

Project Name: Airlines Data Analytics For Aviation Industry

Team ID : PNT2022TMID33055

Team Size : 5

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INTRODUCTION

Project Overview

- Users create multiple analytical graphs/charts/Visualizations.
- Using the Analytical Visualizations, build the required Dashboard(s).
- Saving and visualizing the final dashboard in the IBM Cognos Analytics.

Purpose

To provide better Airline and Airport services and to avoid delays in Air Travel across different locations at Municipality level. The aim is to provide airports, airlines, and the travelling public with a neutral, third-party view of which airlines are delivering on their promise to get passengers from Point A to Point B on-time.

LITERATURE SURVEY

Existing Problem

There are some concerns that in the future the air transportation system won't scale to meet demand because of the rising demand for air travel and the limited capability of capacity augmentation at some crucial points in the air transportation system. The quality of travel for passengers as well as the economy more widely will be impacted by this situation's production and distribution of delays across the system.

References

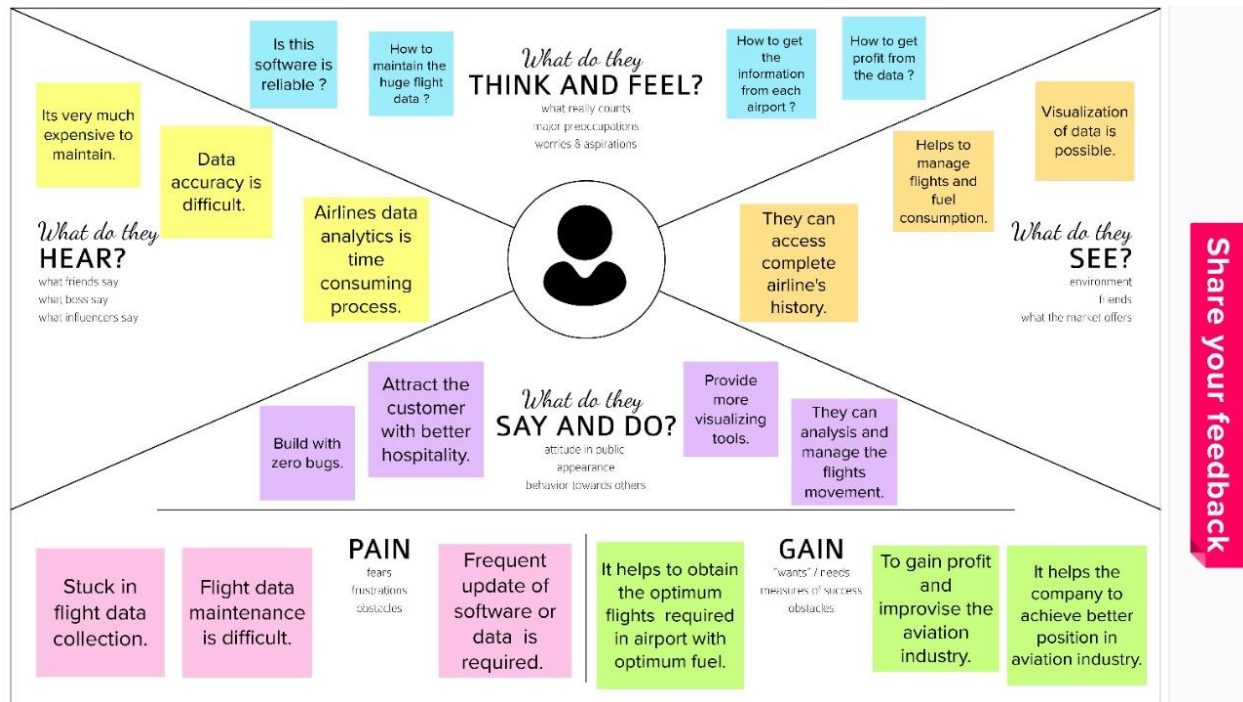
- Hausladen, I. and Schosser, M. (2020). Towards a maturity model for big data analytics in airline network planning. Journal of Air Transport Management.
- Kasturi, E., Prasanna, D., Vinu, K. and Manivannan, S. (2016). Airline route analysis and optimization using Big Data analytics on aviation data sets under heuristic techniques profitability. Procedia Computer Science.
- Rachman, Z. and Arviansysh (2019). Big Data analytics in airlines: Efficiency evaluation using DEA. 27th International Conference on Information and Communication Technology (ICoICT).
- Burmester, G., Ma, H., Steinmetz, D. and Hartmann, S. (2018). Big Data and data analytics in aviation, In U. Durak et al. (eds.), Advances in Aeronautical Informatics, Springer International Publishing, Switzerland.
- Klein, S. and Loebbecke, C. (2003). Emerging pricing strategies on the Web: Lessons from the airline industry

PROBLEM STATEMENT DEFINITION

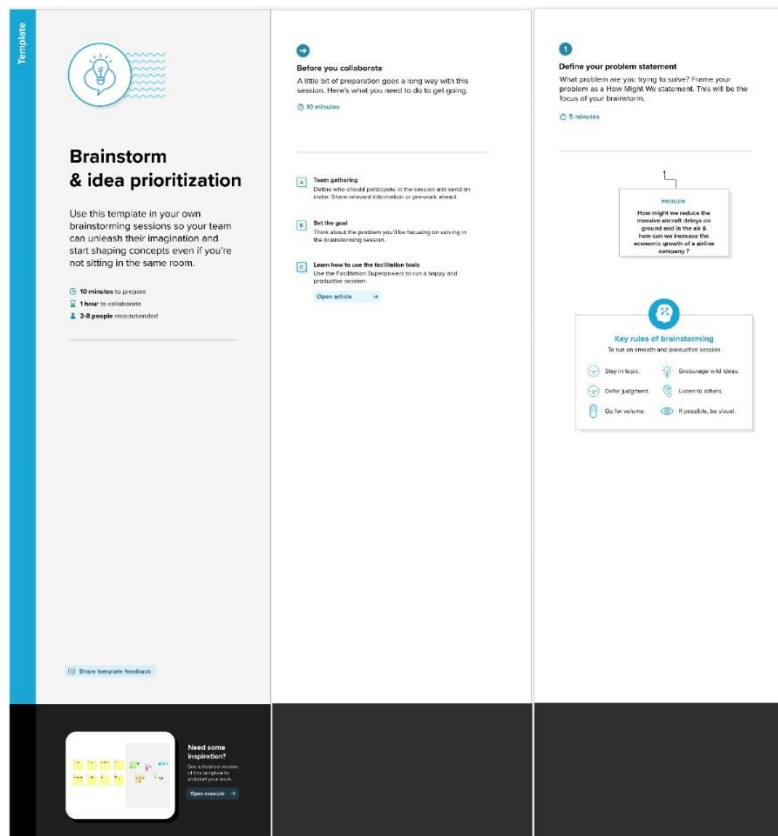
To identify and manage many people traveling this summer, they are noticing first-hand that airlines are facing major challenges, including numerous flight cancellations and delays. A flight delay is when an airline flight takes off and /or lands later than its scheduled time. A cancellation occurs when the airline does not operate the flight at all for a certain reason. Many people will get frustrated to sit idle in airport. Passengers who need to handle international meeting and also for some emergency purpose.

IDEATION & PROPOSED SOLUTION

Empathy Map Canvas



Ideation & Brainstorming



2

Brainstorm

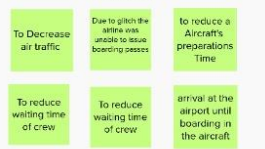
Write down any ideas that come to mind that address your problem statement.

10 minutes

Bhagavathy Vignesh M



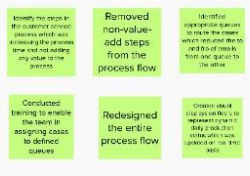
Dinakaran J



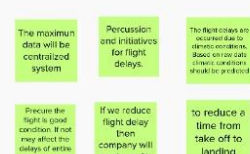
Balanathan G



Kishorekumar S



Hrithick Kumar G



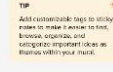
3

Group ideas

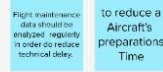
Take turns sharing your ideas while clustering similar or related notes as you go. In the last 10 minutes, give each cluster a sentence-like label. If a cluster is bigger than six sticky notes, try and see if you can break it up into smaller sub-groups.

