

Infosys Springboard Virtual Internship 6.0 Completion Report

Team Details

Batch Number: – Team A

Start date: 13-08-2025

Names : Pranav Raskar

- Gandla Akshaya
- Bhuvana Sarika Chintalapudi
- Hiranmai Tejaswini Bommisetti
- Sanjana T
- Yamini Seerapu
- Dhrisya H
- Pavithira P
- Rishi Patel
- Tata Jyothi Venkata Naga Sushma
- Roshan Shabhika A
- Gowra Sreevarshini
- Radhika Kela

- Internship Duration: 8 Weeks

1. Project Title

“Global Travel and Holiday Trends – Interactive Dashboard”

2. Project Objective

The objective of this internship project was to build a **data-driven tourism analytics platform** that presents insights on global travel patterns, popular destinations, and holiday trends. Using **Power BI dashboards** and a **Streamlit application**, the project aimed to make complex datasets more understandable through visualizations, while also integrating **AI features** for enhanced interactivity.

This project supports organizations, researchers, and policymakers in identifying emerging travel markets, improving tourism strategies, and understanding visitor behaviors through an **interactive and engaging analytical tool**.

3. Project description in detail

The Global Tourism Insights Dashboard is a web-based interactive system that brings together multiple data sources to present a holistic view of global travel activities. The system enables comparative and exploratory analysis through charts, dashboards

Approach:**1. Data Collection & Preparation**

- Gathered datasets on tourist arrivals, holiday distribution, and travel expenditures.
- Performed preprocessing in Python (Pandas, NumPy) to handle missing values, duplicates, and inconsistent formats.

2. Power BI Dashboards

- Designed multi-page dashboards showing:
 - Global travel overview
 - Holiday type analysis
 - Country and regional comparisons
 - Forecasts & future trends
- Used filters and slicers for interactive analysis.

3. Streamlit Application

- Built a web app with Firebase authentication (login/signup, profile).
- Integrated Power BI dashboards via embed.
- Developed additional modules: Reports, Feedback, Settings.
- Used Altair & Lottie animations for enhanced UI.

4. Enhancing User Experience

- Applied animations and themes to improve usability.
- Added login and authentication features to make the app feel professional.

5. Technology Stack

- Python – Data cleaning, logic
- Power BI – Dashboards & insights
- Streamlit – Frontend interface
- Lottie Animations – Visual effects
- CSV – Dataset storage

Impact / Real-World Implementation

- Provides data-driven insights into global tourism trends, helping travelers, researchers, and policymakers make informed decisions.
- Helps identify popular destinations, holiday patterns, and the economic impact of tourism.
- Combines AI and visualization to allow interactive exploration of complex datasets.
- Can be scaled for tourism agencies, travel platforms, and government tourism boards to enhance strategy and planning.
- Makes global tourism data accessible, understandable, and actionable for a wide range of users.

4. Timeline Overview

Week	Activities Planned	Activities Completed
Week 1	Kickoff Meeting	Orientation & GPT Session
Week 2	Data Collection	Dataset Gathering
Week 3	Learn Techniques	Method Selection
Week 4	Data Cleaning	Processed Datasets
Week 5	Power BI Design	Dashboard Created
Week 6	Web Development	Core Modules Built
Week 7	Feature Integration	Web App Completed
Week 8	Presentation and Documentation	PPT, Demo and Report Submission

5a. Key Milestones

Milestone	Description	Date Achieved
Project Kickoff	Initial meeting and orientation to start project	13-08-2025
Prototype/First Draft	First working draft of data visualizations using Power BI	10-09-2025
Mid-Term Review	Progress review covering preprocessing and initial dashboards	09-09-2025
Final Submission	Submission of completed web application and documentation	03-10-2025
Presentation	Demonstration of PPT and Web Application UI	06-10-2025

5b. Project execution details

The project was executed in a **structured and phased manner**, ensuring systematic progress from data gathering to the final presentation.

