COMPETITIVE ANALYSIS OF LEADING TRAVEL AGGREGATORS

DATA ANALYTICS

NAAN MUDHALVAN

PROJECT REPORT

Submitted By

GNANAVEL P (611220104304)

VENKATAPATHY R (611220104319)

SATHYASEELAN A (611220104313)

SUDHARSANAN V (611220104316)

in partial fulfillment for the award of the degree

of

BACHELOR OF ENGINEERING

in

COMPUTER SCIENCE AND ENGINEERING

KNOWLEDGE INSTITUTE OF TECHNOLOGY,

SALEM-637504

ANNA UNIVERSITY: CHENNAI 600 025
NOVEMBER 2023

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BONAFIDE   CERTIFICATE

Certified that this project report titled **"COMPETITIVE ANALYSIS OF TRAVEL AGGREGATTORS USING DATA ANALYTICS"** is the bonafide work of **"GNANAVEL P(611220104304), VENKATAPATHY R(611220104319), SATHYASEELAN A(611220104313), SUDHARSANAN V(611220104316)"** who carried out the project work under my supervision.

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Kakapalayam,

Salem- 637 504.

FACULTY MENTOR

HEAD OF THE DEPARTMENT

ACKNOWLEDGEMENT

At the outset, we express our heartfelt gratitude to **GOD,** who has been our strength to bring this project to light.

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TABLE OF CONTENTS

ABSTRACT

A travel aggregator is a website or platform that allows users to search and compare prices for travel-related products and services, such as flights, hotels, vacation rentals, and car rentals, from multiple providers. Travel aggregators typically provide a simple and convenient way for users to find and book travel products and services, and often offer additional features such as reviews, ratings, and photos to help users make informed decisions. Some popular examples of travel aggregator websites include Expedia, Booking.com, Kayak, and Trivago. Travel aggregators typically generate revenue by charging commissions or fees to the travel providers whose products and services are featured on theirplatform. Some also earn revenue through advertising, or by offering additional services such as travel insurance or car rental. An analysis of a travel aggregator can be a great opportunity to understand the travel industry trends, consumer preferences, and the impact of external factors on the travel industry. This can be done by analysing the data from thetravel aggregator such as bookings, reviews, prices and other related data, which can be used to draw insights and make data-driven decisions.

LIST OF FIGURES

LIST OF ABBREVIATIONS

ABBREVIATIONS	EXPANSIONS
OTA	ONLINE TRAVEL AGGREGATORS
FR	FUNCTIONAL REQUIREMENTS
NFR	NON-FUNCTIONAL REQUIREMENTS
AR	AUGUMENTED REALITY
VR	VIRTUAL REALITY

INTRODUCTION

CHAPTER 1

INTRODUCTION

1.1 Project Overview

Travel aggregator is a website or platform that allows users to search and compare rates for travel- related items and services such as flights, hotels, vacation rentals, and auto rentals from many sources. Travel aggregators often offer an easy and convenient means for consumers to locate and book travel products and services, as well as extra features such as reviews, ratings, and images to assist customers in making educated decisions. Some popular examples of travel aggregator websites include Expedia, Booking.com, Kayak, and Trivago.

While travel aggregators make it easy to search for and compare travel options, users frequently struggle to find the best deals and promotions due to the overwhelming amount of information and options presented. The gathered data will next go through a thorough analysis utilizing statistical methods and tools for data visualization. The evaluation of rivals' pricing tactics, marketing initiatives, value-added services, and user experiences will be the main emphasis of the analysis. To measure consumer happiness and pinpoint trouble points, reviews, ratings, and client comments will also be analyzed.

Furthermore, the project will also keep tabs on new developments in the travel aggregator sector, as well as market opportunities and potential threats. To anticipate market movements and spot opportunities for growth and innovation, this will include keeping an eye on changes in the industry, technology improvements, and consumer preferences.

The competition analysis's results will give the travel aggregator useful information that will help it to improve its value proposition, sharpen its business strategy, and possibly achieve a competitive edge in the fast-moving travel market.

1.2 Purpose

Now-a-days, by giving people a quick and easy way to plan and book their vacations, travel aggregators play a crucial role in the travel business. A travel aggregator's main function is to provide a centralized platform that compiles data from multiple travel service providers, including airlines, hotels, car rental agencies, and tour operators. By doing this, they make the process of organizing a trip simpler and help users save time and effort.

Users are empowered to evaluate costs, availability, and features of various travel services on these platforms, enabling them to make selections that are in line with their tastes and financial constraints. Additionally, travel aggregators offer thorough data about locations, lodgings, modes of

transportation, and attractions to make sure users have access to all the information they need to make informed travel plans. A travel aggregator's goal is to improve user experience by providing convenience, cost savings, and thorough information, making the process of planning, and booking travel easy and enjoyable.

The purpose of this research would be to better understand the user experience using travel aggregators, identify pain areas in the booking process, and make recommendations for improving the user interface and search capabilities to better fulfil the requirements and expectations of users.

LITERATURE SURVEY

CHAPTER 2
LITERATURE SURVEY

2.1 Analysis and Application of Tourists' Sentiment Based on Hotel Comment Data

Bin Wu presented a paper which intends to analyze the tourist's sentiment based on hotel comment data. Online travel agency (OTA) platforms are becoming more and more popular in today's world. When it comes to OTA platforms, hotels receive a higher number of comments from visitors, and authenticity is a crucial aspect. The data is gathered using the 'Bazhuayu' collector and prepared for analysis, with segmentation completed using jieba. Frequency-Inverse Document Frequency technique is used to extract keywords, and the Bagof-Words model is used to create a word vector. The dataset is balanced using subsampling, and to classify and adjust the parameters, support vector machine, Naive Bayes, and Long Short-Term Memory neural network models are established to compare their classification performance. Based on the classification results, suggestions are provided to assist hotels in optimizing and upgrading themselves.

2.2 Determinants of OTAs Continuous Usage Intention

So Ra Min presented a paper which intends to the continuous Online Travel Agencies (OTA) usage intention. This study used the SOR model to apply information quality, OTA trust, and continuous usage intention offered by online travel agencies to examine their

relationships. To do this, consumers who have made several OTA purchases within the previous year participated in an online survey. The SPSS v.22 and AMOS v.22 programmes were used to analyze the 234 replies and test the hypotheses. One might anticipate that this work will have academic ramifications. By identifying the elements that encourage customers' continued usage intentions, which are associated with the revenue of online travel agencies, it is anticipated that this study may be utilized as fundamental information to, in practise, develop a user-centered informative provision environment.

2.3 OTA Optimization: Evaluating Consumers' Purchase Intention from Online Negative Review Responses Analysis

Sheng ying Liu presented a paper on analysis of consumers purchase intention evaluation from online negative review responses. Consumers, however, increasingly rely on outside information when making purchases because of the drawbacks of internet buying and the immaterial nature of tourism service items. It has become crucial to figure out how to mine and analyze these data to understand consumers' purchase intentions for various response strategies and then design personalized response strategies data to deal with various service remedies, increasing service responsiveness and competitiveness. This study, which is based on the Attribution theory, assigns the online negative review responses gathered on the Online Travel Agency (OTA) platforms to three different types of response strategies before exploring the effects of various negative review response strategies on consumers' purchase intentions using a quantitative method. This work helps merchants manage their customer relationships and optimize their e-commerce applications.

IDEATION & PROPOSED SOLUTION

CHAPTER 3

IDEATION &PROPOSED SOLUTION

3.1 Problem Statement Definition

I am (Customer)	I'm trying to	But	Because	Which makes me feel
Traveller	Booking a flight through mobile phone	1.It takes a long time. 2.It is difficult in finding affordable flights that meet scheduling needs.	1.It feels difficulty in finding the best offers and rates for flight can be difficult due to growing number of policies and booking services. 2.Airlines have wide range of policies that can be confusing and difficult for travelers to understand (ex: baggage policies).	Dissatisfied
Traveller	Booking a hotel through mobile phone.	It takes a long time.	1. The website doesn't provide sufficient about the hotel details(i.e. vacancies of room, size of room). 2. Website is not responsive and	Aggrived

			doesn't have a mobile version.	
Traveller	Booking a car rental through mobile phone.	It takes long time for finding a reliable car rental company.	1. Travelers may face challenges in securing their needs such as limited budget. 2. They face many fraudulent car rental companies are there and many people got scammed by overrated rental charges.	Disenchanted
Traveller	Booking a vacation rental through mobile phone.	1. It takes lack of personalized recommendations. 2. Difficult in finding suitable accommodations and it takes a long time.	1. It make difficulty finding trustworthy and dependable rental can be challenging because to growth of website (i.e. Airbnb, etc). 2. Lack of transparency in pricing and fees.	Frustrated
Traveller	Booking a travel bus through mobile phone.	1. It appears that they are having difficulty understanding the overall expense of their trip. 2. Lack of confidence in the booking procedure	1. The process of booking travel bus through mobile it seems difficult mainly in payment systems such as the method that use to purchase their tickets it could brought on antiquated payment	Suspicion

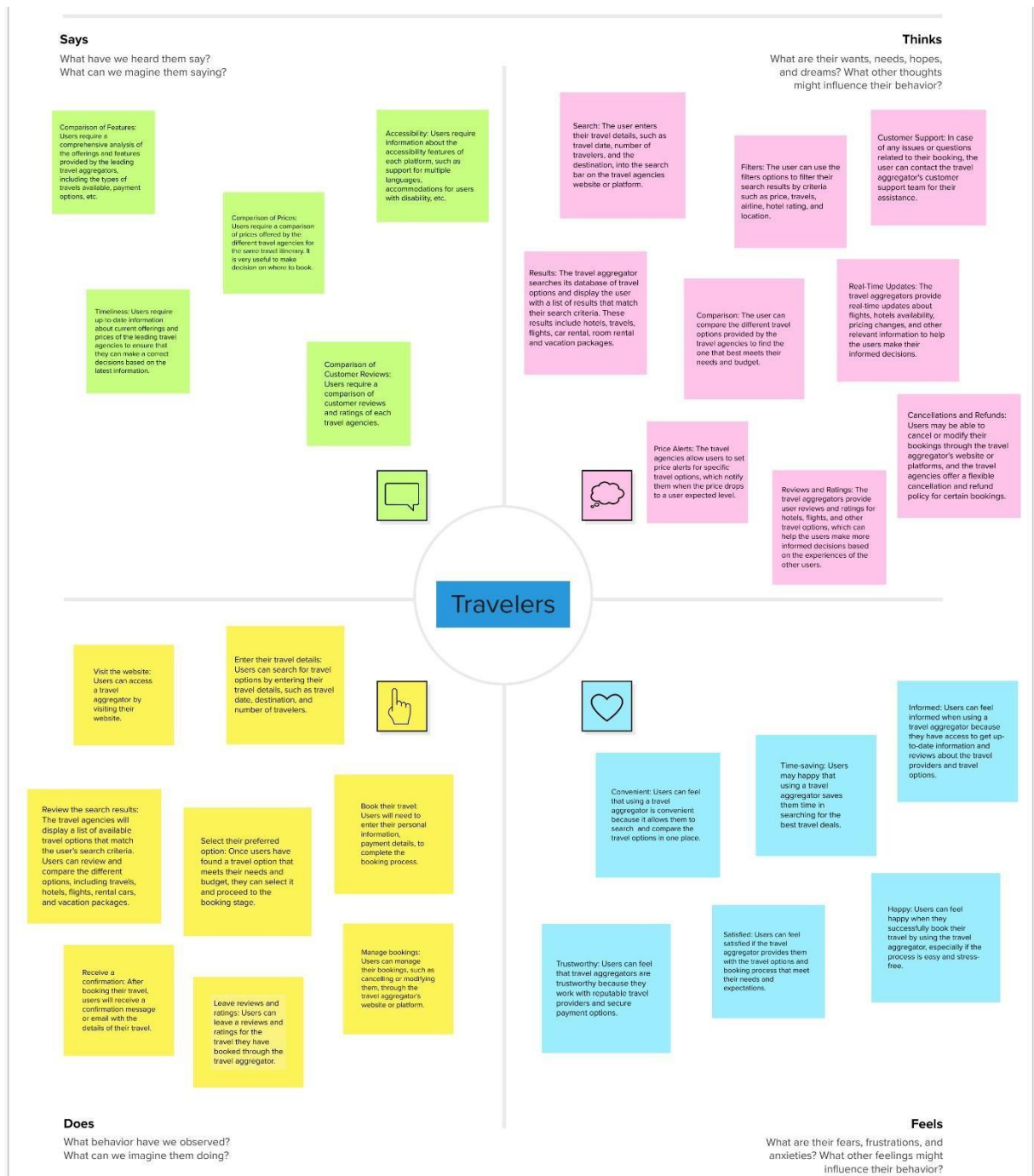|				
			alternatives, a lack of payment option. 2.Security for the customer data is secure and protected when booking for travel bus ticket through online.	