20 minutes

Based on climatic conditions & profit



Based on turnaround services



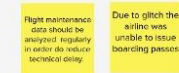
Based on past data analysis



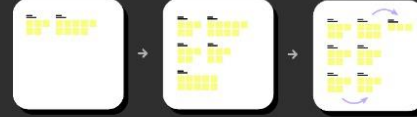
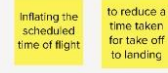
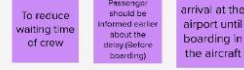
Based on air traffic



Based on unforeseen



Based on boarding time

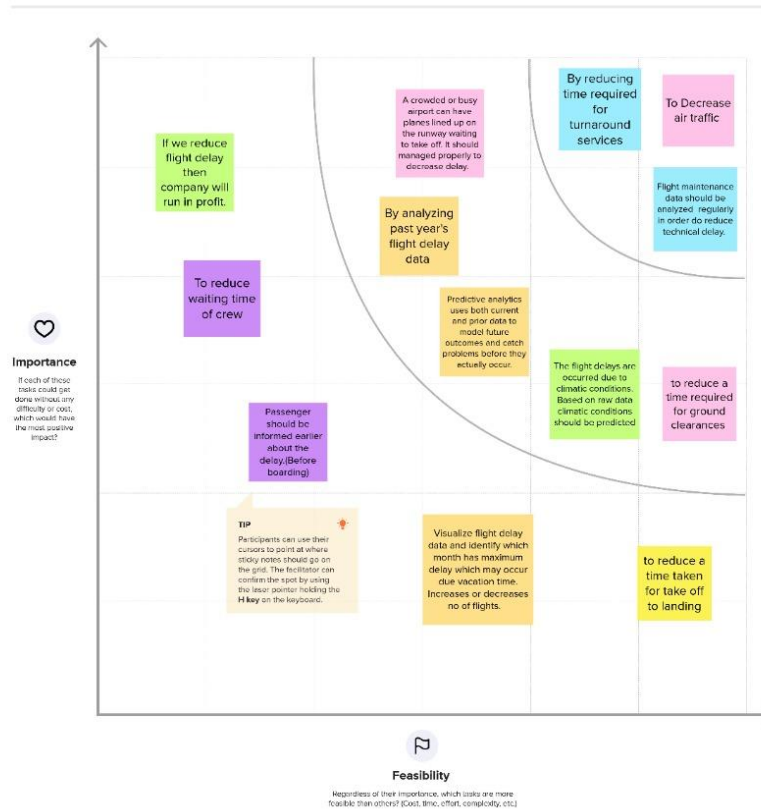


4

Prioritize

Your team should all be on the same page about what's important moving forward. Place your ideas on this grid to determine which ideas are important and which are feasible.

20 minutes



→

After you collaborate

You can export the mural as an image or pdf to share with members of your company who might find it helpful.

Quick add-ons

- Share the mural**
Share a view link to the mural with stakeholders to keep them in the loop about the outcomes of the session.
- Export the mural**
Export a copy of the mural as a PNG or PDF to attach to emails, include in slides, or save in your drive.

Keep moving forward

- Strategy blueprint**
Define the components of a new idea or strategy.
[Open the template →](#)
- Customer experience journey map**
Understand customer needs, motivations, and obstacles for an experience.
[Open the template →](#)
- Strengths, weaknesses, opportunities & threats**
Identify strengths, weaknesses, opportunities, and threats (SWOT) to develop a plan.
[Open the template →](#)

[Share template feedback](#)



Proposed Solution

S.No	Parameter	Description
1.	Problem Statement (Problem to be solved)	There are some concerns that in the future the air transportation system won't scale to meet demand because of the rising demand for air travel and the limited capability of capacity augmentation at some crucial points in the air transportation system. The quality of travel for passengers as well as the economy more widely will be impacted by this situation's production and distribution of delays across the system
2.	Idea / Solution description	Data analytics projects can be used to understand the consciousness passengers demand for specific city pairs and to price flights. Biometric technology is used by airlines as a boarding option. The technology scans passengers faces and compares them to photos in border control agencies' databases. The project mentioned earlier can take care of these.
3.	Novelty / Uniqueness	The ultimate benefits of big data analytics include strict timeliness in responding to current and future market demands, improved planning and strategically aligned decision making, and crystal clear comprehension and monitoring of all major performance drivers relevant to the airline industry. Passengers will avoid many baggage tracking issues thanks to the use of smart data analytics. While radio frequency identification prevents baggage mishandling, predictive analysis aids in improving fleet reliability predictability.
4.	Social Impact / Customer Satisfaction.	Data analytics assists the industry in better understanding customer preferences as well as other maintenance issues. For example, ticket booking

		analysis enables the industry to target customers with personalised offers while optimising prices in real-time using predictive analysis techniques. As a result of gathering useful data, airlines can obtain more bookings in the allotted timeframe
5.	Business Model (Revenue Model)	Business model innovation in airlines can help to create value, competitive advantage, and profitability by opening up new avenues of action. A revenue model is a blueprint that outlines how a startup business will generate revenue or gross income from its standard business operations, as well as how it will cover operating costs and expenses.
6.	Scalability of the Solution	Cloud Cognos Analytics is not limited to specific organisations or governments. The aviation industry, whether international, domestic, or private, is also pleased with the aviation data analysis process provided to meet their needs.

Problem Solution Fit

Define CS, fit into CC	<p>1. CUSTOMER SEGMENT(S) CS</p> <ul style="list-style-type: none"> ➤ Customers are people who use airline and airport services, and are unable to keep up with the forecasting information and arrival information of planes. ➤ Airlines literally pay a large price for delays and cancellations, which includes maintenance costs and compensation for passengers waiting in airports. ➤ Predictive analytics utilized for fleet technical assistance is a suitable solution given that unscheduled maintenance accounts for almost 30% of the total delay time. 	<p>6. CUSTOMER CONSTRAINTS CC</p> <ul style="list-style-type: none"> ➤ What a passenger thinks and feels when travelling through an airline is frequently considered to be the customer experience in the aviation sector. Several stages of departure and arrival in an airport. ➤ Midair is the greatest time to interact with passengers and learn about their expectations for the flight is while you're in the air. Start with the fundamentals, such as comfortable seating and staff protocol. ➤ After landing, examine with passengers' eyes and ask their comments. Post flight, that's a fantastic approach to improve your online reputation. 	<p>5. AVAILABLE SOLUTIONS AS</p> <p>Flight Turnaround Analytics:</p> <ul style="list-style-type: none"> ➤ Gives information on the inefficiencies in the flight turnover procedure. The video annotation service uses video monitoring for ground operations to record the amount of time spent on each individual activity during flight changeover. <p>Planning and Schedule Analytics:</p> <ul style="list-style-type: none"> ➤ provides a thorough study of ticket sales, operating costs, and airline route profitability. It supports crew planning for flights, fleet rebalancing, and fuel requirements. 	Explore AS, differentiate
Focus on J&P, tap into BE, understand RC	<p>2. JOBS-TO-BE-DONE / PROBLEMS J&P</p> <ul style="list-style-type: none"> ➤ Detailed analysis of ticket sales, operational costs, and airline route profitability is provided. It aids in fleet rebalancing, determining fuel requirements, and crew planning for flights. ➤ utilizing quantitative analysis to optimize flying operations. In order for management to take the appropriate action, you will need to inform them of trends and bottlenecks that you notice from data analysis. 	<p>9. PROBLEM ROOT CAUSE RC</p> <ul style="list-style-type: none"> ➤ In response to risk management procedures as outlined in your aviation SMS manual, a root cause analysis is conducted. ➤ Understanding the causal elements that result in subpar safety performance within a specific event—whether it be an accident, small incident, or close call—is the goal of the analysis. 	<p>7. BEHAVIOUR BE</p> <ul style="list-style-type: none"> ➤ To better understand passenger behavior, data analysts can use airport analytics to gather information on individuals who pass through various inspections, such as their gender, arrival times, luggage check-in times, and the type of flight they take. ➤ Having a deeper grasp of how passengers behave can help to improve services. 	Focus on J&P, tap into BE, understand RC
	<p>3. TRIGGERS TR</p> <ul style="list-style-type: none"> ➤ In the aviation industry, passengers may experience delays in flight departure and arrival owing to situations like flight delays. ➤ The entire data maintenance is really challenging. However, performance and quality are dependable and successful if they apply data analytics report. <p>4. EMOTIONS: BEFORE / AFTER EM</p> <ul style="list-style-type: none"> ➤ Before: They experience a sense of loss as a result of losses brought on by inappropriate management of airline analytics for the aviation industry. ➤ After: They get a sense of success after increasing profitability and lowering errors that occur during manual processes. 	<p>10. YOUR SOLUTION SL</p> <ul style="list-style-type: none"> ➤ To use Cognos Analytics to create an airline data analytics report for the aviation industry. ➤ Enable email-based alerts for flight arrival and departure, as well as messages about modifications to the flight path's characteristics. ➤ Provide a graphical display option for the aviation business. 	<p>8. CHANNELS of BEHAVIOUR CH</p> <p>8.1 ONLINE</p> <ul style="list-style-type: none"> ➤ Free online airline analytics for the aviation industry could steal users' personal information and include a lot of advertisements. There is no authenticated security. <p>8.2 OFFLINE</p> <ul style="list-style-type: none"> ➤ Logs kept manually can be kept. When the business expands, employees might be hired to maintain the airline analytics for aviation sector system records. 	