- Conducted a requirement analysis to clearly define the project scope, objectives, and deliverables.
- Collected datasets from trusted sources such as Kaggle, UNWTO, and World Bank.
- Performed data preprocessing: handled missing values, removed duplicates, and standardized data formats.
- Designed and developed Power BI dashboards to visualize key travel and holiday insights.
- Built a Streamlit application integrating the following modules:
 - Dashboards – Embedded Power BI visualizations.
 - Reports – Summary and analysis pages.
 - Feedback & User Management – Collecting user input and managing profiles.
- Enhanced the UI/UX using animations (Lottie) and responsive layouts for better accessibility.
- Conducted multiple rounds of testing and iteration to ensure smooth performance.
- Successfully delivered the final application, documentation, and presentation within the internship timeline.

6. Snapshots

Data Preparation Work

- Screenshot of raw dataset (CSV file)

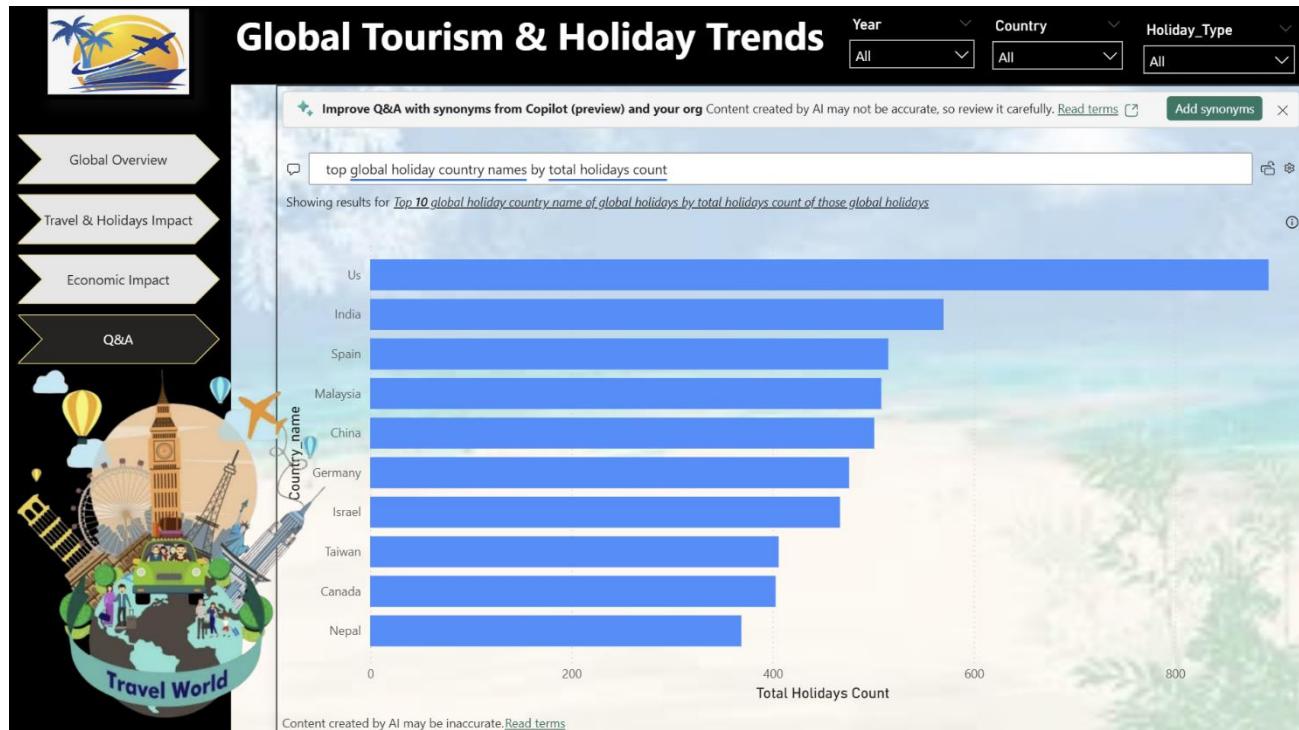
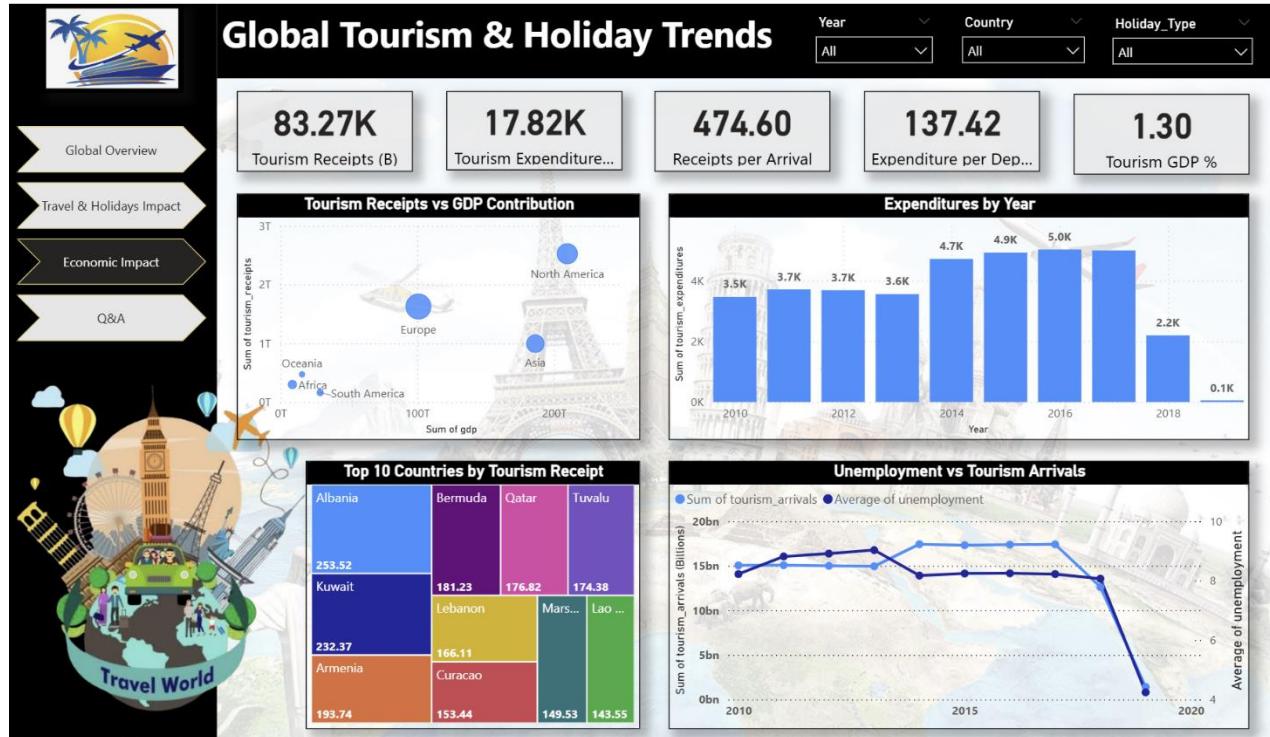
	A	B	C	D	E	F	G	H	I	J	K
1	country	Country_code	year	tourism_receipts	tourism_arrivals	tourism_exports	tourism_departs	tourism_expend	gdp	inflation	unemployment
2	Aruba	ABW	2010	1254000000	1394000	68.72600349		12.58695476	2453597207	2.078140719	10.6
3	Africa Eastern and Southern	AFE	2010	22022165207	29071500.51	8.708755035		5.894887354	8.4941E+11	5.537537916	
4	Afghanistan	AFG	2010	147000000		5.728735463		1.836670677	15856668556	2.178537524	
5	Africa Western and Central	AFW	2010	4034222723	11070796.45	2.508371519		8.686147	6.00153E+11	1.784844205	
6	Angola	AGO	2010	726000000	425000	1.411031258		0.776370723	83799474070	14.46965649	9.43
7	Albania	ALB	2010	1778000000	2417000	53.48460236	3443000	25.11795461	11926926616	3.626046956	14.086
8	Andorra	AND	2010		8551000				3449925739		