3.2 Empathy Map Canvas

Fig 3.2.1 Empathy Map Canvas

3.3 Ideation & Brainstorming

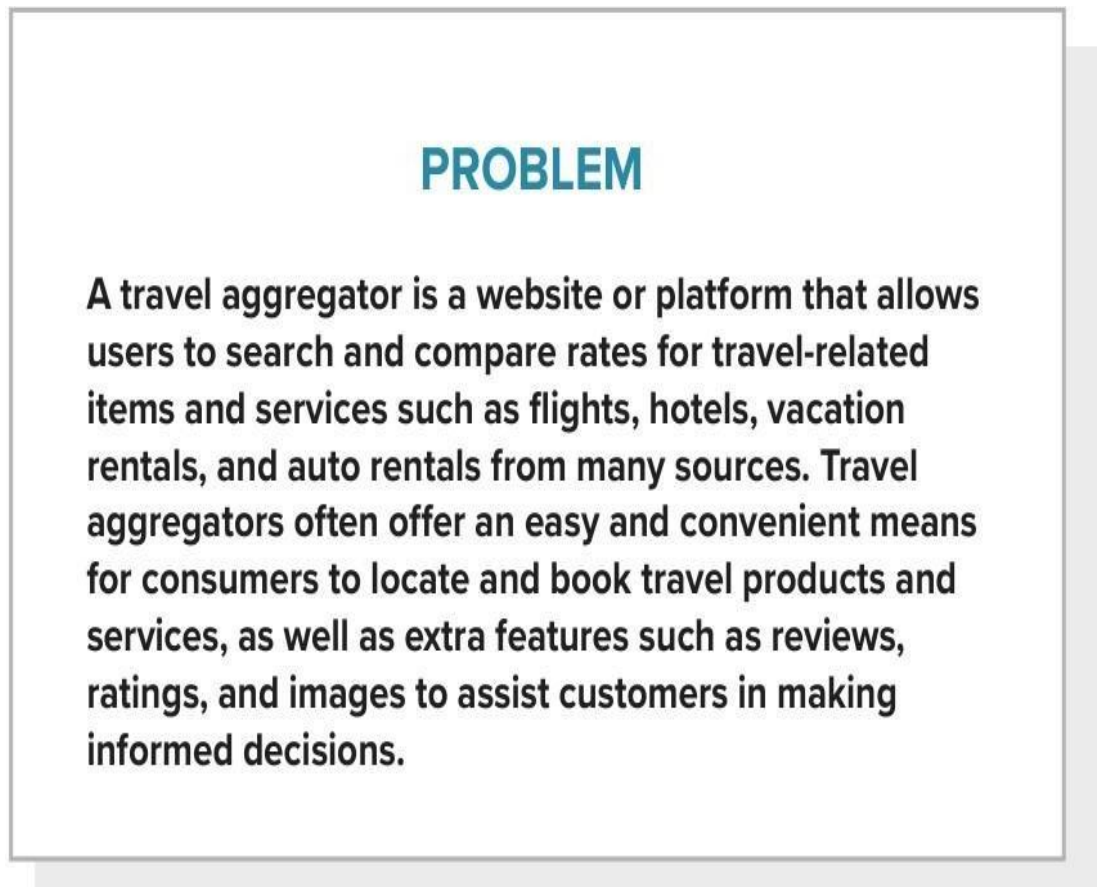### Step-1: Team Gathering, Collaboration and Select the Problem Statement

PROBLEM

A travel aggregator is a website or platform that allows users to search and compare rates for travel-related items and services such as flights, hotels, vacation rentals, and auto rentals from many sources. Travel aggregators often offer an easy and convenient means for consumers to locate and book travel products and services, as well as extra features such as reviews, ratings, and images to assist customers in making informed decisions.

Fig 3.3.1 Problem Statement

Step-2: Brainstorm, Idea Listing and Grouping

Person 1

Comparison: The user can compare the different travel options provided by the travel agencies to find the one that best meets their needs and budget.

Real-Time Updates: The travel aggregators provide real-time updates about flights, hotels availability, pricing changes, and other relevant information to help the users make their informed decisions.

Reviews and Ratings: The travel aggregators provide user reviews and ratings for hotels, flights, and other travel options, which can help the users make more informed decisions based on the experiences of the other users.

Person 2

Search: The user enters their travel details, such as travel date, number of travelers, and the destination, into the search bar on the travel agencies website or platform.

Customer Support: In case of any issues or questions related to their booking, the user can contact the travel aggregator's customer support team for their assistance.

Manage bookings: Users can manage their bookings, such as cancelling or modifying them, through the travel aggregator's website or platform.

Person 3

Accessibility: Users require information about the accessibility features of each platform, such as support for multiple languages, accommodations for users with disability, etc.

Cancellations and Refunds: Users may be able to cancel or modify their bookings through the travel aggregator's website or platforms, and the travel agencies offer a flexible cancellation and refund policy for certain bookings.

Safety and Security: Users can require information about the safety and security measures in place on each platform, including data privacy policies and measures to protect against fraud or identity theft.

Person 4

Filters: The user can use the filters options to filter their search results by criteria such as price, travels, airline, hotel rating, and location.

Price Alerts: The travel agencies allow users to set price alerts for specific travel options, which notify them when the price drops to a user expected level.

Customization Options: Users can customize their travel such as the ability to filter search results by specific criteria or to create personalized travel.

Fig 3.3.2 Brainstorming

Group ideas

Using Data Analytics, we can analyse the different travel aggregators who provide the travels and travel packages. we make user booking their travel more easy through our website by giving the options like search, filter, compare prices of different travel agencies , reviews and ratings. We also give more features such as price alert, customer support, cancellation and refund, customizatin options, up-to-date informations and multilingual supports. We assure safety and security for user personal information. So, travel aggregator is a website or platform that allows users to search and compare prices for travel-related items and services such as flights, hotels, vacation rentals, and auto rentals from many sources. Travel aggregators often offer an easy and convenient means for consumers to locate and book travel products and services, as well as extra features such as reviews, ratings, and images to assist customers in making informed decisions.
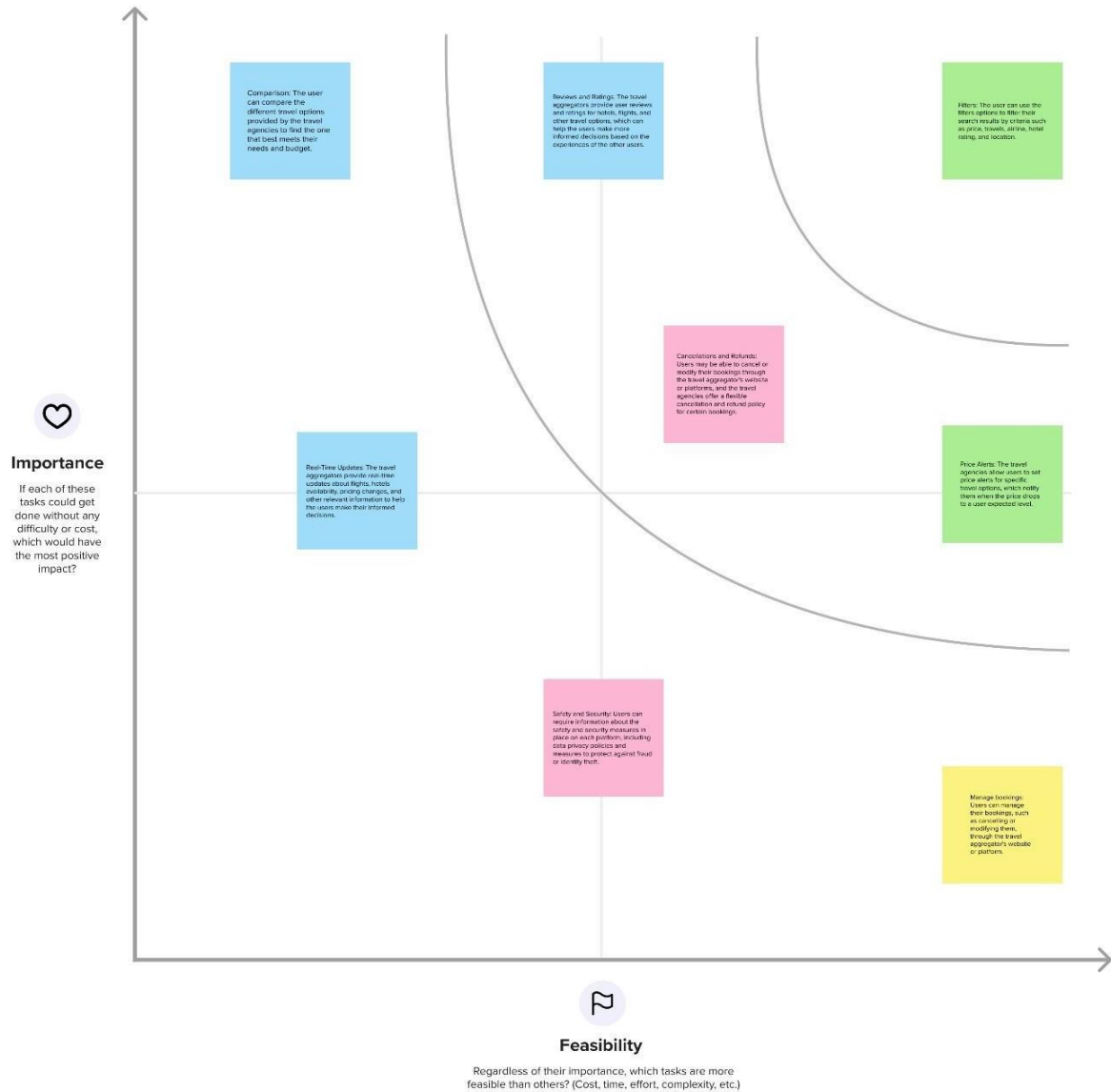
Step-3: Idea Prioritization

Fig 3.3.3 Idea Prioritization

3.4 Proposed solution

S. No	Parameter	Description
1.	Problem Statement (Problem to be solved)	The problem statement is to analyze the leading travel aggregator using data analytics and python. A website needs to be built which is integrated with python, IBM Cognos, IBM DB2. The solution should satisfy the following user requirements: • User friendly interface • Provide detailed information. • Day to Day prices and offers update. • Predictive analysis
2.	Idea / Solution description	A travel aggregator is a user-friendly website that allows users to search and compare prices and offers for flights, hotels, vacation rentals provided by various travel aggregators. The website contains extra features for customer such as review, ratings, and images to assist customers in making informed decisions. We can analyze these details by python and IBM Cognos.
3.	Novelty / Uniqueness	• Evaluate the breadth and depth of travel offerings. • Reviews and Ratings. • Day to Day Updates. • Search, Filter and Compare options. • Cancellations and refunds.
4.	Social Impact / Customer Satisfaction	Fraudulent activities can be prevented. Customers are satisfied in all aspects such as safety and security, trustworthy website, Time saving by search and filter options, Day to Day updates, and Reviews and Ratings

5.	Business Model (Revenue Model)	Most of the time, travel aggregators generate revenue by charging commissions to the travel providers whose products and services are featured on their website. Some also earn revenue through advertising, or by offering some additional services such as travel insurance or car rental, etc.
6.	Scalability of the Solution	The website can further extend to provide Application Programming Interface (API) which can be used by third party organizations such as Cloud computing, Automation, Insurance companies, Travel agencies, etc.