REQUIREMENT ANALYSIS

Functional Requirements:

Following are the functional requirements of the proposed solution.

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	customer Registration	customer can make Registration through Gmail
FR-2	User Confirmation	After the Registration the customer will get confirmation through mail.
FR-3	Visualizing data	User can visualize the Regular trends of delay of flights Using IBM Cognos Analytics
FR-4	Generating Report	User can view the flight delay report

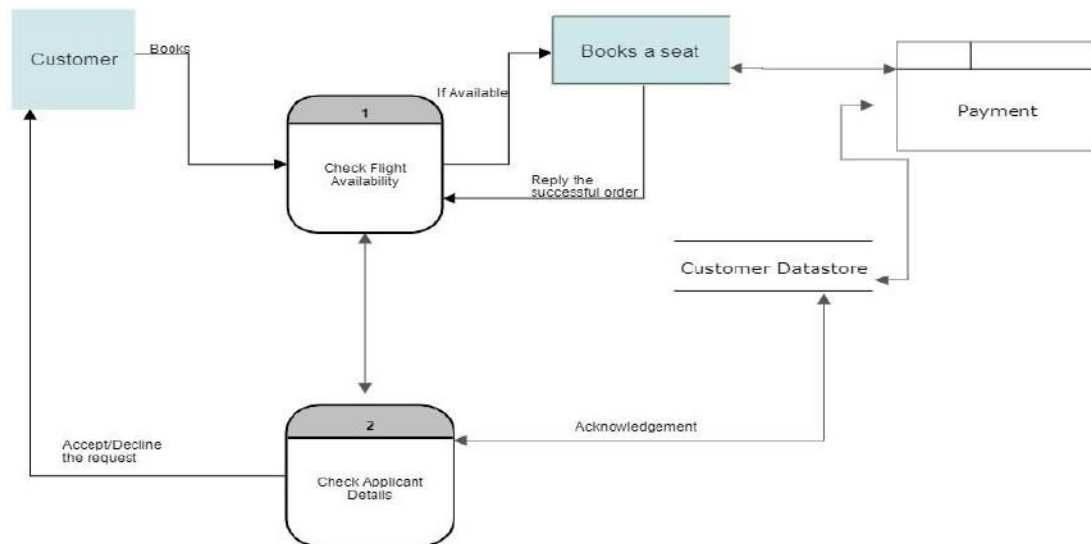
Non-functional Requirements:

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

FR No.	Non-Functional Requirement	Description
NFR-1	Usability	The application will have a simple and user-friendly graphical interface. Users will be able to understand and use all the features of the application easily. Any action has to be performed with just a few clicks.
NFR-2	Security	The main security concern is for users account hence proper login mechanism should be used to avoid hacking. The organization system should not disclose personal information of users and other organization details to public.
NFR-3	Reliability	When the system is disconnected or frozen due to over access at the same time, it should save all the process of the users made up to the point of abnormal happenings.

