train dataset :
train.isnull().sum().sort_values(ascending = False)
# NA values in test dataset :
test.isnull().sum().sort_values(ascending = False)
# Dimension of train dataset
train.shape
# Dimension of test dataset
test.shape
# Number of distinct observations in test dataset
for i in test.columns:
    print(i, ':', test[i].nunique())
#Replacing NA values in Bed Grade Column for both Train and
Test datasets
train['Bed Grade'].fillna(train['Bed
Grade'].mode()[0], inplace = True)
test['Bed Grade'].fillna(test['Bed Grade'].mode()[0], inplace = True)

#Replacing NA values in Column for both Train and Test datasets
train['City_Code_Patient'].fillna(train['City_Code_Patient'].mode()
```

```

[0], inplace = True)
test['City_Code_Patient'].fillna(test['City_Code_Patient'].mode()
[0], inplace = True)

# Label Encoding Stay column in train dataset
from sklearn.preprocessing import LabelEncoder
le = LabelEncoder()
train['Stay'] = le.fit_transform(train['Stay'].astype('str'))

train.head()

#Imputing dummy Stay column in test dataset to concatenate with
train dataset test['Stay'] = -1
df = pd.concat([train, test])
df.shape
#Label Encoding all the columns in Train and test datasets
for i in ['Hospital_type_code', 'Hospital_region_code', 'Department',
'Ward_Type', 'Ward_Facility_Code', 'Type of Admission',
'Severity of Illness', 'Age']:
    le = LabelEncoder()
    df[i] = le.fit_transform(df[i].astype(str))

#Spearating Train and Test Datasets
train = df[df['Stay']!= -1]
test = df[df['Stay']== -1]

def get_countid_enocde(train, test, cols, name):
    temp =
    train.groupby(cols)['case_id'].count().reset_index().rename(columns = {'case_id': name})
    temp2 =
    test.groupby(cols)['case_id'].count().reset_index().rename(columns = {'case_id': name})
    train = pd.merge(train, temp, how='left', on= cols)
    test = pd.merge(test,temp2, how='left', on= cols)
    train[name] = train[name].astype('float')
    test[name] = test[name].astype('float')
    train[name].fillna(np.median(temp[name])),
    inplace = True
    test[name].fillna(np.median(temp2[name])),
    inplace = True) return train, test

```

```

train, test = get_countid_enocde(train, test,
['patientid'], name = 'count_id_patient')
train, test = get_countid_enocde(train, test,
['patientid', 'Hospital_region_code'], name =
'count_id_patient_hospitalCode')
train, test = get_countid_enocde(train, test,
['patientid', 'Ward_Facility_Code'], name =
'count_id_patient_wardfacilityCode')
# Dropping duplicate columns
test1 = test.drop(['Stay', 'patientid', 'Hospital_region_code',
'Ward_Facility_Code'], axis =1)
train1 = train.drop(['case_id', 'patientid',
'Hospital_region_code', 'Ward_Facility_Code'],
axis =1)

```

I

```

# Splitting train data for Naive Bayes and XGBoost
X1 = train1.drop('Stay', axis =1)
y1 = train1['Stay']
from sklearn.model_selection import train_test_split
X_train, X_test, y_train, y_test = train_test_split(X1, y1,
test_size =0.20, random_state =100)

```

MODEL

```

from sklearn.naive_bayes import GaussianNB
target = y_train.values
features = X_train.values
classifier_nb = GaussianNB()
model_nb = classifier_nb.fit(features, target)

```

I

```

prediction_nb = model_nb.predict(X_test)
from sklearn.metrics import accuracy_score
acc_score_nb = accuracy_score(prediction_nb,y_test)
print("Acurracy:", acc_score_nb*100)
# Segregation of features and target variable
X = train.drop('Stay', axis =1)
y = train['Stay']
print(X.columns)
z = test.drop('Stay', axis = 1)

```

```
print(z.columns)
```

```
# Data Scaling
```

```
from sklearn import preprocessing
```

```
X_scale = preprocessing.scale(X)
```

```
X_scale.shape
```

```
X_train, X_test, y_train, y_test = train_test_split(X_scale, y,  
test_size=0.20, random_state=100)
```

```
import keras
```

```
from keras.models import Sequential
```

```
from keras.layers import Dense
```

```
import tensorflow as tf
```

```
from keras.utils import to_categorical
```

```
#Sparse Matrix
```

```
a = to_categorical(y_train)
```

```
b = to_categorical(y_test)
```

```
model = Sequential()
```

```
model.add(Dense(64, activation='relu', input_shape =  
(254750, 20))) model.add(Dense(128, activation='relu'))
```