9	Arab World	ARB	2010	72002050459	130381603.8	8.110145863		8.613161345	2.15535E+12	3.911061955	9.344740017
10	United Arab Emirates	ARE	2010	8577000000				3.001189E+11	0.877983288		
11	Argentina	ARG	2010	5605000000	680000	6.909259852	6083000	9.374886997	4.23627E+11		7.714
12	Armenia	ARM	2010	694000000	684000	31.39315511	563000	14.12777155	9260285756	8.176361385	19.523
13	American Samoa	ASM	2010		23100.00038				573000000		9.2
14	Antigua and Barbuda	ATG	2010		788000				1298255556	3.370025402	
15	Australia	AUS	2010	31064000000	5790000	11.66589346	7103000	10.70691868	1.14884E+12	2.918340027	5.214
16	Austria	AUT	2010		22004000			9882000		3.89828E+11	1.81353439
17	Azerbaijan	AZE	2010	792000000	1963000	2.805051572	3176000	8.362321412	52909294792	5.726872247	5.63
18	Burundi	BDI	2010	2099999.905	142000	1.161968068		5.768512955	2032135192	6.493265915	
19	Belgium	BEL	2010	12680000000	7186000	3.43357261	8801000	5.735099481	4.81557E+11	2.189299204	8.293
20	Benin	BEN	2010	149399993.9		9.002109166		3.970147618	9535345011	2.207835325	1.04
21	Burkina Faso	BFA	2010	105000000	274000	5.55280134		4.298196048	10109619741	-0.764230735	
22	Bangladesh	BGD	2010	1030000000	139000	0.475652503	1913000	2.833312131	1.15276E+11	8.126676392	3.379
23	Bulgaria	BGR	2010	3807000000	8374000	15.04511757	3676000	3.620356429	50760929303	2.438990605	10.279
24	Bahrain	BHR	2010	21630000000	11952000	12.09709951		5.22317675	26805984043	1.9618848683	1.13
25	Bahamas, The	BHS	2010	21590000000	5255000	67.5530224		9.781060633	10095760000	1.344027384	
26	Bosnia and Herzegovina	BIH	2010	662000000	365000	12.99455186		2.808714433	17176315804	1.996212367	27.312
27	Belarus	BLR	2010	6650000000	5674000	2.266599862	7464000	2.031454962	57231904543	7.735748043	
28	Belize	BLZ	2010		1054000			4.817107399	1745700000	0.917977379	
29	Bermuda	BMU	2010		580000			20.83589519	6634526000		6.49