REQUIREMENT ANALYSIS

CHAPTER 4

REQUIREMENT ANALYSIS

4.1 Functional Requirements

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	User Registration	Registration through Form Registration through Website Registration through Gmail
FR-2	User Confirmation	Confirmation via Email Confirmation via OTP Confirmation via Phone Call Confirmation via Social Media Integration
FR-3	User Dashboard	Evaluate Services and Features Pricing and Deals Analysis View User History and Ratings
FR-4	User profile and Preferences	Create and manage their profile. Allow users to change their privacy preferences and profile information as necessary.
FR-5	Output Generation	Report Generation Content Generation Itinerary Generation Visual Representation

4.2 Non-Functional Requirements

FR No.	Non-Functional Requirement	Description
NFR-1	Usability	User-friendly Interface to facilitate the user with easy processing. Model provides Analyze and Compare Model provides Data Gathering Model provides Evaluation Criteria Model provides Visual Representation of Prediction
NFR-2	Security	Authentication-User can have his/her own private dashboard to have secured access
NFR-3	Reliability	The model can run numerous samples simultaneously and handle massive amounts of data
NFR-4	Performance	As the model is a combination of python programming, the accuracy is high
NFR-5	Availability	The website is portable and mobile-responsive as well. To run on any device, it simply needs the most minimum requirements
NFR-6	Scalability	It can be extended further to provide API which can be used by third party organizations such as Logistics companies, etc.
NFR-7	Compliance	It makes sure that all legal criteria are met, and this includes travel industry rules as well as payment card industry standards

PROJECT DESIGN

CHAPTER 5

PROJECT DESIGN

5.1 Data Flow Diagrams
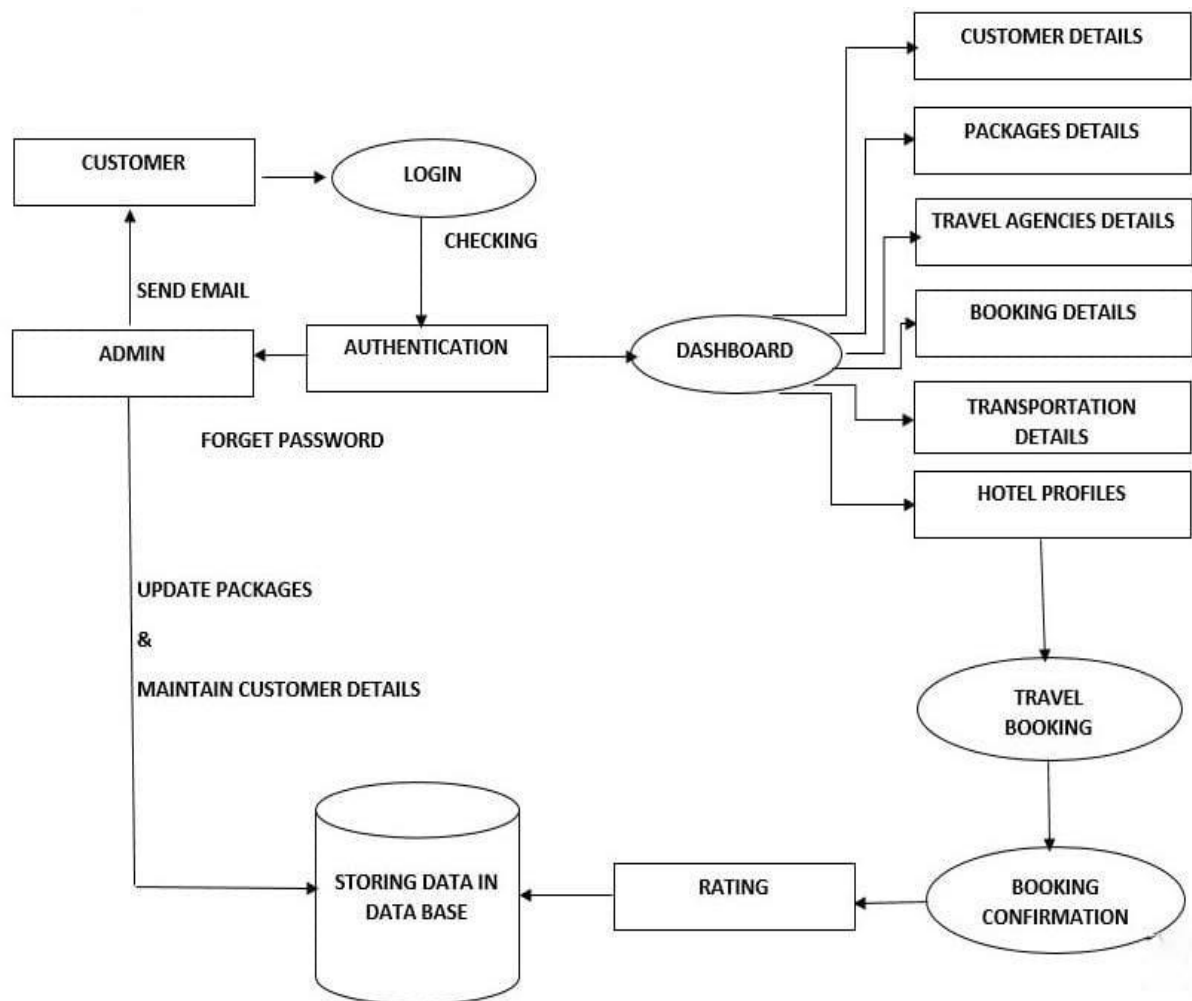
Fig 5.1 Data Flow Diagram of Travel Aggregator

5.2 Solution & Technical Architecture

5.2.1 Solution Architecture
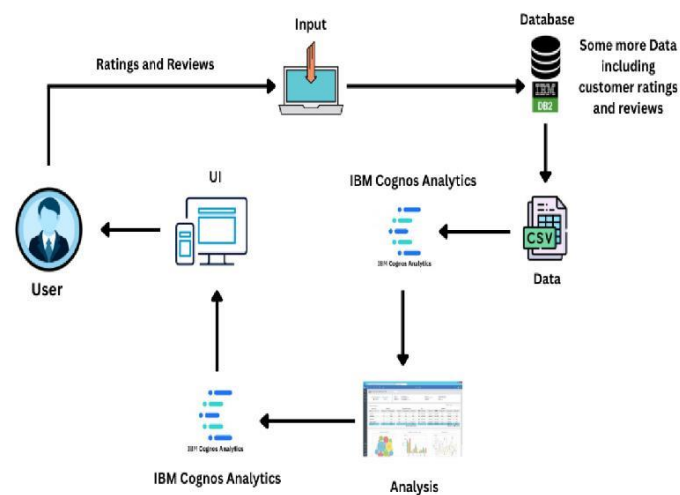
Fig 5.2.1 Solution Architecture of Travel Aggregator

NM2023TMID01791

5.2.2 Technical Architecture
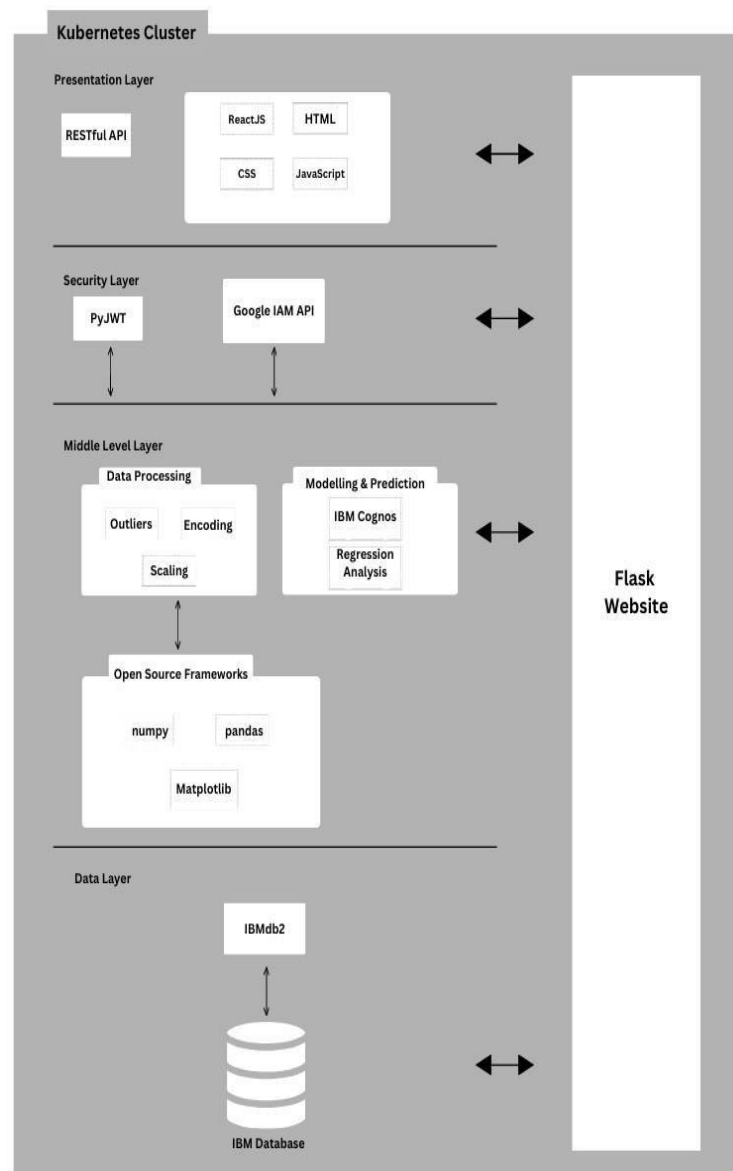
Fig 5.2.2 Technical Architecture of Travel Aggregator

5.3 User Stories

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
Customer	Registration/ Login	USN-1	As a customer, I can login to the dashboard through authentication	I can access the dashboard	High	Sprint-3
	Dashboard	USN-2	Once, I enter the dashboard, I can enter my personal details	I can view the package details	High	Sprint-1
		USN-3	As a customer I can select the traveling packages	I can select traveling agencies	Medium	Sprint-2
		USN-4	After considering the ratings of the traveling agencies, I can start the booking process	I can enter the transportation details	High	Sprint-1
		USN-5	I can view the hotel profiles near the destination place	I can book the hotel as per my convenience	Medium	Sprint-1
Admin		USN-6	Once, I completed all the process I can move to the booking confirmation	Admin confirms the booking transaction	Medium	Sprint-1,2,3,4

Customer	Ratings	USN-7	As a customer, after booking confirmation I can give ratings about the user experience.	Ratings and customer booking details are stored in a data base by the admin	Low	Sprint-4
Developer		USN-8	I can access the dashboard and view the ratings from the customer	Package details, travel agencies, hotel profiles are updated according to the ratings	Medium	Sprint-4
		USN-9	As a developer, I can update the package details & ratings to the data base and make the data	I can request access for data base from the admin and update the data as soon as possible	High	Sprint-4

CHAPTER 6
CODING & SOLUTIONING

6.1 Feature-1

DASHBOARD

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta http-equiv="X-UA-Compatible" content="IE=edge">
    <meta name="viewport" content="width=device-width, initial-
scale=1.0">
    <title>Dashboard</title>
    <link href="\static\css\style.css" rel="stylesheet">

</head>
<body>
    <section id="dashboard" class="services section-bg">
        <div class="container" data-aos="fade-up">

            <div class="section-title">
              <h2>Dashboard</h2>
            </div>

            <div class="row">
              <iframe
src="https://us3.ca.analytics.ibm.com/bi/?perspective=dashboard&amp;path
Ref=.my_folders%2FTravel%2BAggregators%2BDashboard&amp;closeWi
```

```
ndowOnLastView=true&amp;ui_appbar=false&amp;ui_navbar=false&amp;
shareMode=embedded&amp;action=view&amp;mode=dashboard&amp;sub
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allowfullscreen=""></iframe>
        </div>