```
model.add(Dense(256, activation='relu'))
```

```
model.add(Dense(512, activation='relu'))
```

```
model.add(Dense(512, activation='relu'))
```

```
model.add(Dense(11, activation='softmax'))
```

```
model.summary()
```

```
model.compile(optimizer= 'SGD',
```

```
loss='categorical_crossentropy',
```

```
metrics=['accuracy'])
```

PREDICTION

```
pred_nb = classifier_nb.predict(test1.iloc[:,1:])
```

```
result_nb = pd.DataFrame(pred_nb, columns=['Stay'])
```

```
result_nb['case_id'] = test1['case_id']
```

```
result_nb = result_nb[['case_id', 'Stay']]
```

```

result_nb['Stay'] = result_nb['Stay'].replace({0:'0-10', 1: '11-20',
2: '21-30', 3:'31-40', 4: '41-50', 5: '51-60', 6: '61-70', 7: '71-80', 8:
'81-90', 9: '91-100', 10: 'More than 100 Days'})
result_nb.head()
test_scale = preprocessing.scale(z)
test_scale.shape
print(result_nb.groupby('Stay')['case_id'].nunique())

```

8.TESTING

TEST CASE

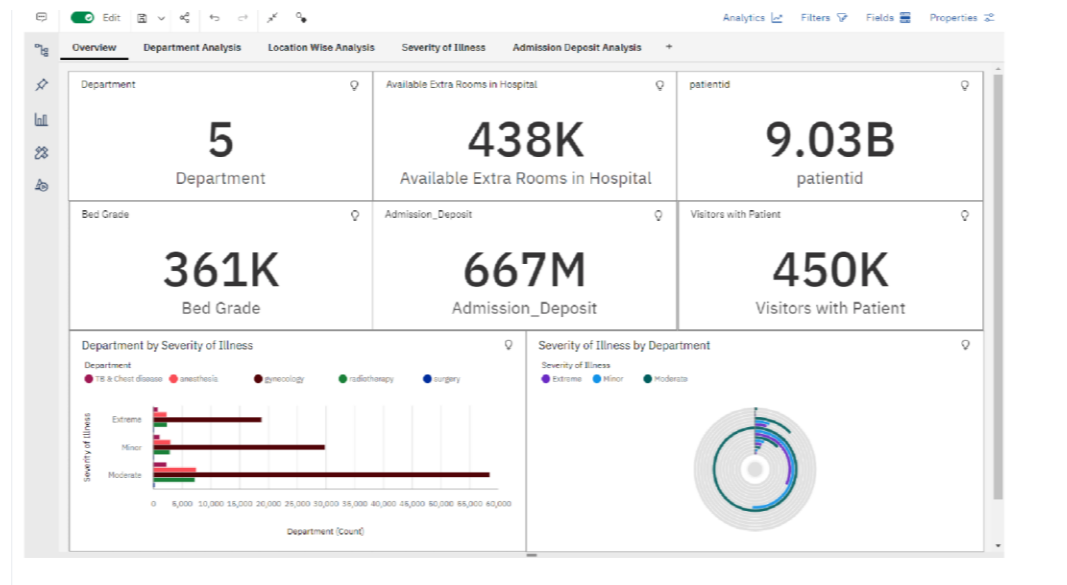
SECTION	TOTAL CASES	NOT TESTED	FAIL	PASS
Print Engine	7	0	0	7
Client Application	51	0	0	51
Security	2	0	0	2
Outsource Shipping	3	0	0	3