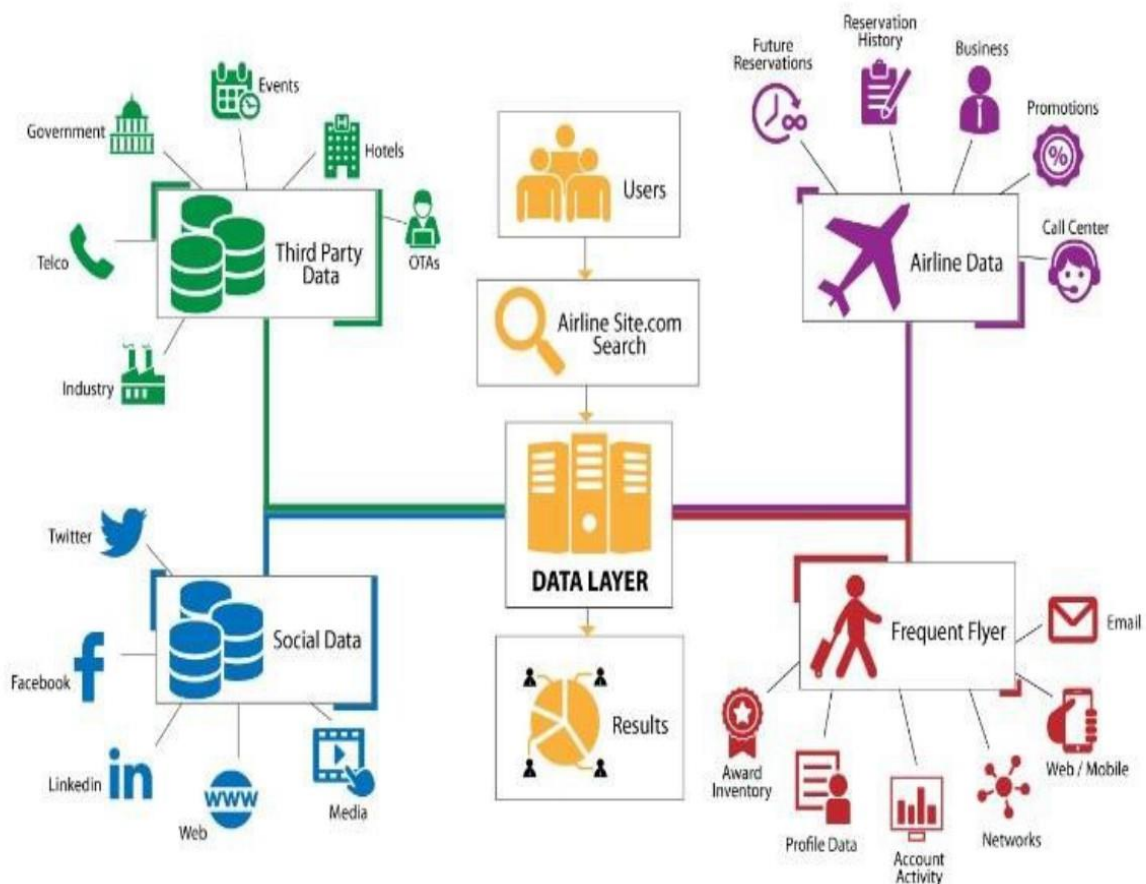
PROJECT DESIGN

Data Flow Diagrams



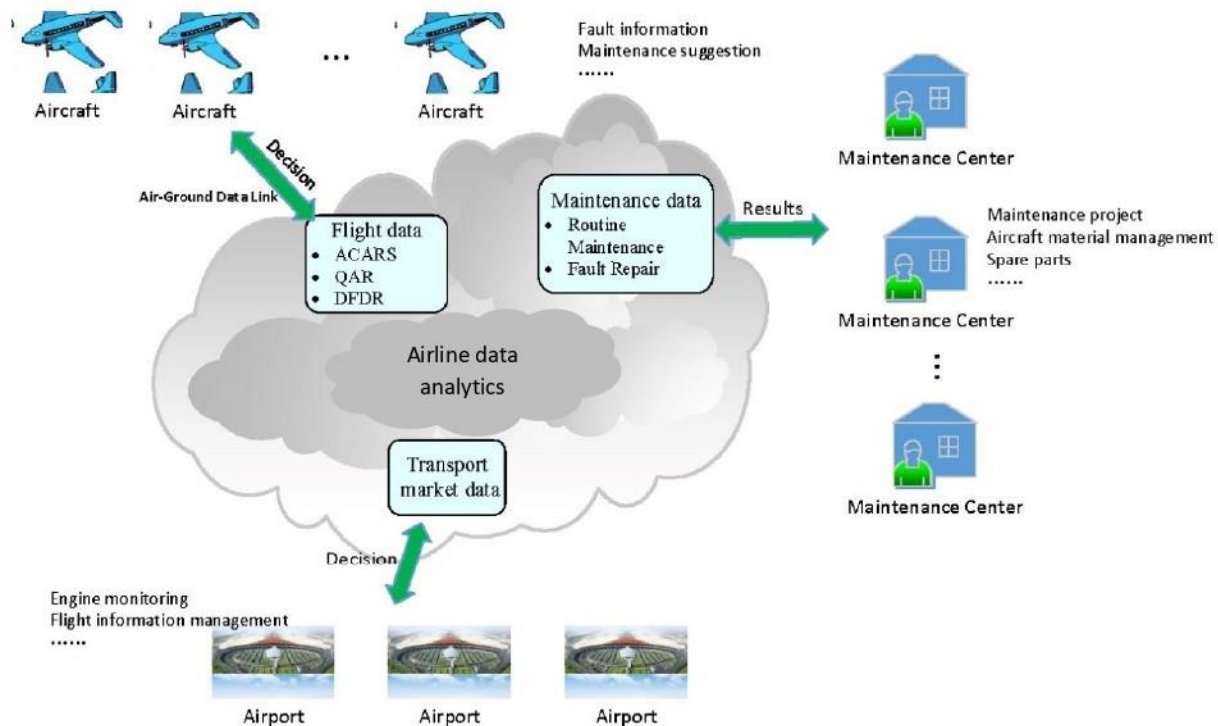
Solution & Technical Architecture

Solution Architecture Diagram:



Technical Architecture Diagram:

Airline Data Analytics For Aviation Industry



PROJECT PLANNING & SCHEDULING

Sprint Planning & Estimation

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-1	Registration	USN-1	As a user, I can register for the application by entering my email, password, and confirming My password	2	Low	Kishorekumar
Sprint-1	Registration	USN-2	As a user, I will receive confirmation email once I have registered for the application	3	Medium	Balanathan
Sprint-1	Login	USN-3	As a user, I adapt to logging into the system with credentials.	2	Low	Bhagavathy Vignesh
Sprint-1	Designation of Region	USN-4	As a user, I can collect the dataset and select the region of interest to be monitored and analysed	5	Medium	Dinakaran
Sprint-2	Exploration Of The Data	USN-5	As a developer, I will explore the given dataset through cognos.	6	High	Balanathan
Sprint-2	Visualization Of The Dataset	USN-6	As a developer, I will visualize the given dataset into a dashboard using cognos.	6	High	Hirthick Kumar
Sprint-3	Customization Of The Dashboard	USN-7	As a user, I can customize the visualized dashboard.	6	Medium	Dinakaran
Sprint-3	Ease of Access	USN-8	As a user, I can easily access and manipulate the dashboard.	6	Medium	Kishorekumar

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	12	29 Oct 2022
Sprint-2	20	6 Days	31 Oct 2022	05 Nov 2022	12	05 Nov 2022
Sprint-3	20	6 Days	07 Nov 2022	12 Nov 2022	12	12 Nov 2022
Sprint-4	20	6 Days	14 Nov 2022	19 Nov 2022	12	19 Nov 2022

Reports from JIRA

Reporting helps you track and analyze your team's work throughout a project. Jira Software has a range of reports that you can use to show information about your project, versions, epics, sprints, and issues.

WORKING WITH THE DATASETS AND DATA VISUALISATION

Working with the Datasets

- Understand the Dataset
- Load the Dataset
- Perform Joins of the Dataset tables

Understanding The Dataset :

The data can be downloaded from the Links :

1. AirStats data on airports around the world
2. Circum - Airport Performance Reports
3. Resources Coverage data

DATASET LINK:

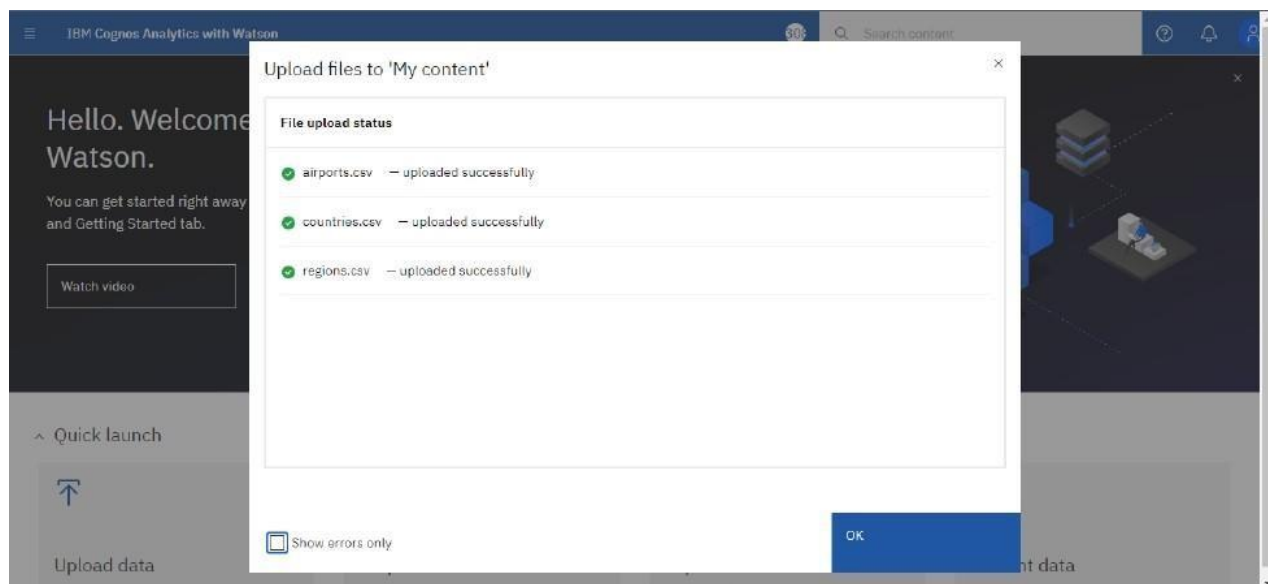
<https://www.kaggle.com/patrasaurabh/airstats-data-on-airports-around-the-world>

Loading Of Dataset:

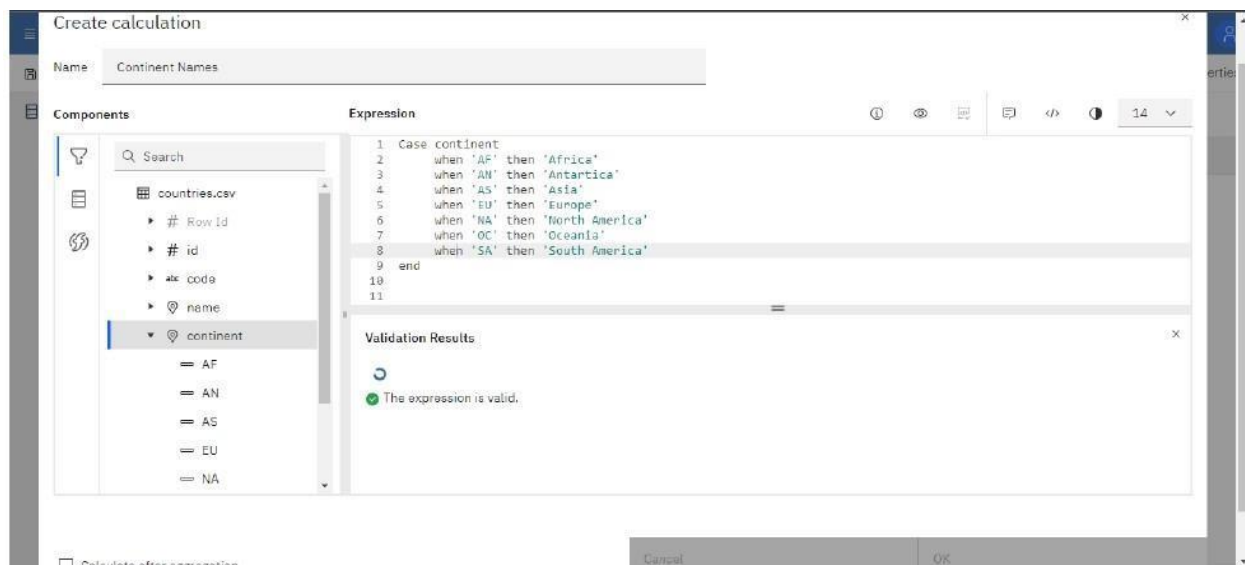
Before you build a view and analyze your data, you must first connect the data to IBM Cognos. Cognos supports connecting to a wide variety of data, stored in a variety of places.