      </div>
    </section>
</body>
</html>
```
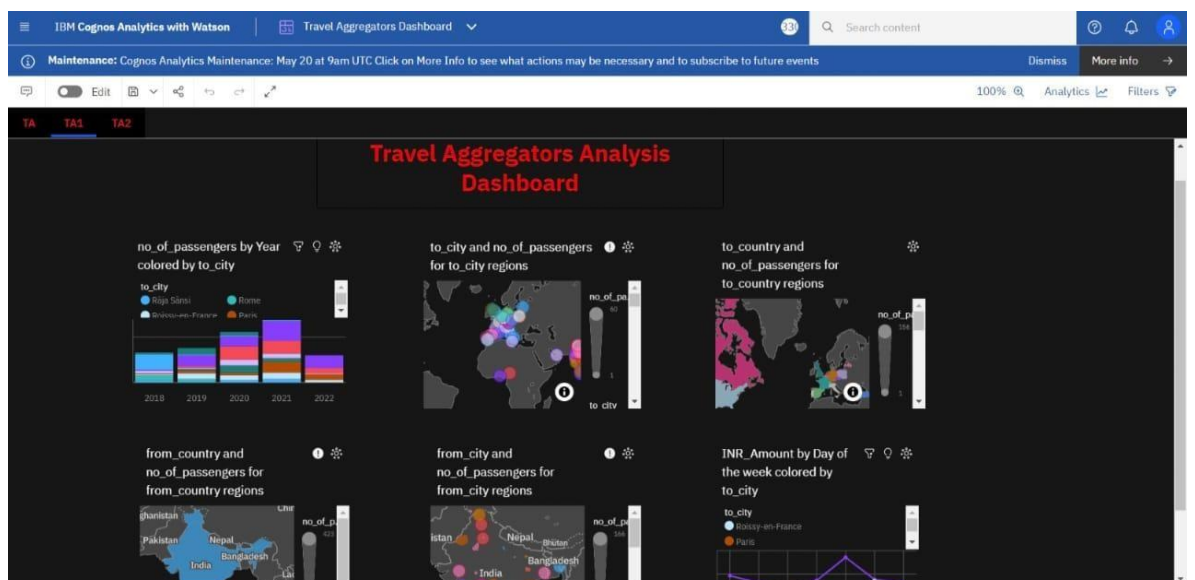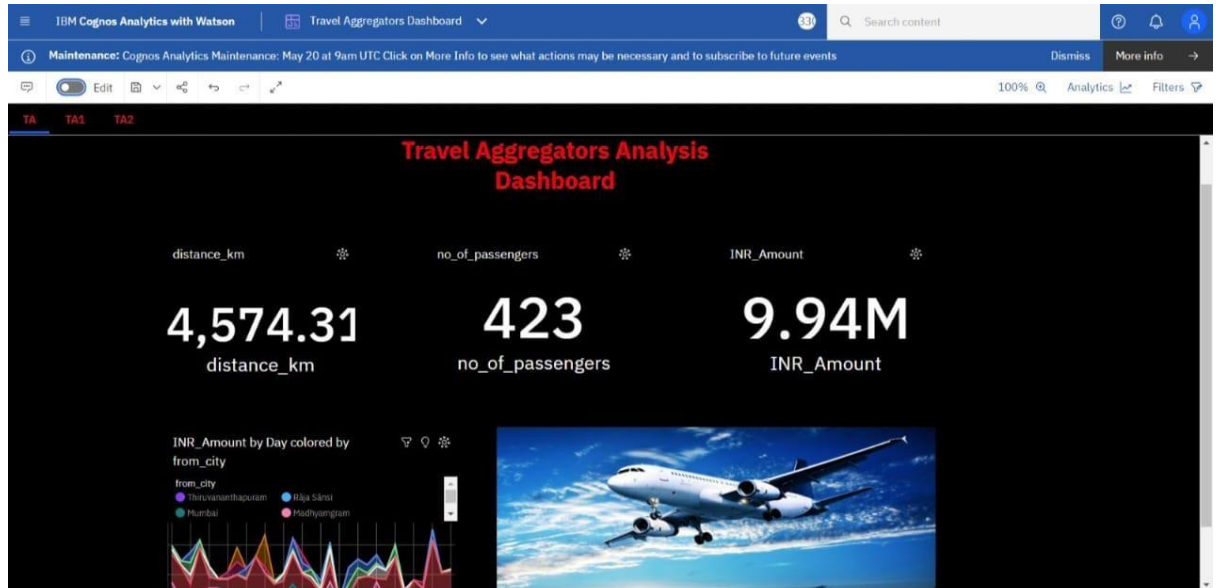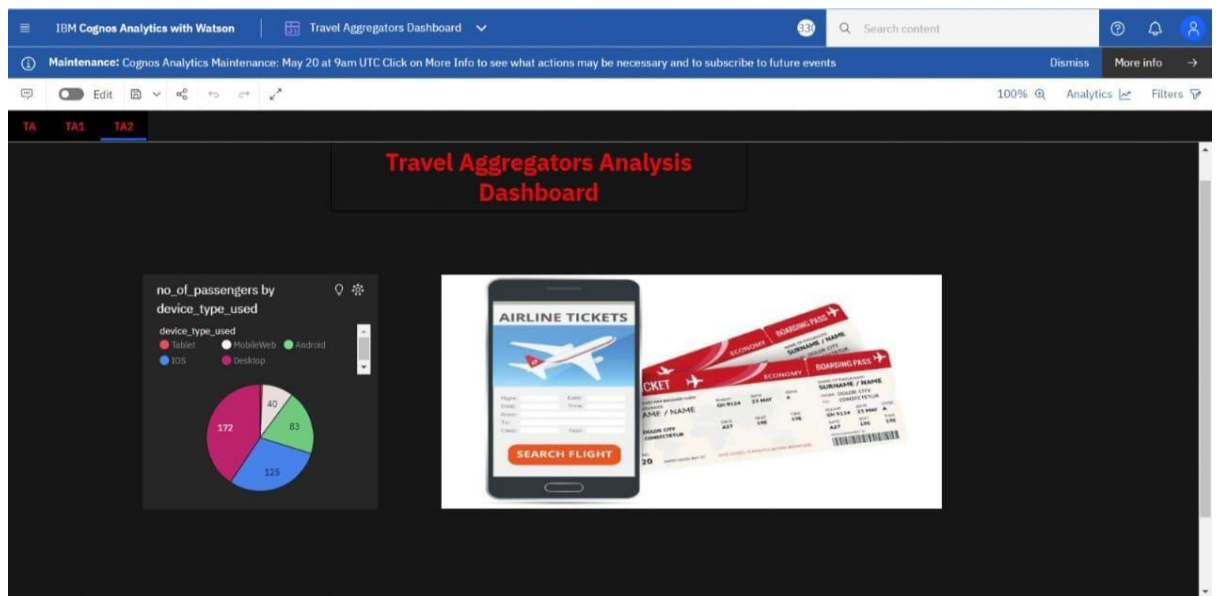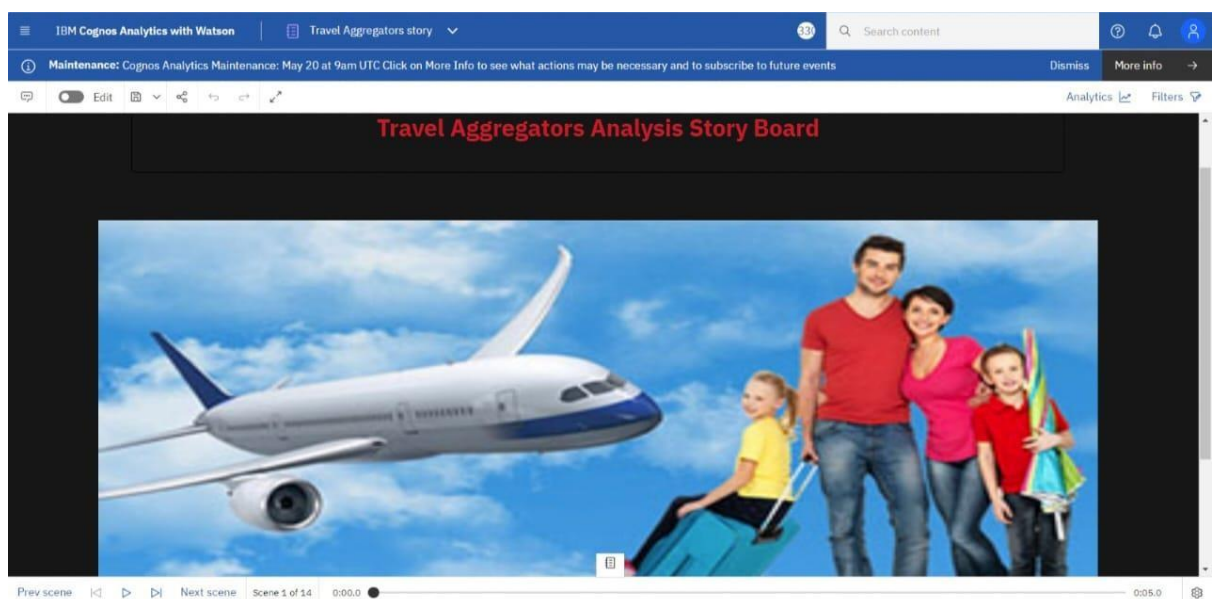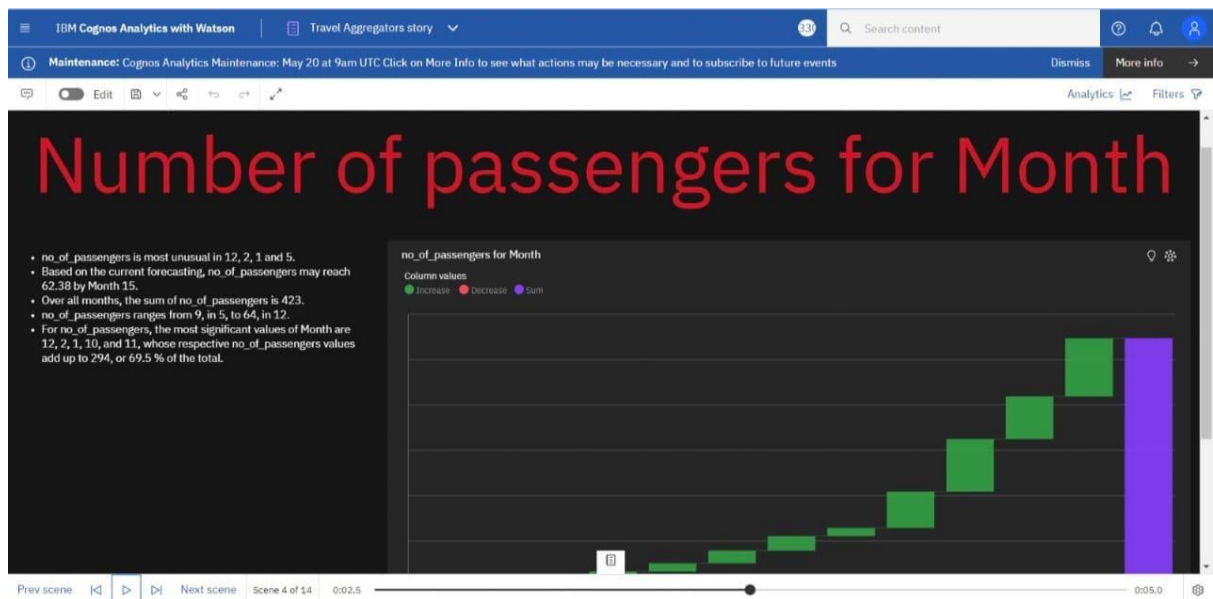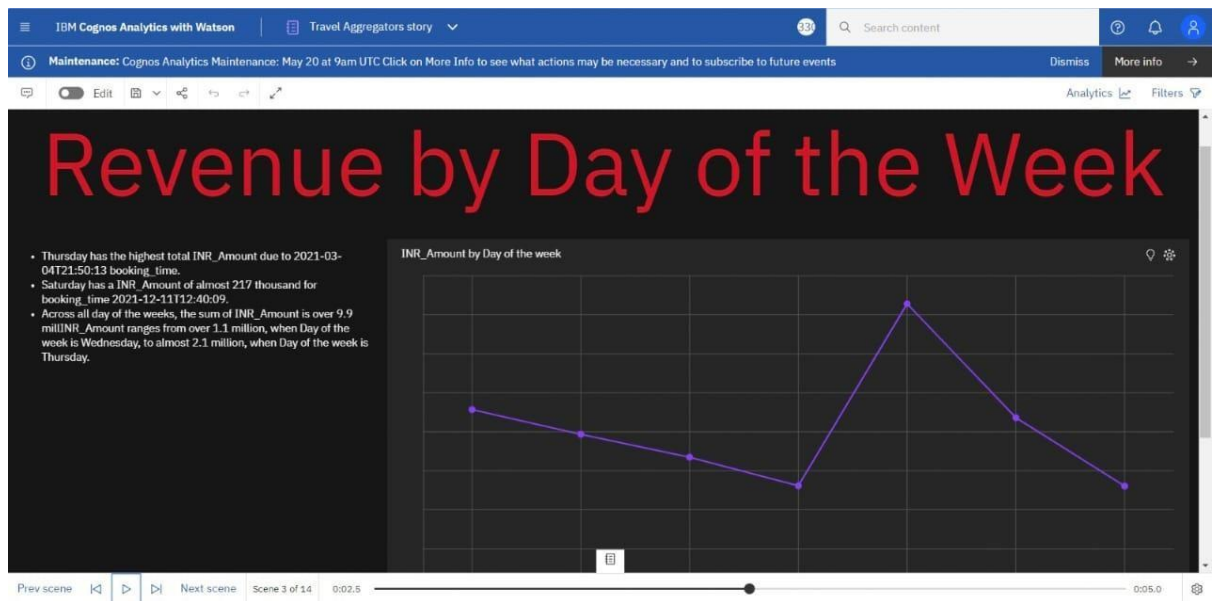
6.2 Feature-2

Report

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    <meta charset="UTF-8">
    <meta http-equiv="X-UA-Compatible" content="IE=edge">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Story</title>
    <link href="\static\css\style.css" rel="stylesheet">

</head>
<body>
    <section id="report" class="services section-bg">
        <div class="container" data-aos="fade-up">

            <div class="section-title">
              <h2>Report</h2>
            </div>

            <div class="row">
              <iframe
src="https://us3.ca.analytics.ibm.com/bi/?pathRef=.my_folders%2FTravel%2BAggregators%2BActive%2BReport&amp;closeWindowOnLastView=true&amp;ui_appbar=false&amp;ui_navbar=false&amp;shareMode=embedded&amp;action=run&amp;prompt=false" width="1600" height="700"
frameborder="0" gesture="media" allow="encrypted-media"
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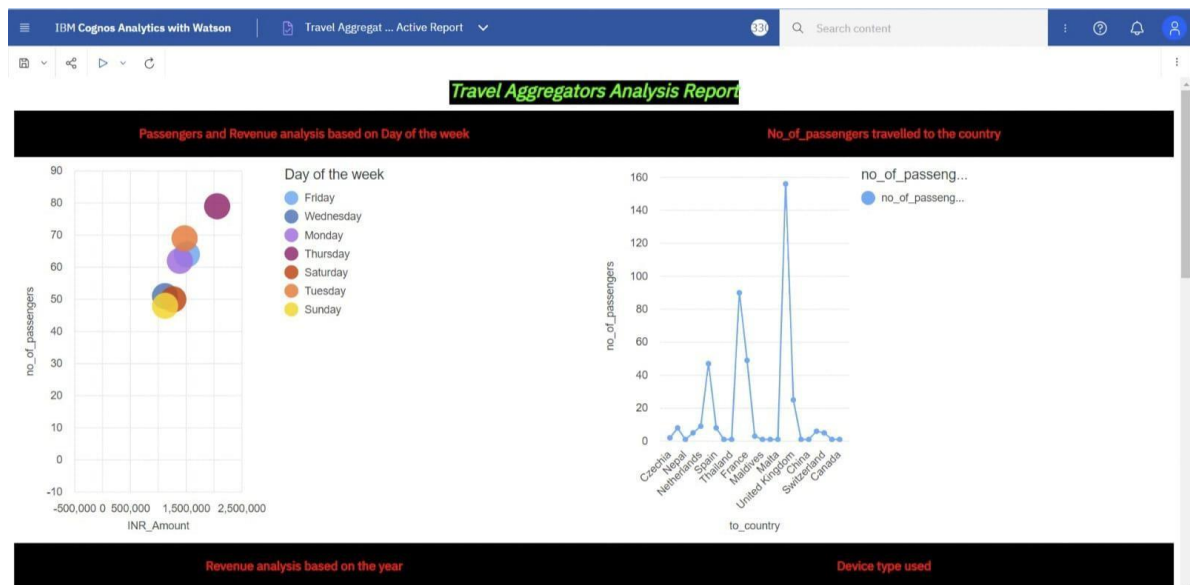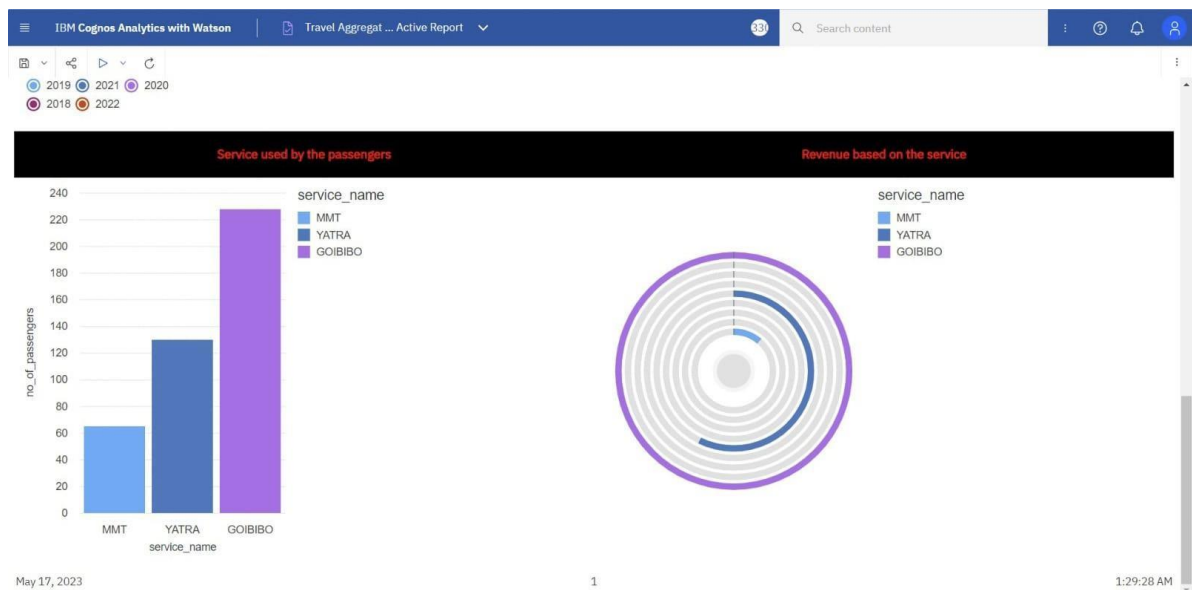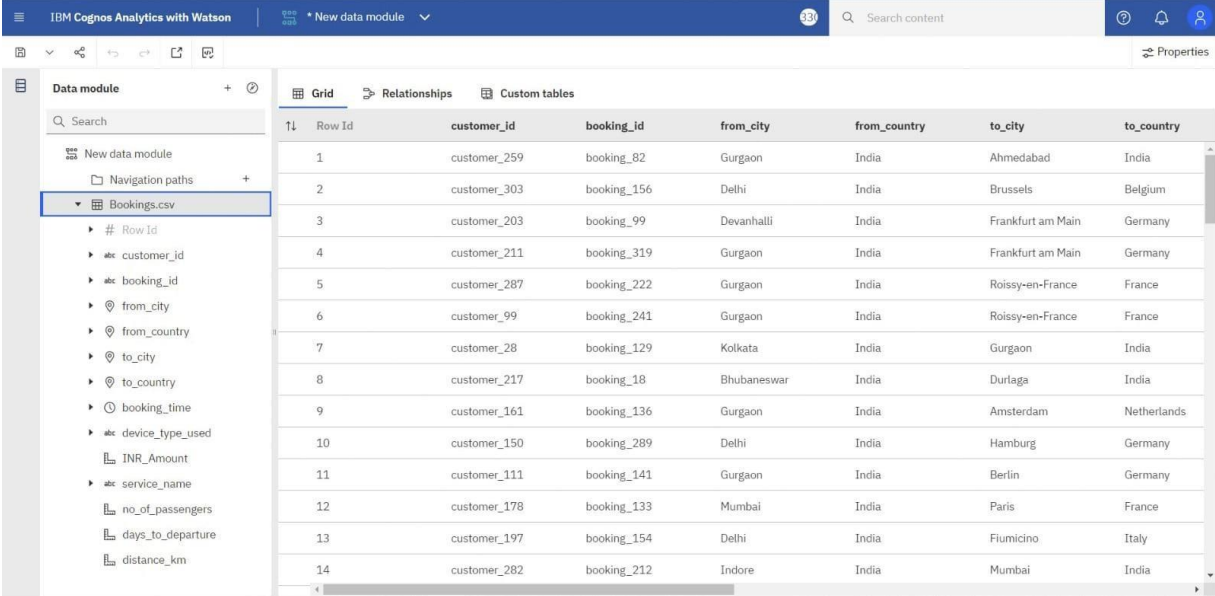
```
        allowfullscreen=""></iframe>
            </div>