Excepting reporting	9	0	0	
Final report out put	4	0	0	4
Version control	2	0	0	2

USER ACCEPTANCE TESTING

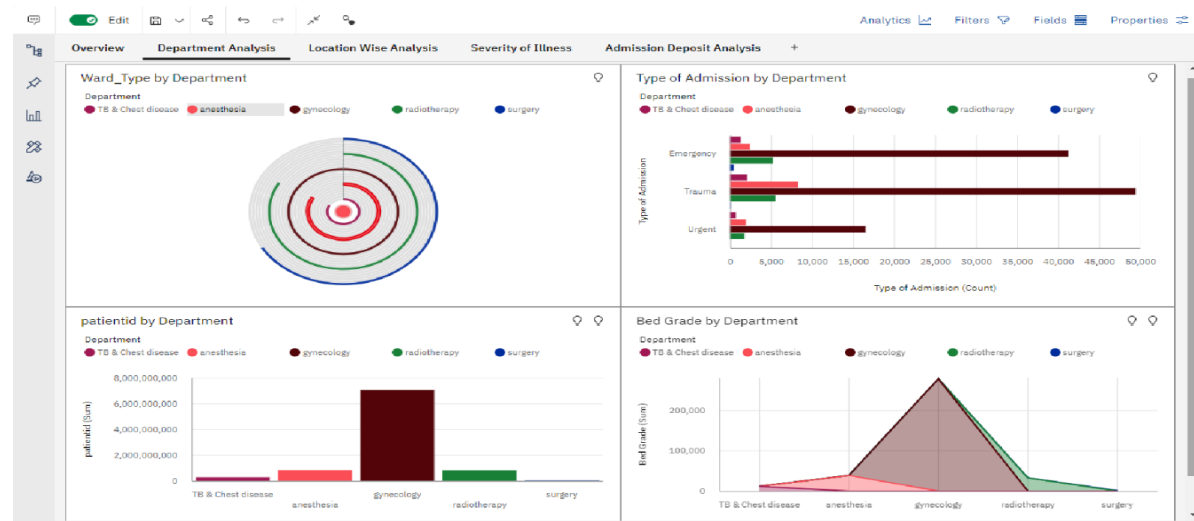
Resolution	Severity 1	Severity 2	Severity 3	Severity 4	subtotal
By Design	5	5	4	0	14
Duplicate	0	0	0	0	0
External	7	8	6	0	21
Fixed	11	4	0	6	21
Not reproduced	1	3	0	0	4
Skipped	0	0	0	0	0
Won't fix	0	0	0	0	0
Total	24	20	10	6	60

9.RESULTS

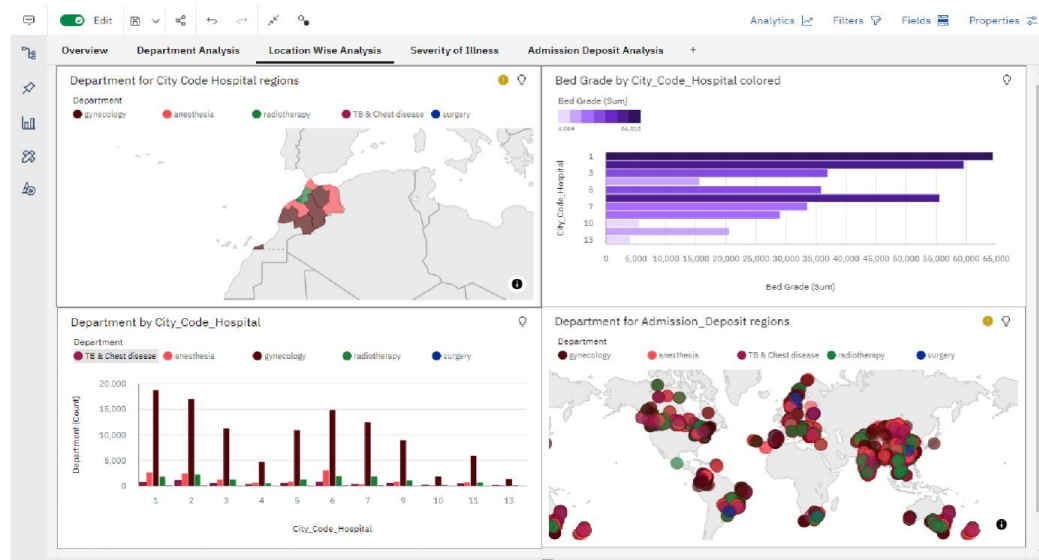
DASHBOARD



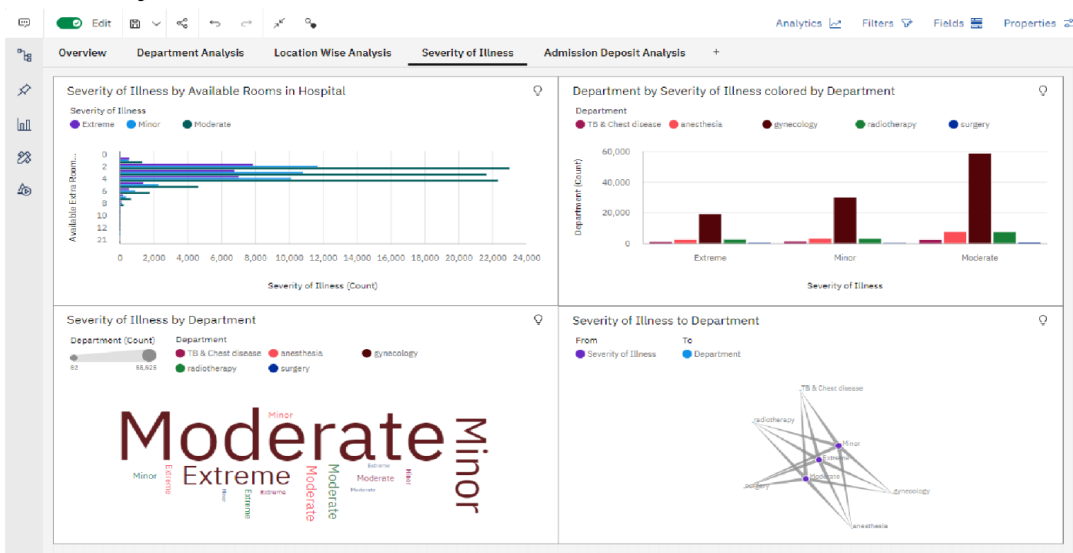
Department Analysis



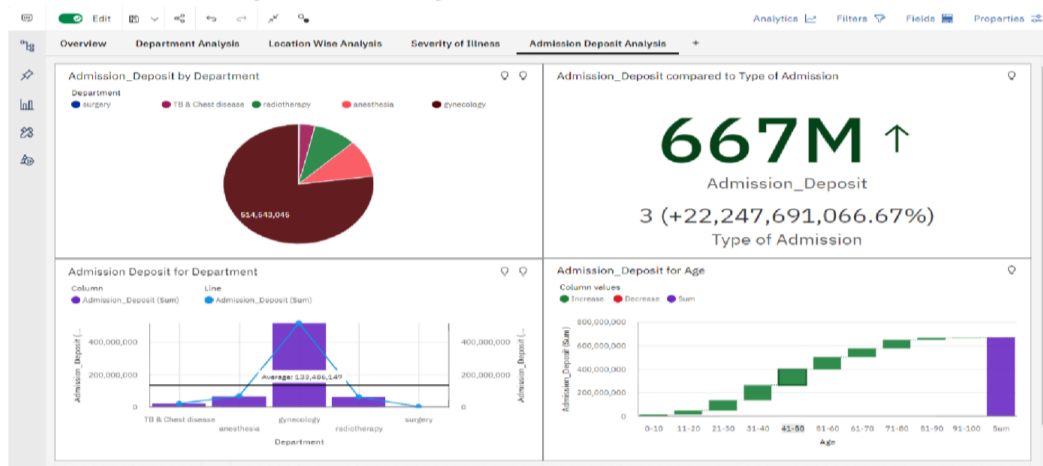
Location Wise Analysis



Severity of Illness



Admission Deposit Analysis



WEBPAGE

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10.ADVANTAGES & DISADVANTAGES

- Helps an organization to make a better decision
- Increase the efficiency of the work
- The analytics keeps you updated of your customer behavioral changes. •
Personalization of hospital details.
- Improving quality of service and health care.

DISADVANTAGES:

- Lack of alignment within teams
- Lack of commitment and patience
- Low quality of data

- Privacy Concerns
- Complexity and Bias

11.CONCLUSION

Data analytics in health care is vital. It helps health care organizations to evaluate and develop Number of patients by ward, Age wise patients with department details, Various types of visualizations to analyse the hospital's datasets and hence predict outbreaks in illness, Data analytics can also lower costs for health care organizations and boost business intelligence.

12.FUTURE SCOPE

While every fact of the industry stands to be changed by data analytics in healthcare, data has significantly improved healthcare in three areas: conducting medical studies, understanding the cost of medical tests and health insurance, and making preventative recommendations to patients. Hospital Healthcare data analytics helps in analyzing the patient details via hospital that the availability of doctors and number of beds to the patients and hence, it reduce the man power and time of the respective Hospital.

CHAPTER 13

APPENDIX

GITHUB LINK:

<https://github.com/IBM-EPBL/IBM-Project-22873-1659859734>

DEMO LINK:

<https://drive.google.com/file/d/1m5px21DXCmrp1IHyd2Jqs3q97jSxn352/view?usp=sharing>