- Screenshot of cleaned Datasets

	A	B	C	D	E	F	G	H	I	J	K
1	country	Country_code	year	tourism_receipts	tourism_arrivals	tourism_exports	tourism_departs	tourism_expenditures	gdp	inflation	
2	Andorra	AND	2010	449200000	8551000	50.5329119640494		139000	11.5631375919203	3449925739	10.561647117
3	Antigua and Barbuda	ATG	2010	449200000	788000	25.3485216305049		139000	7.85606138292065	1298255556	3.370025402
4	Belize	BLZ	2010	449200000	1054000	52.8858914878315		139000	4.8171073984982	1745700000	0.91797737880
5	Bermuda	BMU	2010	449200000	580000	22.8618602214701		139000	20.8358951925493	6634526000	4.3196014751
6	Guam	GUM	2010	449200000	1197000	23.2436207693398		139000	4.55554499127133	4949000000	3.5407567039
7	Lesotho	LSO	2010	449200000	426000	25.9193588568479		139000	11.5085392306261	2234754242	-2.4052425459
8	Maldives	MDV	2010	449200000	792000	16.8761306274016		139000	14.88830331855589	2588176055	6.14998853675
9	Northern Mariana Islands	MNP	2010	449200000	379000	60.4078497678619		139000	5.81265981	Name	world_tourist_economy
10	Other small states	OSS	2010	449200000	37843566.1639165	3.82938910465439		139000	11.8778441	Storage mode	Import
11	Qatar	QAT	2010	449200000	1700000	7.2841515303557		139000	2.67322031	Data refreshed	7/9/2025, 10:57:26 pm
12	San Marino	SMR	2010	449200000	1976000	57.9232681005124		139000	7.35579138939644	1881191925	2.5854181558
13	Turks and Caicos Islands	TCA	2010	449200000	899000	72.0962470781648		139000	7.74457764152139	686787800	2.0142572493
14	Zambia	ZMB	2010	449200000	815000	11.9454193423209		139000	2.98320155782325	20265559484	8.5017613336
15	Andorra	AND	2011	449200000	7983000	42.7411131626489		139000	7.9835242686792	3629133574	8.8440146569
16	Antigua and Barbuda	ATG	2011	449200000	848000	18.2113053521219		139000	8.93777649465222	1281337037	3.456749672
17	Belize	BLZ	2011	449200000	1106000	65.504581607652		139000	3.89777986492111	1827050000	1.60205615
18	Guam	GUM	2011	449200000	1160000	23.2436207693398		139000	4.55554499127133	4984000000	3.5407567039
19	Lesotho	LSO	2011	449200000	398000	16.8761306274016		139000	11.349893566205	2579409620	5.036630521
20	Other small states	OSS	2011	449200000	33747412.9930026	11.7704001083033		139000	15.3058751965181	158481994196	4.2374550325
21	Turks and Caicos Islands	TCA	2011	449200000	1010000	75.38289705202991		139000	8.7389977567142	728789600	2.8500537909
22	Zambia	ZMB	2011	449200000	920000	11.5597919548205		139000	2.9547209855394	23459515276	6.429396810
23	Andorra	AND	2012	449200000	7900000	57.8143646957599		139000	11.0341214587387	3188652765	6.8841635517
24	Antigua and Barbuda	ATG	2012	449200000	819000	25.5384782689531		139000	7.4421599445774	1327107407	3.3768804433
25	Rwanda	RTA	2012	449200000	1028000	40.1040780172272		139000	2.8046871108177	1000000000	1.300807454