              </div>
            </section>


    </body>
    </html>
```

6.3 Feature-3

Story

<!DOCTYPE html>

<html lang="en">

<head>

   <meta charset="UTF-8">

   <meta http-equiv="X-UA-Compatible" content="IE=edge">

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

   <title>Story</title>

   <link href="\static\css\style.css" rel="stylesheet">

</head>

<body>

   <section id="story" class="services section-bg">

     <div class="container" data-aos="fade-up">

      <div class="section-title">

       <h2>Story</h2>

      </div>

      <div class="row">

       <iframe src="https://us3.ca.analytics.ibm.com/bi/?perspective=story&pathRef=.my_folders%2FTravel%2BAggregators%2Bstory&closeWindowOnLastView=true&ui_appbar=false&ui_navbar=false&shareMode=embedded&action=view&sceneId=model00000188203b1125_00000000&sceneTime=0" width="1600" height="700" frameborder="0"

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

        \</div>

      \</section>

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6.4 Database Schema
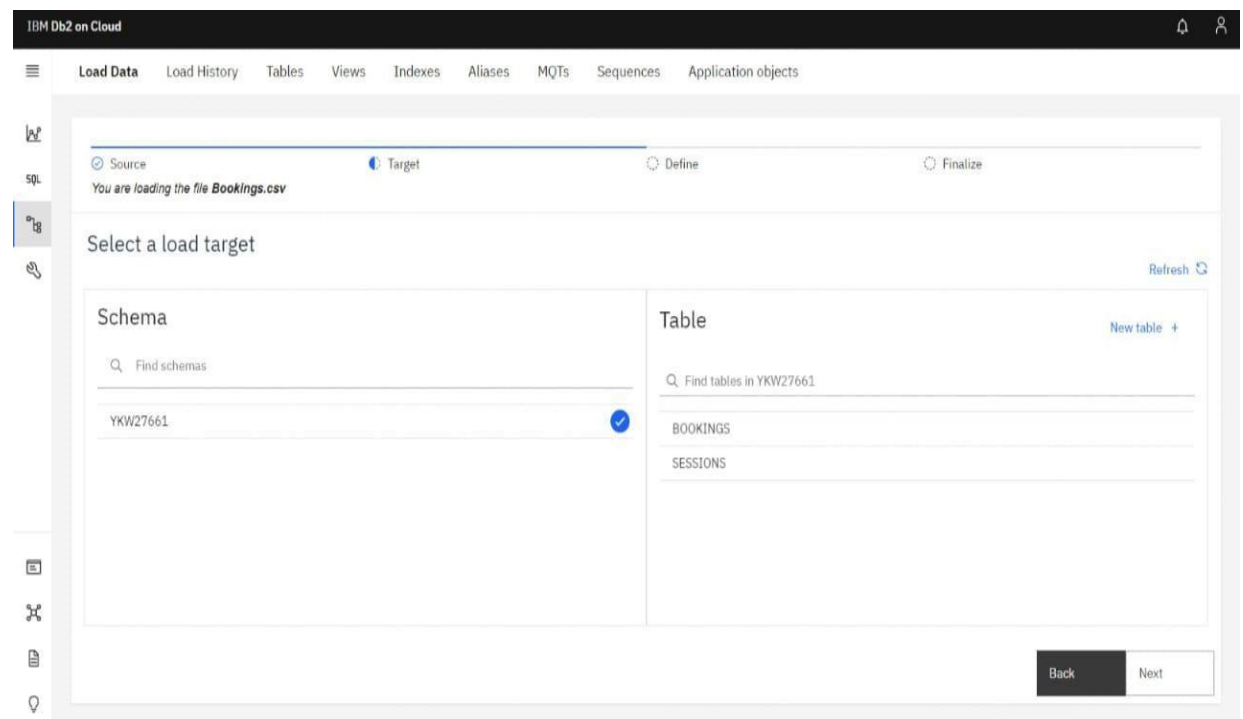
CHAPTER 7

RESULTS

7.1 Performance metrices

7.1.1 Amount of data rendered to DB2.
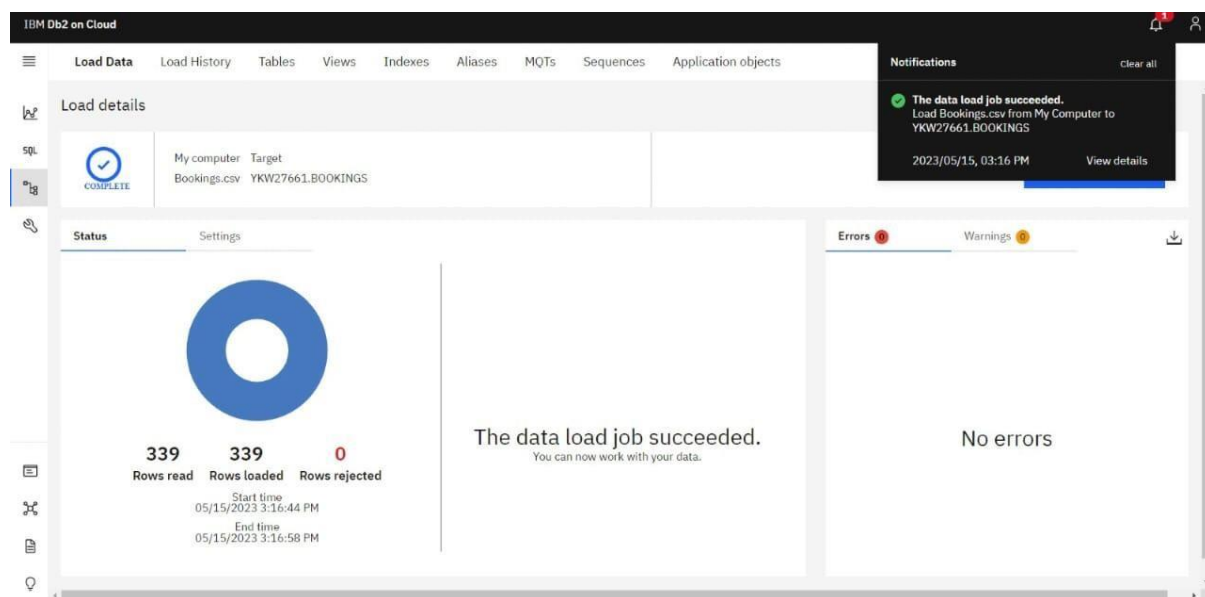
7.1.2 Utilization of Data filters

Dashboard

Story
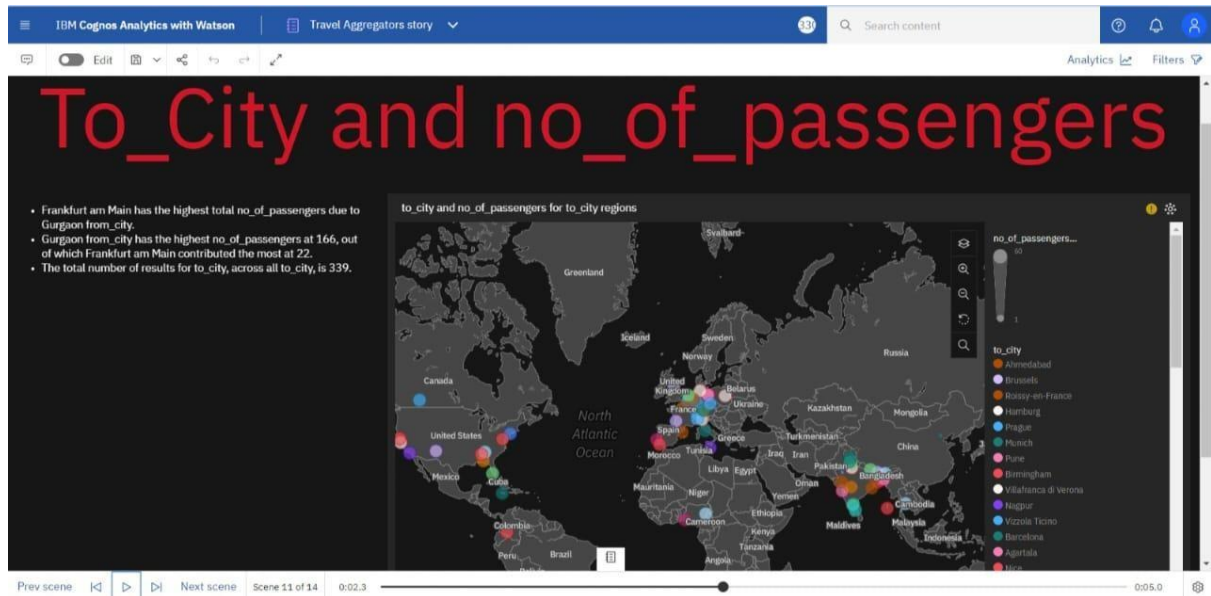
Report

7.1.3 No. of. Calculation Fields
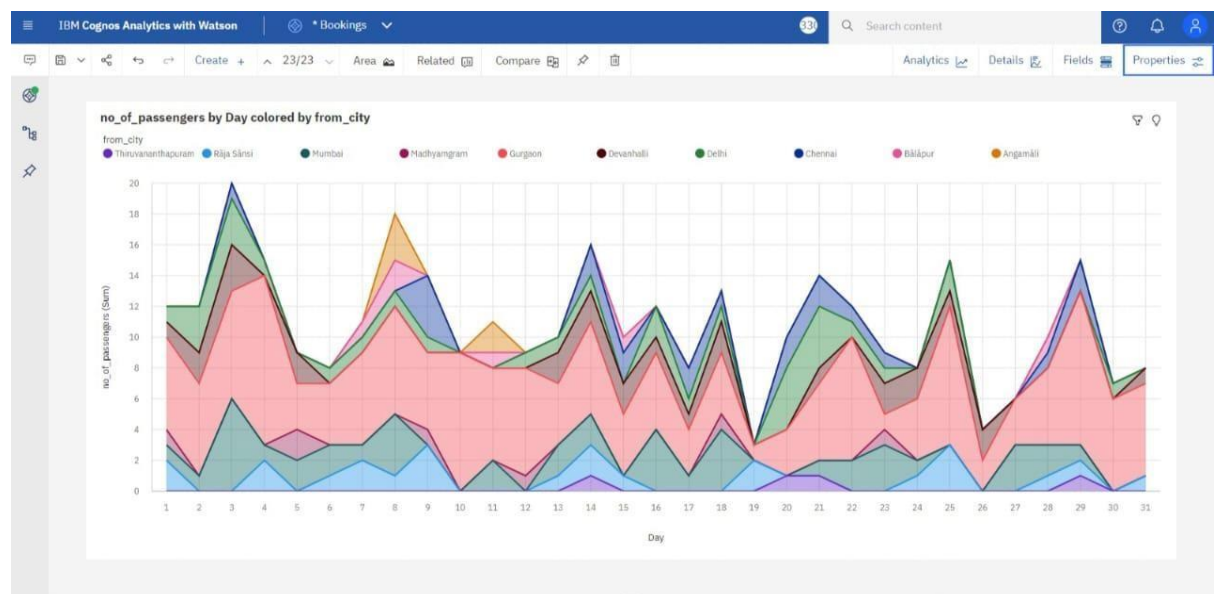

7.1.4 No. of. Visualizations/Graphs
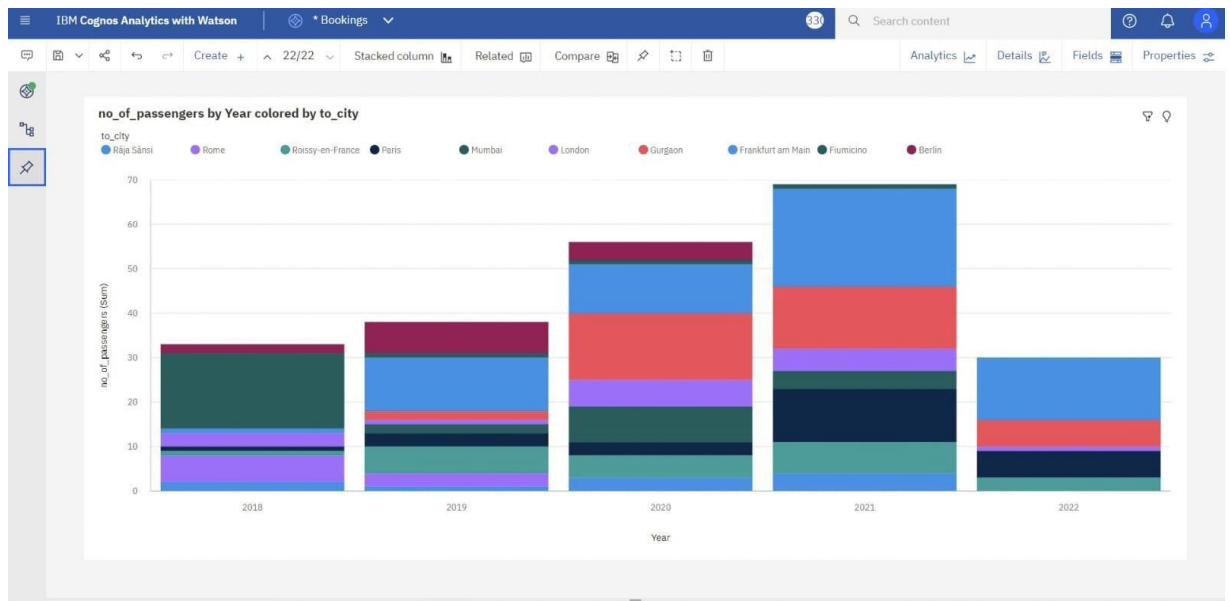
1. Total Distance covered by the Agencies.
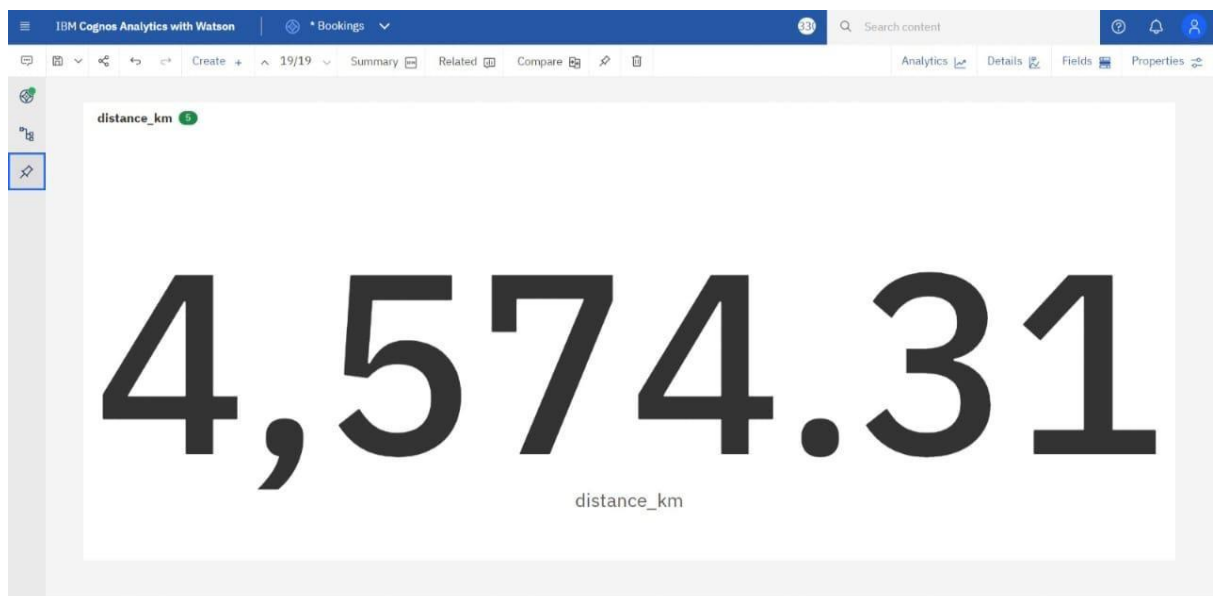
2. Total Revenue Generated and Total No of Passengers.
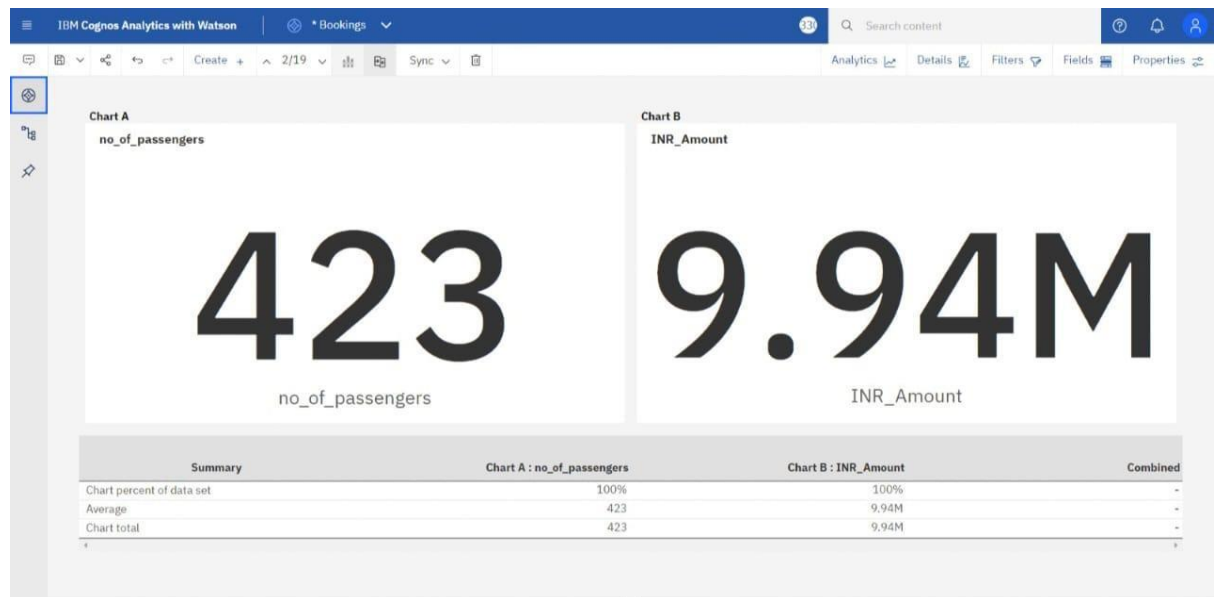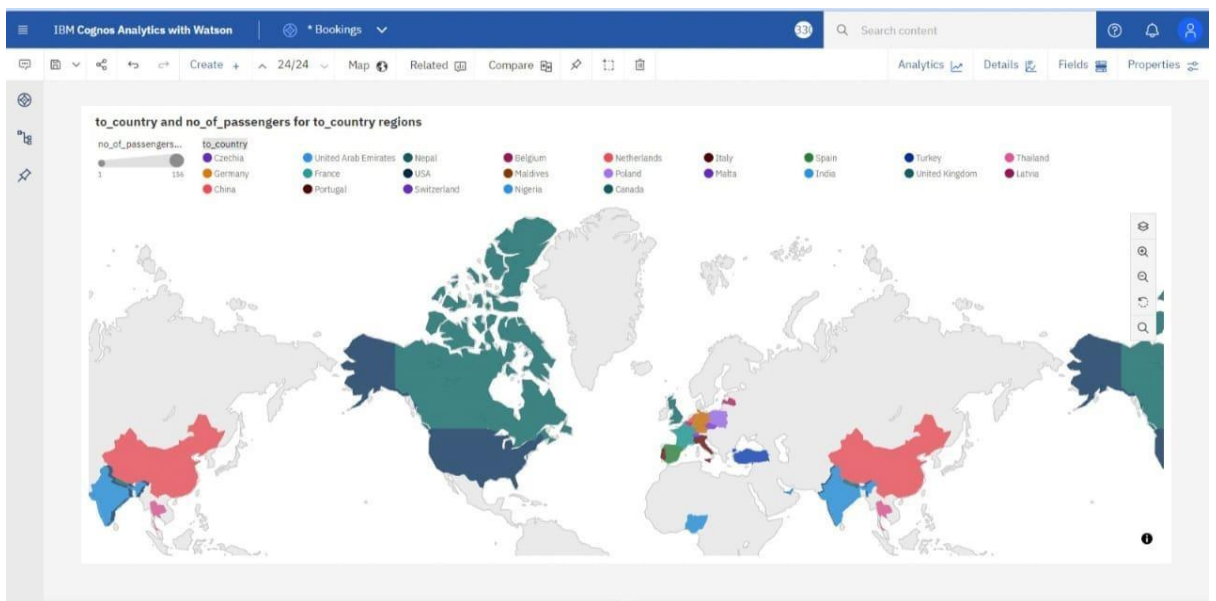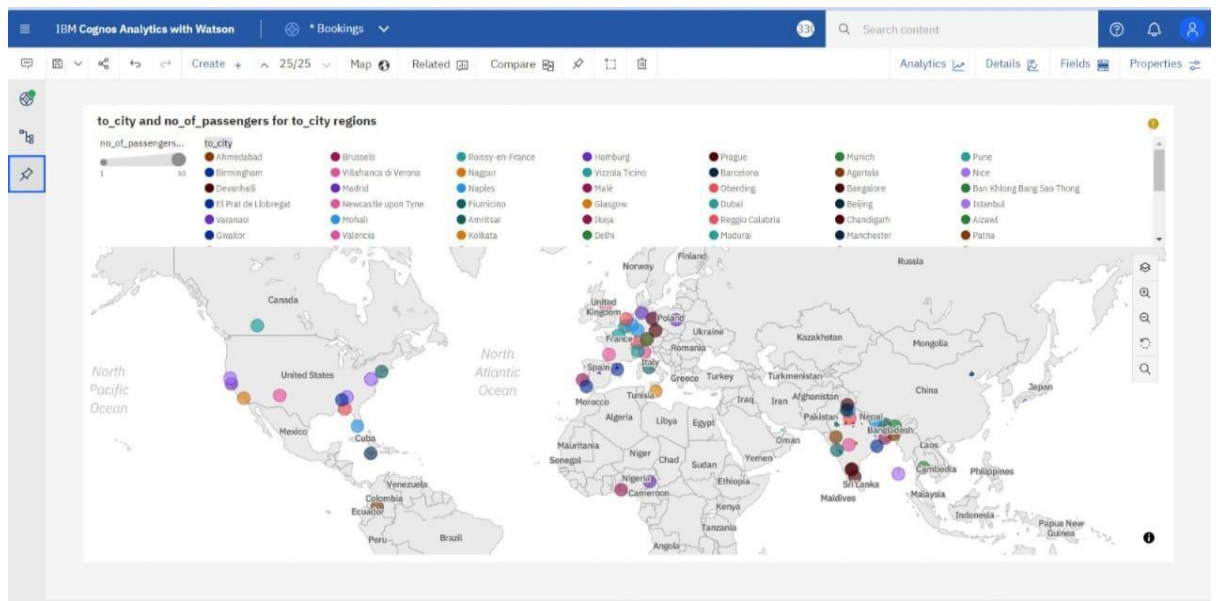
3. Passenger Analysis according to the day
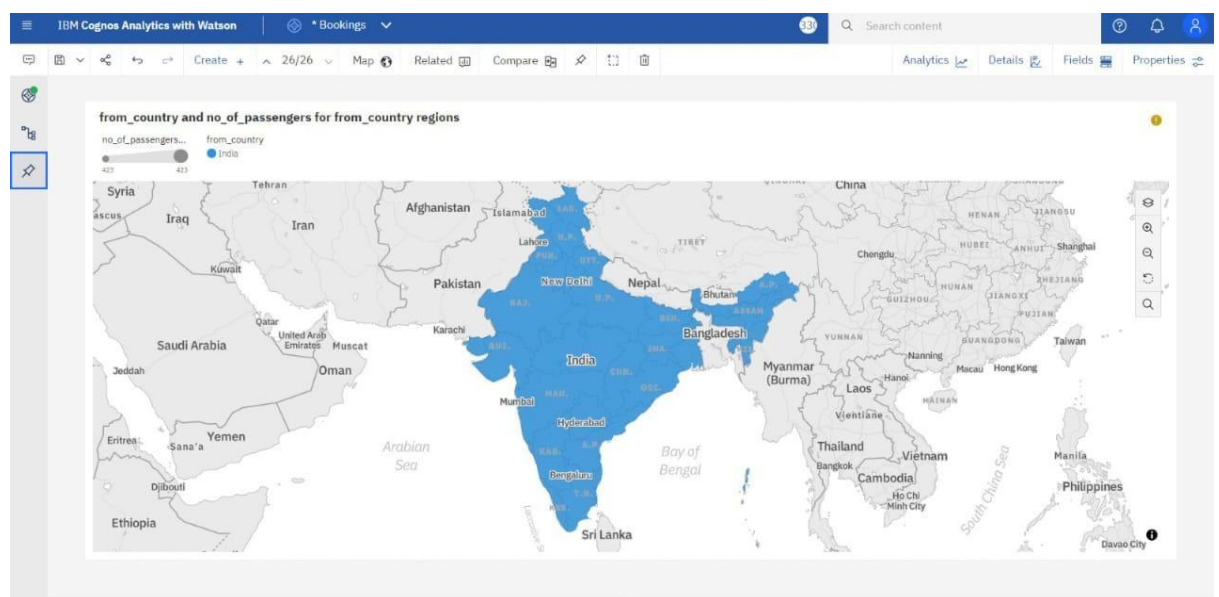
4. Passenger Analysis according to the year

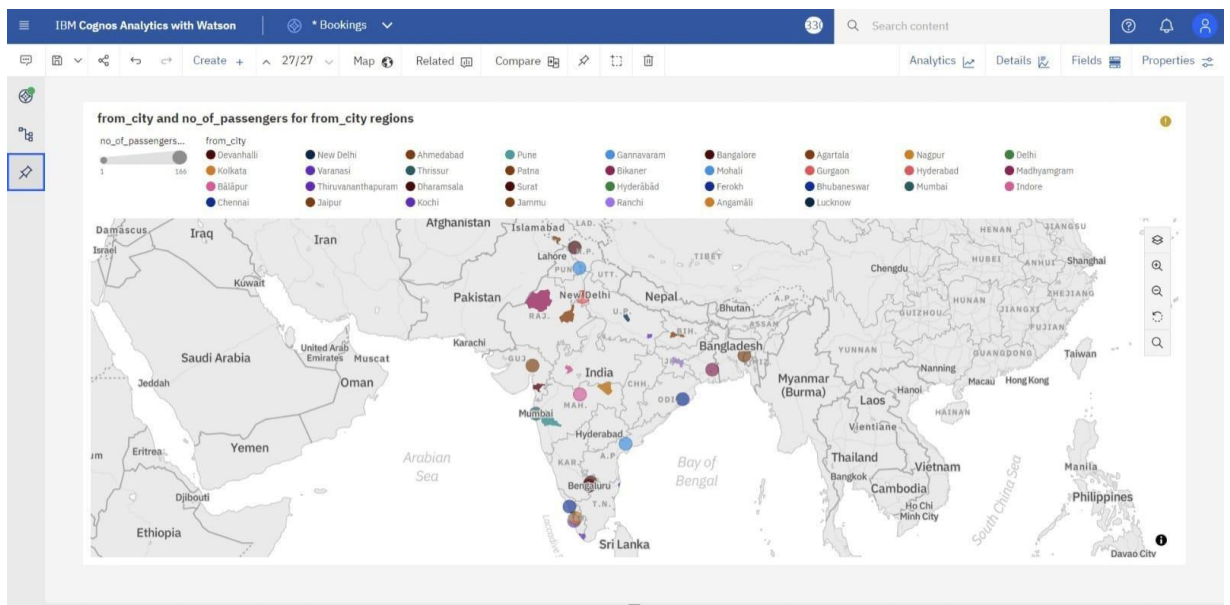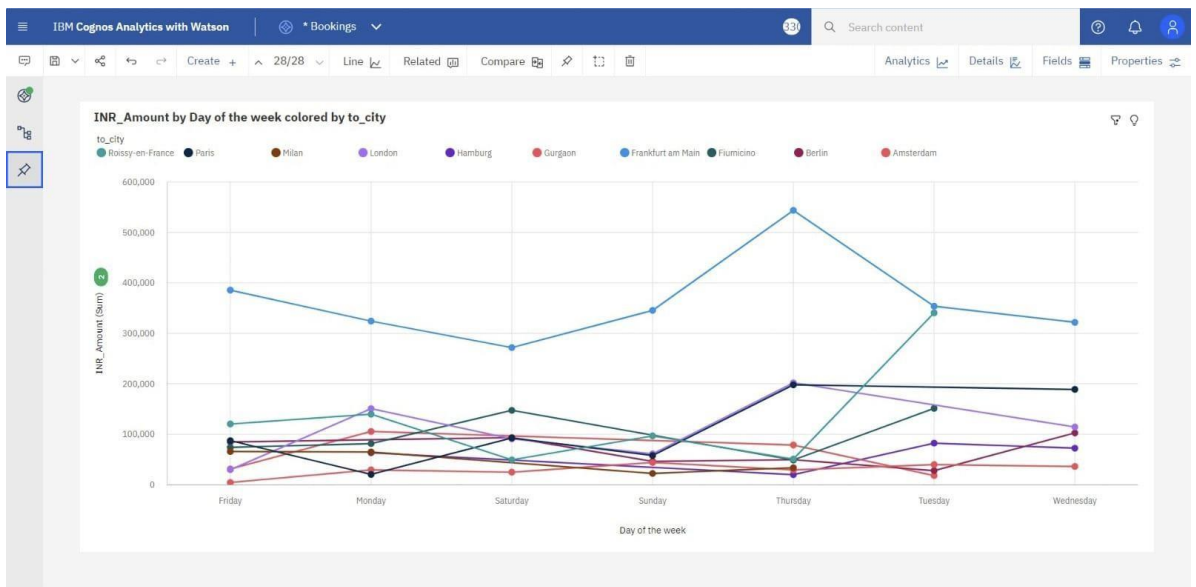5. Passenger Analysis as per Destination Country and City

6. Passenger Analysis as per Source Country and City
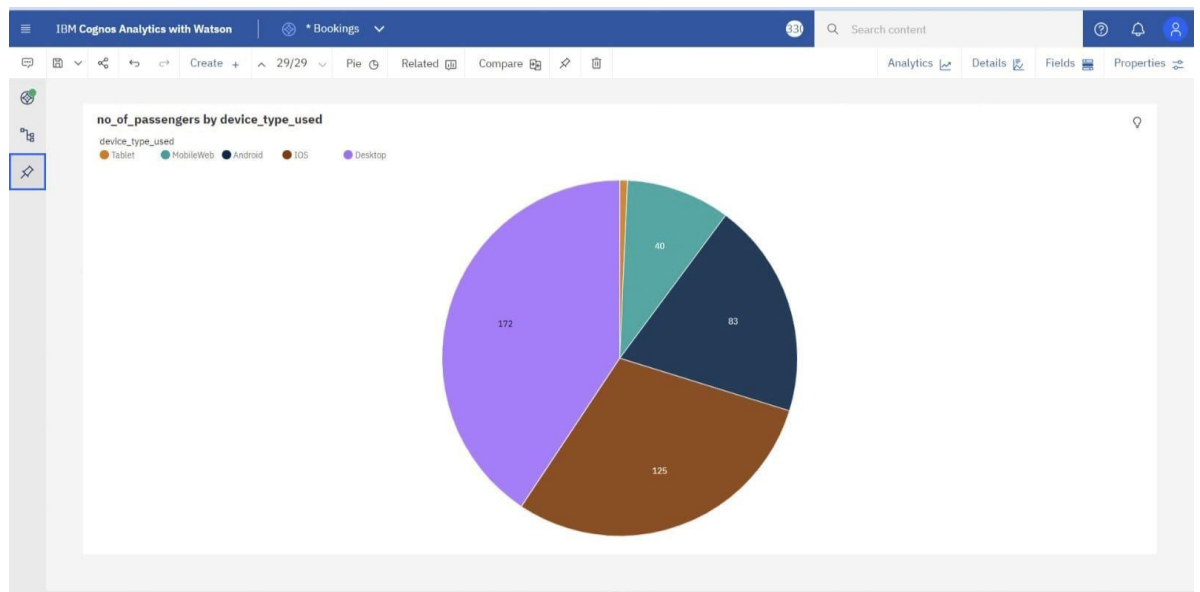
7. Total Revenue Generated According to day wise.

8. Passenger boo

ADVANTAGES AND DISADVANTAGES

CHAPTER 8

ADVANTAGES AND DISADVANTAGES

8.1 Advantages

1. Convenience: Travel aggregators provide a one-stop platform for planning and booking various aspects of travel, including flights, hotels, car rentals, and activities. Instead of visiting multiple websites or contacting different service providers individually, travelers can conveniently compare and book their desired options in one place.

2. Timesaving: By using travel aggregators, travelers can save significant time in searching for the best deals. These platforms typically display multiple options with prices, ratings, and reviews, allowing users to quickly compare and make informed decisions without extensive research.