The data might be stored on your computer in a spreadsheet or a text file, or in a big data, relational, or cube (multidimensional) database on a server in your enterprise.

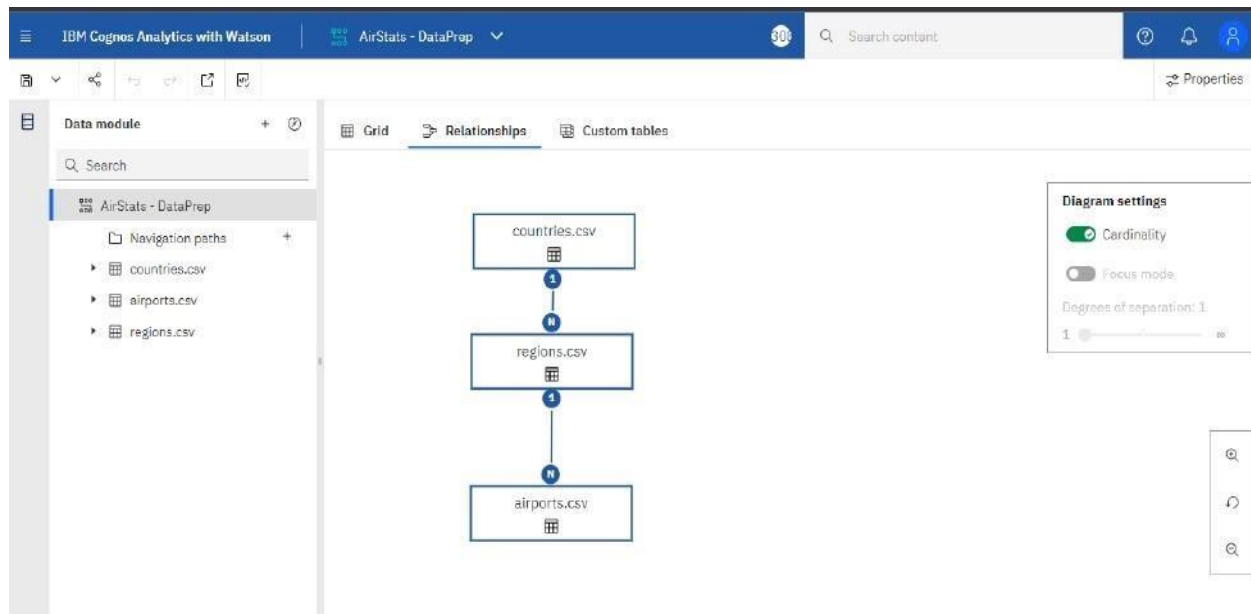
In our case, we will be using a spreadsheet or text file for making our analysis.



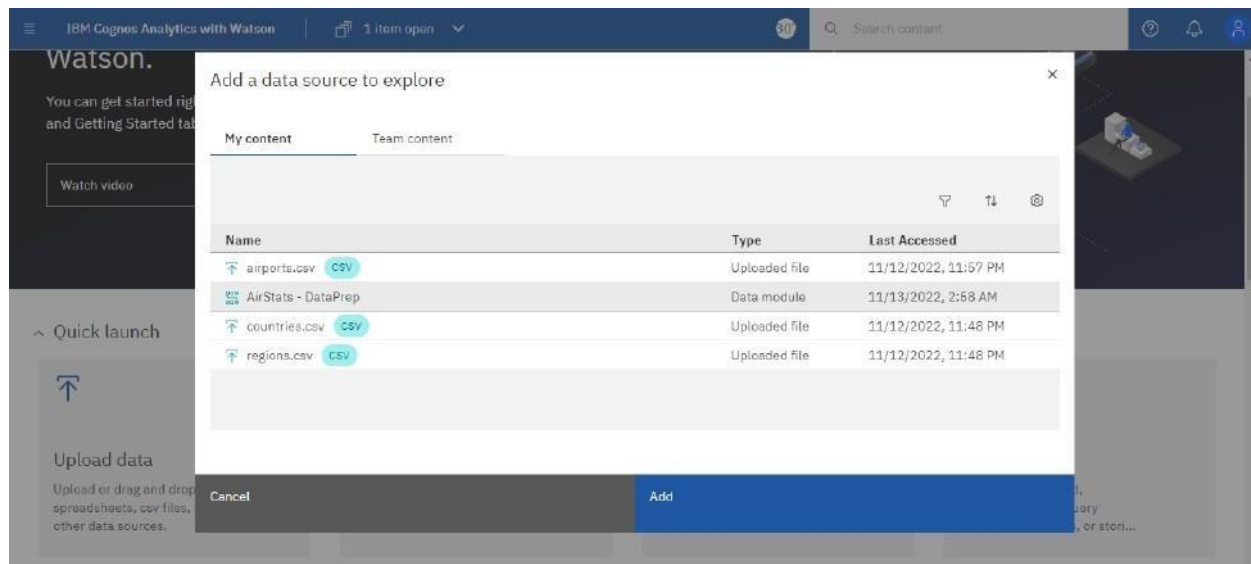
Data Preparation :



Joining Of Tables :



Exploration Of Data :