3. Wide range of choices: Travel aggregators aggregate information from various travel providers, offering users a vast selection of flights, accommodations, and activities. This allows travellers to choose from a wide range of options that suit their preferences, budget, and specific needs.

4. User reviews and ratings: Most travel aggregators include user reviews and ratings for hotels, airlines, and other services. These reviews provide valuable insights and help travelers make more informed decisions about their bookings. Users can read about others' experiences, assess the quality of services, and make choices accordingly.

5. Additional services: Apart from flights and accommodations, travel aggregators often offer additional services such as travel insurance, airport transfers, and tour packages. This saves travelers the hassle of arranging these services separately and provides added convenience.

8.2 Disadvantages

1. Limited customization: Travel aggregators often provide pre-packaged deals or standard options that may not fully cater to individual preferences or specific requirements. If you have unique travel needs or preferences, such as specific room preferences or complex itineraries, it may be challenging to find precisely what you're looking for through a travel aggregator.

2. Lack of personalization: Since travel aggregators cater to a wide audience, the booking process may lack personalization. You may not receive personalized recommendations or tailored assistance that you would typically get when working directly with a travel agent or service provider.

3. Hidden fees and restrictions: While travel aggregators may offer competitive pricing, it's important to carefully review the terms and conditions, as there may be hidden fees or restrictions that are not immediately apparent. These can include additional charges for baggage, cancellation fees, or limitations on refunds and changes.

CONCLUSION

CHAPTER 9

CONCLUSION

Online Travel Agencies (OTAs) or travel aggregators have transformed the way people plan, book, and experience travel. They offer a range of advantages, such as convenience, time savings, competitive pricing, a wide selection of choices, user reviews, additional services, customer support, and loyalty programs. OTAs provide a centralized platform where travelers can easily compare options, access discounted rates, and make informed decisions.

However, there are also some disadvantages to consider. OTAs may lack customization and personalization, have hidden fees and restrictions, rely on third-party information, and have limitations in customer service. The overwhelming number of choices and the influence of commission-based models can also pose challenges for travelers.