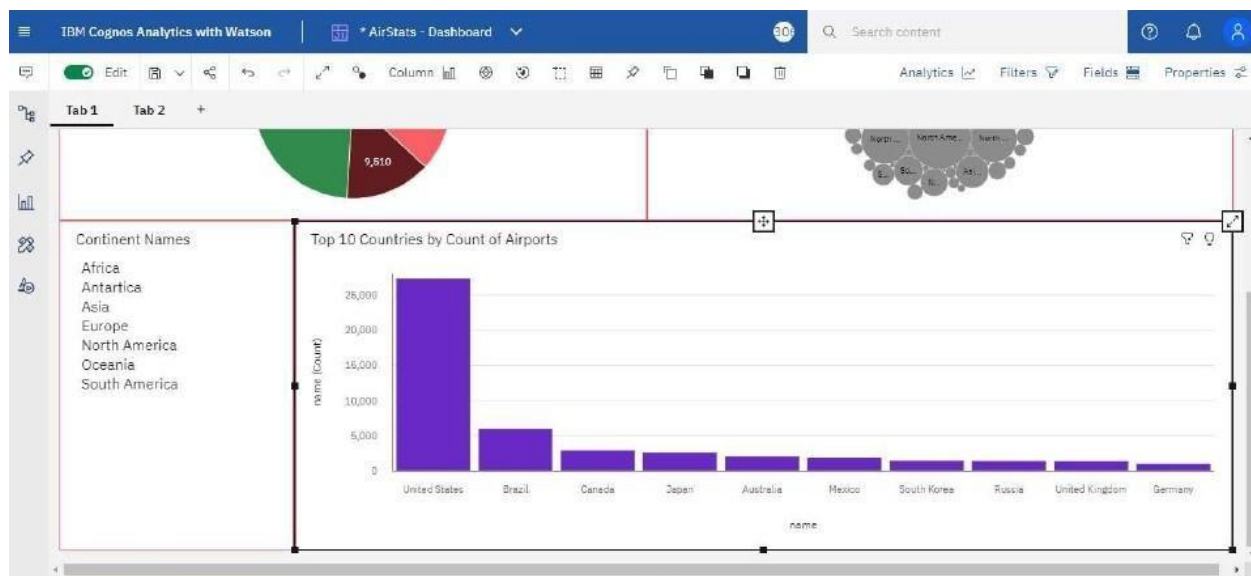
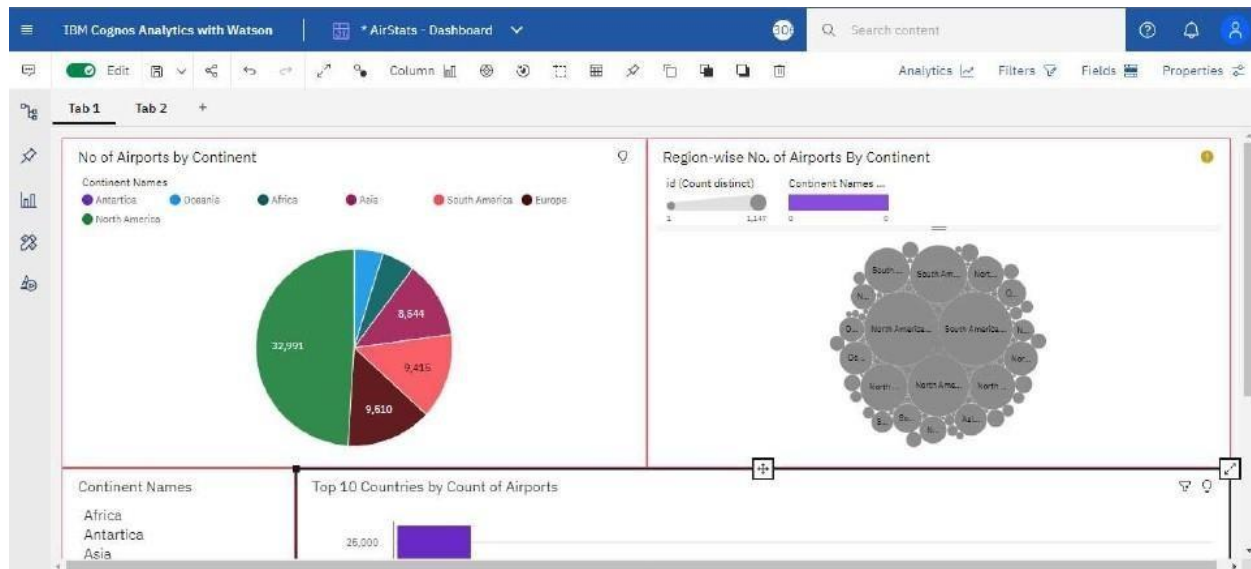


Data Visualization :

Using the given dataset, we plan to create various graphs and charts to highlight the insights and visualizations.

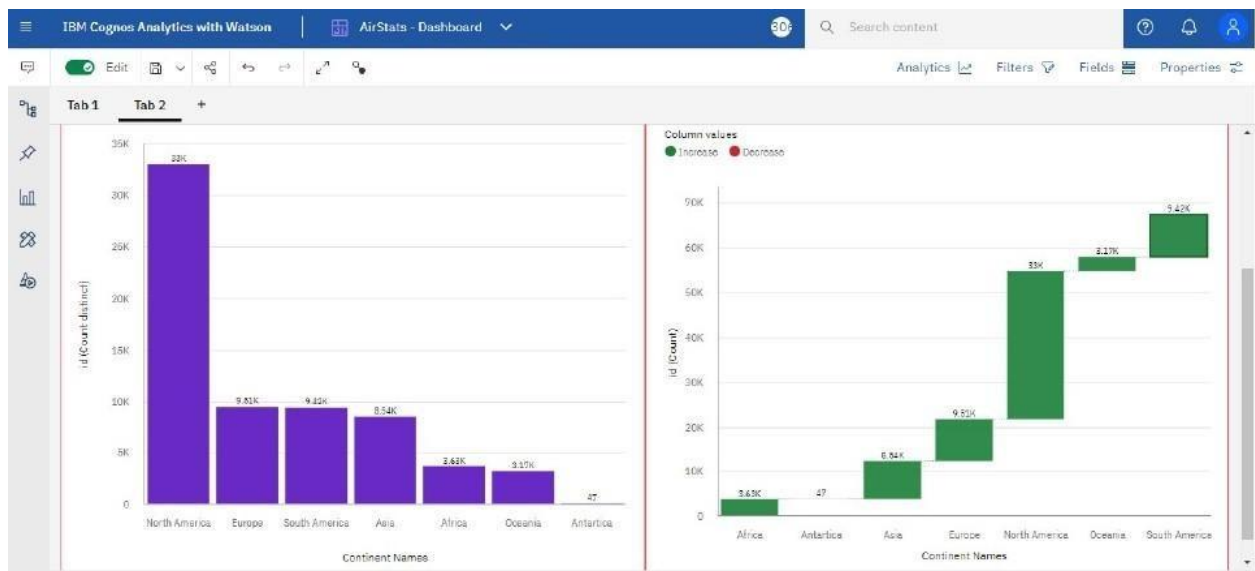
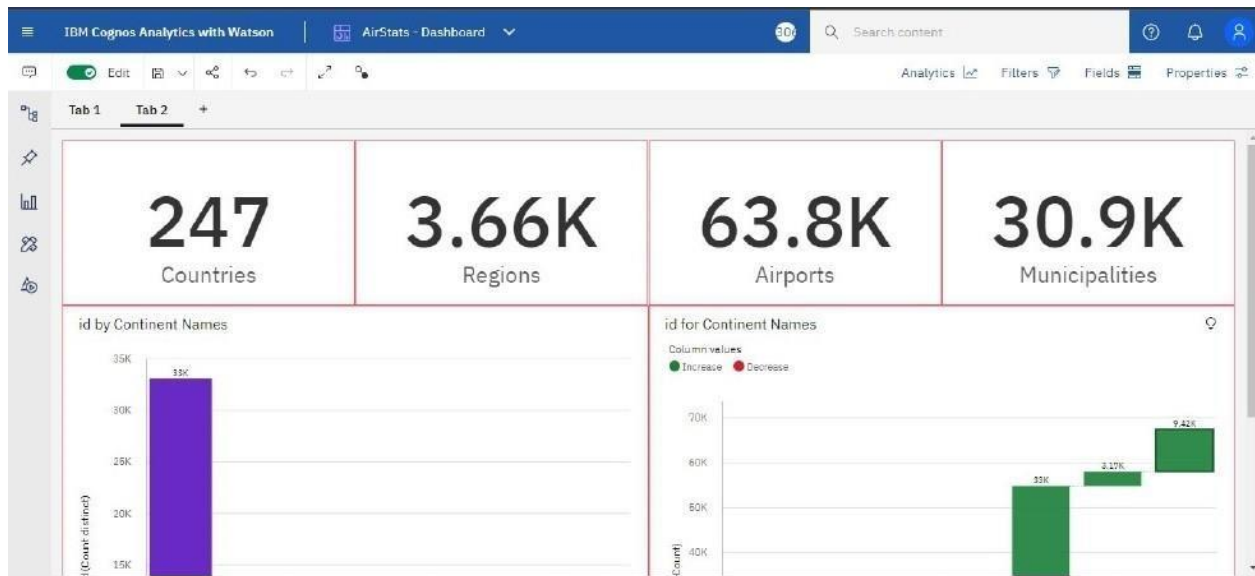
Representation Of Flight Count By Categories :

1. Pie Chart - Continent-wise No. of Flights.
2. Packed Bubble Chart - Continent wise No. of Flights by Type - Colored with Type.
3. Continent List - Filter.
4. Top 10 Countries by Flights.



No Of Flights By Countries , Regions And Airports :

- 1) Build the Summary Cards showing the Number of Countries, Number of distinct Regions, Number of Airports and Number of Municipalities.
- 2) Build the number of Airports by Countries using a Column Chart
- 3) Build a Waterfall-Chart showing the number of Airports by Continents.