Looking ahead, the future scope of travel aggregators is promising. Advancements in technology, such as enhanced personalization, AR/VR integration, blockchain and smart contracts, and a mobile-first approach, can enhance the user experience and offer more seamless and secure travel bookings. Furthermore, the industry can embrace sustainability, community-driven features, and cater to emerging markets to meet the evolving needs and preferences of travelers.

Ultimately, whether to use an OTA or explore alternative booking methods depends on individual preferences and travel requirements. It is essential for

travelers to consider the pros and cons, evaluate their specific needs, and make an informed decision that best aligns with their travel goals.

FUTURE SCOPE

CHAPTER 10

FUTURE SCOPE

1.Enhanced personalization: Travel aggregators are likely to invest more in advanced algorithms and artificial intelligence to provide personalized travel recommendations. By analyzing user preferences, behavior, and past bookings, aggregators can offer tailored suggestions and options that match individual travelers' preferences, making the booking process more convenient and efficient.

2. Augmented Reality (AR) and Virtual Reality (VR): The integration of AR and VR technologies can revolutionize the way travelers explore and experience destinations. Travel aggregators may incorporate these immersive technologies to provide virtual tours, 360-degree views of accommodations, and interactive experiences, allowing travelers to make more informed decisions and have a better understanding of what to expect.

3. Blockchain and Smart Contracts: The use of blockchain technology can enhance transparency, security, and trust in travel bookings. Travel aggregators can leverage blockchain to streamline payment processes, reduce fraud, and facilitate direct communication and transactions between travelers and service providers. Smart contracts can automatically execute and enforce terms and conditions, ensuring a seamless and secure booking experience.

4. Integration of ancillary services: Travel aggregators can expand their offerings beyond flights and accommodations by integrating more ancillary services. This may include seamless integration with local transportation providers, restaurant reservations, event tickets, and other travel-related

services. By becoming comprehensive travel platforms, aggregators can offer a more holistic and convenient travel experience.

5. Sustainability and eco-friendly travel: With increasing awareness and emphasis on sustainability, travel aggregators can promote eco-friendly travel options. They can highlight accommodations with green certifications, carbon offset programs for flights, encouraging travellers to make conscious ch

APPENDIX

CHAPTER 11

APPENDIX

A.1 Source code

Flask code

app.py