Continent Wise Count Of Airports Using Geo Map :

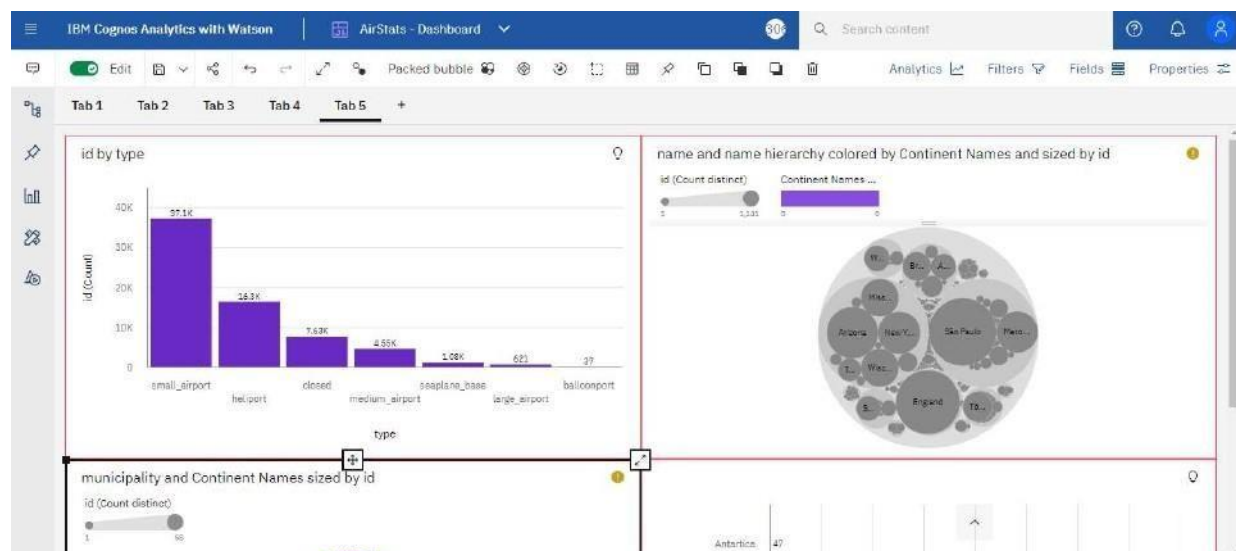
Geo-Map - Continent-wise No. of flights.

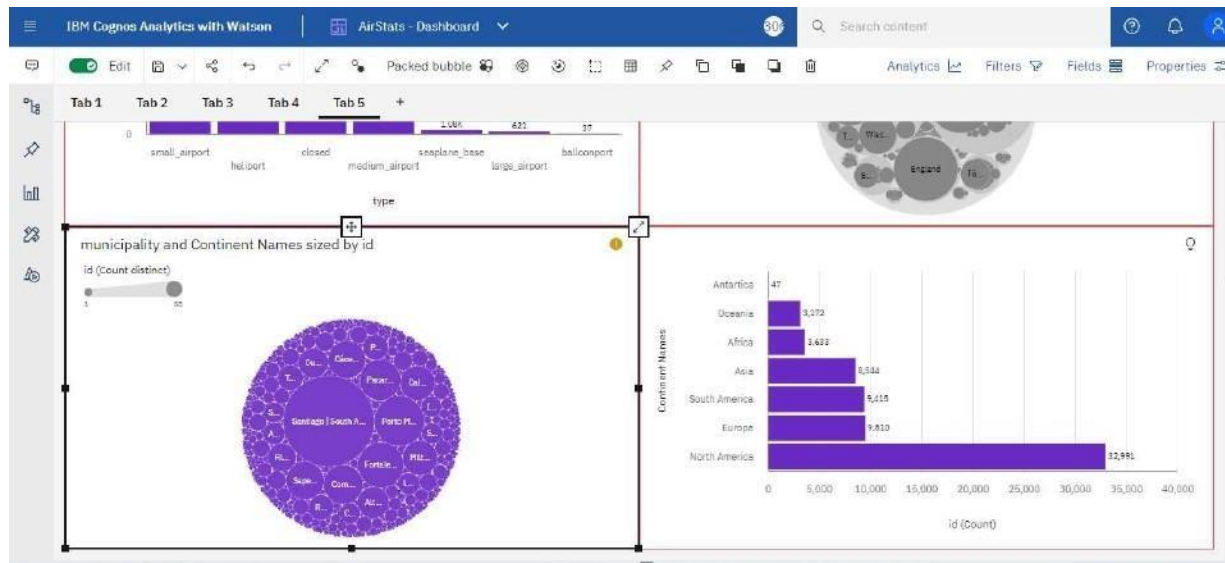
Continent name and id for Continent name points



Dashboard showing count of flights by Types,Countries and Continents:

1. Column-Chart - No of Airports by Type
2. Hierarchy Bubble Chart - Region-wise Different Types of Airports
3. Packed bubble Chart - Municipality-wise No. of Airports
4. Bar Chart - Continent-wise No of Airports





TESTING :

Test Cases :

Test case ID	Feature Type	Component	Test Scenario	Steps To Execute	Expected Result	Actual Result	Status
LoginPage_TC_OO1	Functional	Home Page	Verify user is able to see the Login/Sign up popup when user clicked on My account button	1.Enter URL and click go 2.Click on My Account dropdown button 3.Verify login/Sing up popup displayed or not	Login/Sig nup popup should display	Working as expected	Pass
LoginPage_TC_OO2	UI	dashboa rd page	verify user is able to see airport report in dashboa rd page	1.Airstat dashboard will be displayed. 2.Check if each tab can able to access. 3.Click on the required dataset. 4.OBTain the report	required visualisat ion will be display ed on the dashboa rd	working as expected	pass

User Acceptance Testing :

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	10	4	2	3	20
Duplicate	1	0	3	0	4
External	2	3	0	1	6
Fixed	11	2	4	20	37
Not Reproduced	0	0	1	0	1
Skipped	0	0	1	1	2
Won't Fix	0	5	2	1	8
Totals	24	14	13	26	77

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	7	0	0	7
Client Application	51	0	0	51
Security	2	0	0	2
Outsource Shipping	3	0	0	3
Exception Reporting	9	0	0	9
Final Report Output	4	0	0	4
Version Control	2	0	0	2

RESULTS :

Performance Metrics

Model Performance Testing:

Project team shall fill the following information in model performance testing template.

S.No.	Parameter	Screenshot / Values
1.	Dashboard design	No of Visulizations / Graphs - 18
2.	Data Responsiveness	It shows the output when any of the dataset is selected.
3.	Utilization of Data Filters	Various filter methods were used to filter the dataset values like sort,top or bottom,format data etc.,
4.	Effective User Story	No of tabs Added - 5
5.	Descriptive Reports	No of Visulizations / Graphs -18

ADVANTAGES & DISADVANTAGES :

Advantages :

- It improves the average turnaround time needed to cater to market trends
- Properly implemented data modules help flight operators bag more customers and profits
- Predictive analytics is the key to preparing for future crises and put a mitigation plan in place
- It helps businesses make data-backed and more informed policy decisions
- Not just sales and customer service, data analytics play a vital role in flight operations and maintenance too

Disadvantages :

- Air transport is a costly service. Its operational costs are too high. Middle class and poor people cannot afford its cash.
- Air transport is prone to accidents. A small mistake can be very dangerous for passengers. Hijacking of planes is easily possible.
- For creating aviation facilities, huge investments are required. The cost of aero planes, construction and maintenance of aerodromes and control mechanism needs a capital expenditure.

CONCLUSION:

Flight delays are a major problem in civil aviation. They incur direct and indirect costs, such as maintenance at the gate, extra fees for crew, food service, and lodging. They also affect passenger satisfaction. Flight delay is inevitable and it plays an important role in both profits and losses of the airlines. An accurate estimation of flight delay is critical for airlines because the results can be applied to increase customer satisfaction and the incomes of airline agencies. So, the prediction and analysis of flight delays are of great significance to airlines, passengers, and airports. Predicting delays will help an airport to adjust resource allocations, quickly analyze the causes, and take measures to reduce or eliminate delays. Therefore, It delivers a well-friendly graphical UI and gives a proper delay rate to the users.

FUTURE SCOPE :

To illustrate, airlines bear high costs due to delays and cancellations that include expenses on maintenance and compensations to travelers stuck in airports. With nearly 30 % of the total delay time caused by unplanned maintenance, predictive analytics applied to fleet technical support is a reasonable solution.