```python
from flask import Flask, render_template
from flask_cors import CORS

app = Flask(_name_)
CORS(app)

@app.route("/")
def ibm():
    return render_template("ibm.html")

@app.route("/dashboard")
def dashboard():
    return render_template("dashboard.html")

@app.route("/story")
def story():
    return render_template("story.html")

@app.route("/report")
def report ():
```

```python
    return render_template("report.html")


if _name_ == "_main_":
    app.run(debug=True)
```

ibm.html

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


    <h1 class="logo me-auto"><a href="index.html">ABDA</a></h1>
    <!-- Uncomment below if you prefer to use an image logo -->
    <!--<ahref="index.html"class="logome-auto"><img
src="assets/img/logo.png" alt="" class="img-fluid"></a>-->


    <nav id="navbar" class="navbar">
     <ul>
      <li><a class="nav-link scrollto active" href="#hero">Home</a></li>
      <li><a class="nav-link scrollto" href="#about">About</a></li>
      <li><a class="nav-link scrollto" href="#services">Services</a></li>
      <li><a class="nav-link scrollto" href="#portfolio">Portfolio</a></li>
      <li><a class="nav-link scrollto" href="#team">Team</a></li>
      <li class="dropdown"><a href="#"><span>Drop Down</span> <i
class="bi bi-chevron-down"></li></a>
        <ul>
          <li><a href="/dashboard">Dashboard</a></li>


          <ul>
            <li><a href="/dashboard">Dashboard</a></li>
            <li><a href="/story">Story</a></li>
            <li><a href="/report">Report</a></li>
          </ul>
        </li>
```

```
<li><a href="/story">Story</a></li>
        <li><a href="/report">Report</a></li>
       </ul>
      </li>
      <li><a class="nav-link scrollto" href="#contact">Contact</a></li>
      <li><a class="getstarted scrollto" href="#about">Get Started</a></li>
     </ul>
     <i class="bi bi-list mobile-nav-toggle"></i>
    </nav><!-- .navbar -->


   </div>
  </header>
```

dashboard.html

```
<!DOCTYPE html>
<html lang="en">
<head>
   <meta charset="UTF-8">
   <meta http-equiv="X-UA-Compatible" content="IE=edge">
   <meta name="viewport" content="width=device-width, initial-scale=1.0">
   <title>Dashboard</title>
   <link href="\static\css\style.css" rel="stylesheet">
</head>

<body>
   <section id="dashboard" class="services section-bg">
      <div class="container" data-aos="fade-up">
```

```html
        <div class="section-title">
          <h2>Dashboard</h2>
        </div>


        <div class="row">
          <iframe
src="https://us3.ca.analytics.ibm.com/bi/?perspective=dashboard&amp;path
Ref=.my_folders%2FTravel%2BAggregators%2BDashboard&amp;closeWi
ndowOnLastView=true&amp;ui_appbar=false&amp;ui_navbar=false&amp;
shareMode=embedded&amp;action=view&amp;mode=dashboard&amp;sub
View=model000001882006b5d9_00000002" width="1600" height="700"
frameborder="0"      gesture="media"      allow="encrypted-media"
allowfullscreen=""></iframe>
        </div>


      </div>
    </section>
</body>
</html>
```

story.html

```html
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta http-equiv="X-UA-Compatible" content="IE=edge">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Story</title>
```

```html
    <link href="\static\css\style.css" rel="stylesheet">
</head>


<body>
    <section id="report" class="services section-bg">
      <div class="container" data-aos="fade-up">
        <div class="section-title">
          <h2>Report</h2>
        </div>
        <div class="row">
          <iframe
src="https://us3.ca.analytics.ibm.com/bi/?pathRef=.my_folders%2FTravel%
2BAggregators%2BActive%2BReport&amp;closeWindowOnLastView=tru
e&amp;ui_appbar=false&amp;ui_navbar=false&amp;shareMode=embedded
&amp;action=run&amp;prompt=false" width="1600" height="700"
frameborder="0" gesture="media" allow="encrypted-media"
allowfullscreen=""></iframe>
        </div>

      </div>
    </section>
</body>
</html>
```

report.html

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

```html
    <meta charset="UTF-8">
    <meta http-equiv="X-UA-Compatible" content="IE=edge">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Story</title>
    <link href="\static\css\style.css" rel="stylesheet">
</head>

<body>
    <section id="report" class="services section-bg">
        <div class="container" data-aos="fade-up">


            <div class="section-title">
              <h2>Report</h2>
            </div>


            <div class="row">
              <iframe
src="https://us3.ca.analytics.ibm.com/bi/?pathRef=.my_folders%2FTravel%
2BAggregators%2BActive%2BReport&amp;closeWindowOnLastView=tru
e&amp;ui_appbar=false&amp;ui_navbar=false&amp;shareMode=embedded
&amp;action=run&amp;prompt=false" width="1600" height="700"
frameborder="0" gesture="media" allow="encrypted-media"
allowfullscreen=""></iframe>
            </div>
          </div>

    </section>
</body>
</html>
```

A.2 GitHub & Project Video Demo Link

10.2.1 GitHub

Link**: https://github.com/gnanavel2628/Naanmudhalvan-DataAnalytics-NM2023TMID01791**

10.2.2 Project Demo Video

Link: https://www.youtube.com/watch?v=tqApsyuxydM