APPENDIX :

Source code for Login Page:

```
<html>
<head>

<center>

<div class="container a">

</div>

</center>

<style>
.register{
height: 430px;
width: 30%;
}
body {

background-size: cover;
background-position: fit;
background-repeat: no-repeat;
height: 100%;
width: 100%;
}
.register{
background: -webkit-linear-gradient(left, #99ccff , #e6ccff);
margin-top: 3%;
padding: 3%;
border-radius: 2.5rem;
}

.b {
```



```
width: 25%;  
border-radius: 1rem;  
padding: 1%;  
color: #fff;  
background-color: #6666ff;  
cursor: pointer;  
}
```

```
.b1 {  
width: 25%;  
border-radius: 1rem;  
padding: 1%;  
color: #fff;  
background-color: #6666ff;  
cursor: pointer;  
}
```

```
</style>
```

```
</head>
```

```
<body>
```

```
<center>
```

```
</br>
```

```
</br>
```

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

```
<h1 style="font-size:300%">LOGIN</h1>
```

```
<fieldset style="width:300px">
```

```
</br>
```

```
</br>
```

```
<input type="text" name="reg" id="reg" placeholder="Enter the username*"></br></br>
```

```
<input type="password" name="pass" id="pass" placeholder="Enter the password*"></br></br>
```

```
<input type="submit" name="su" id="su" class="b" onclick="my();">
```

```
<input type="submit" value="Register" name="su1" id="su1" class="b1" onclick="my1();"></br>
```

```
</fieldset>
```

```
</div>
```

```
</center>
```

```
</br></br></br></br></br></br></br></br></br></br></br></br></br></br>
```

```
<script>
```

```
function my()
```

```
{
```

```
var reg=document.getElementById("reg").value;
```

```
var pass=document.getElementById("pass").value;
```

```
google.script.run.withSuccessHandler(function(output)
```

```
{
```

```
if((output == "TRUE"))
```

```
{
```

```
alert("Login Successful...");
```

```
window.open("https://mobbyboy.000webhostapp.com/");
```

```
}
```

```
else
```

```
{
```

```
alert("Login Failed");
```

```
}
```

```
}).checkLogin(reg,pass);
```

```
document.getElementById("reg").value="";
```

```
document.getElementById("pass").value="";
```

```
}
```

```
function my1(){
var reg=document.getElementById("reg").value;
var pass=document.getElementById("pass").value;
google.script.run.AddRecord(reg,pass);
alert("new account created");
document.getElementById("reg").value="";
document.getElementById("pass").value="";

}
</script>
</body>
</html>
```

Source code for Dashboard page:

Index.html

```
<!DOCTYPE html>
<html>
  <head>
    <link rel="stylesheet" href="background_styles.css">
    <link rel="stylesheet" href="styles.css">
    <script src="script.js" defer></script>
    <title>Airlines Data Analysis</title>
  </head>
  <body>
    <nav class="navbar">
      <div class="brand-title">Airlines Data Analysis</div>
      <a href="#" class="toggle-button">
        <span class="bar"></span>
        <span class="bar"></span>
        <span class="bar"></span>
      <div class="navbar-links">
```

```

<ul>

<li><a href="#dashboard">Dashboard</a></li>

<li><a href="#story">Story</a></li>
    <li><a href="#about">About</a></li>

</ul>
</div>
</nav>
<article>

    <center><b><h3>Dashboard:</h3></b></center>

    <center>

    <section id="dashboard">

        <iframe style="width: 100%;border:3px solid black;"
src="https://us1.ca.analytics.ibm.com/bi/?perspective=dashboard&amp;pathRef=.my_folders%2FIBM_
Dashboard&amp;closeWindowOnLastView=true&amp;ui_appbar=false&amp;ui_navbar=false&amp;shareMode=embedded&amp;action=view&amp;mode=dashboard&amp;subView=model000001848e43a6
ed_00000000" width="320" height="200" frameborder="0" gesture="media" allow="encrypted-media"
allowfullscreen=""></iframe>

    </section>

    </center>

</article>
<hr>
<hr>
<article>

    <center><b><h3>Story:</h3></b></center>

    <center>

    <section id="story">

        <iframe style="width: 100%;border:3px solid black;"
src="https://us3.ca.analytics.ibm.com/bi/?perspective=story&amp;pathRef=.my_folders%2FIBM%2Bst
ory&amp;closeWindowOnLastView=true&amp;ui_appbar=false&amp;ui_navbar=false&amp;shareMo
de=embedded&amp;action=view&amp;sceneId=model000001848e5a4d89_00000000&amp;sceneTime
=9150" width="320" height="200" frameborder="0" gesture="media" allow="encrypted-media"
allowfullscreen=""></iframe>

```

```

        </section>
    </center>
</article>
<hr>
<article><center>
<section id="about">
    <center><b><h3>About</h3></b></center>
<marquee>
    <center>A simple and understandable representation of facts as text, statistics of
    airline data and taking particular airport numbers, graphics, images, sound or video. Raw data, as target
    we are further analyzing the data to get the also known as primary data, is collected from a source.
    hourly statistics.
</marquee>
</center>
    <center>
    <h3><b>Analysts:</b></h3>
    </center>
<center>
    <table>

    <tr>
        <td>G Balanathan </td>
        <td>: 820419205013</td>
    </tr>
    <tr>
        <td>J Dinakaran </td>
        <td>: 820419205017</td>
    </tr>
    <tr>
        <td>S Kishore Kumar </td>
        <td>: 820419205032</td>
    </tr>

```

```
<tr>
  <td>M Bhagavathy Vignesh </td>
  <td>: 820419205014</td>
</tr>
<tr>
  <td>G Hirthick kumar </td>
  <td>: 820419205024</td>
</tr>
</table>
</center>
</section></center>
</article>
<br><br><br><hr>
<center>Hope you Like our website Thank you for guiding us</center>
<br><br><br>
</body>
</html>
```

Styles.css

```
* {
  box-sizing: border-box;
}
```

```
body {
  margin: 0;
  padding: 0;
}
```

```
.navbar {
  display: flex;
```

```
    position: relative;
    justify-content: space-between;
    align-items: center;
    background-color: #1E90FF;
    color: white;
}

.brand-title {
    font-size: 1.5rem;
    margin: .5rem;
}

.navbar-links {
    height: 100%;
}

.navbar-links ul {
    display: flex;
    margin: 0;
    padding: 0;
}

.navbar-links li {
    list-style: none;
}

.navbar-links li a {
    display: block;
    text-decoration: none;
    color: white;
    padding: 1rem;
}

.navbar-links li:hover {
    background-color: #555;
}

.toggle-button {
```

```
position: absolute;
top: .75rem;
right: 1rem;
display: none;
flex-direction: column;
justify-content: space-between;
width: 30px;
height: 21px;
}
```

```
.toggle-button .bar {
  height: 3px;
  width: 100%;
  background-color: white;
  border-radius: 10px;
}
```

```
@media (max-width: 800px) {
  .navbar {
    flex-direction: column;
    align-items: flex-start;
  }
  .toggle-button {
    display: flex;
  }
  .navbar-links {
    display: none;
    width: 100%;
  }
  .navbar-links ul {
    width: 100%;
    flex-direction: column; }
  .navbar-links ul li {
    text-align: center;
```



```
}  
.navbar-links ul li a {  
  padding: .5rem 1rem;  
}  
.navbar-links.active {  
  display: flex;  
}  
}
```

Background_styles.css

```
@import url('https://fonts.googleapis.com/css?family=Raleway');  
* {  
  font-family: Raleway;  
}  
html {  
  background-color: #DFDFDF;  
}
```

Script.js

```
const toggleButton = document.getElementsByClassName('toggle-button')[0]  
const navbarLinks = document.getElementsByClassName('navbar-links')[0]  
  
toggleButton.addEventListener('click', () => {  
  navbarLinks.classList.toggle('active')  
})
```

GitHub & Project Demo Link :

Github Repositories :

<https://github.com/IBM-EPBL/IBM-Project-39217-1660400727.git>

Project Demo Link :

<https://youtu.be/gp-uRPDYNmc>