Power BI Dashboard Snippets





Code Snippets

```

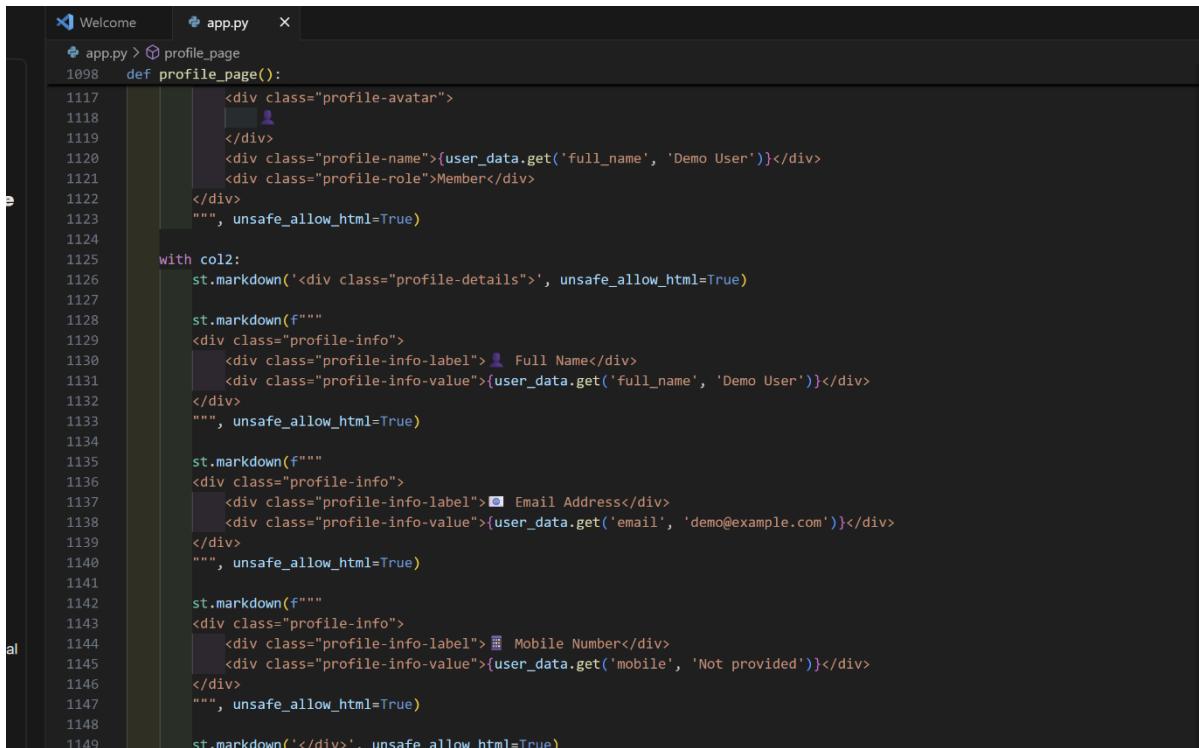
1 import streamlit as st
2 import firebase_admin
3 from firebase_admin import credentials, firestore, auth as admin_auth
4 import requests
5 from streamlit_lottie import st_lottie
6 import base64
7 import os
8
9 # -----
10 # CONFIG
11 # -----
12 SERVICE_ACCOUNT_PATH = r"D:\project\Tourism and Holiday trends\serviceAccountKey.json"
13 POWERBI_EMBED_URL = "https://app.powerbi.com/reportEmbed?reportId=9c05147e-a4d8-4786-b6e8-b7e70456abdb&autoAuth=true&ctid=ab0d6933-"
14 FIREBASE_API_KEY = "AIzaSyBGFLI2HCAqv4YY-gy8kpn19vp9gF2x2KU"
15 LOGIN_BG_PATH = r"D:\project\Tourism and Holiday trends\assets\images (3).jpg"
16 LOTTIE_URLS = [
17     "home": "https://assets4.lottiefiles.com/packages/lf20_yf3k.json",
18     "dashboard": "https://assets1.lottiefiles.com/packages/lf20_1tgnpuzo.json",
19     "insights": "https://assets4.lottiefiles.com/packages/lf20_uciwcsjl.json",
20     "feedback": "https://assets3.lottiefiles.com/packages/lf20_y8g7jnth.json",
21     "profile": "https://assets2.lottiefiles.com/packages/lf20_jwhfxnkv.json",
22     "travel_home": "https://assets1.lottiefiles.com/packages/lf20_k5hqkx7x.json",
23     "insights_data": "https://assets9.lottiefiles.com/packages/lf20_qcz2w4oj.json",
24     "world_map": "https://assets2.lottiefiles.com/packages/lf20_ydolamjm.json"
25 ]
26
27 # Firebase init (with mock fallback)
28 db = None
29 try:
30     if not firebase_admin._apps and os.path.exists(SERVICE_ACCOUNT_PATH):
31         cred = credentials.Certificate(SERVICE_ACCOUNT_PATH)
32         firebase_admin.initialize_app(cred)
33         db = firestore.client()
34 except Exception:

```

```

39 # -----
40 def get_base64_image(path):
41     try:
42         if os.path.exists(path):
43             with open(path, "rb") as img_file:
44                 return base64.b64encode(img_file.read()).decode()
45     except:
46         pass
47     return None
48
49 # -----
50 # ENHANCED CSS STYLING
51 # -----
52 def load_css(is_auth=False, theme="Light"):
53     base64_img = get_base64_image(LOGIN_BG_PATH) if is_auth else None
54     bg_url = f"data:image/jpeg;base64,{base64_img}" if base64_img else "https://images.unsplash.com/photo-1507525428034-b723cf961d3"
55
56     if theme == "Dark":
57         app_bg = "linear-gradient(135deg, #0f0f23 0%, #1a1a2e 50%, #16213e 100%)"
58         sidebar_bg = "linear-gradient(145deg, #1e1e2e 0%, #2d2d42 100%)"
59         text_color = "#ffffff"
60         secondary_text = "#e0e0e0"
61         card_bg = "rgba(45, 45, 66, 0.95)"
62         button_bg = "linear-gradient(135deg, #667eea 0%, #764ba2 100%)"
63         button_hover = "linear-gradient(135deg, #764ba2 0%, #667eea 100%)"
64         nav_active = "linear-gradient(135deg, #4facfe 0%, #00f2fe 100%)"
65         nav_hover = "rgba(79, 172, 254, 0.2)"
66         auth_card_bg = "rgba(30, 30, 46, 0.95)"
67         auth_text_color = "#ffffff"
68         input_bg = "rgba(45, 45, 66, 0.8)"
69         input_border = "rgba(102, 126, 234, 0.5)"
70         input_text_color = "#ffffff"
71     else:
72

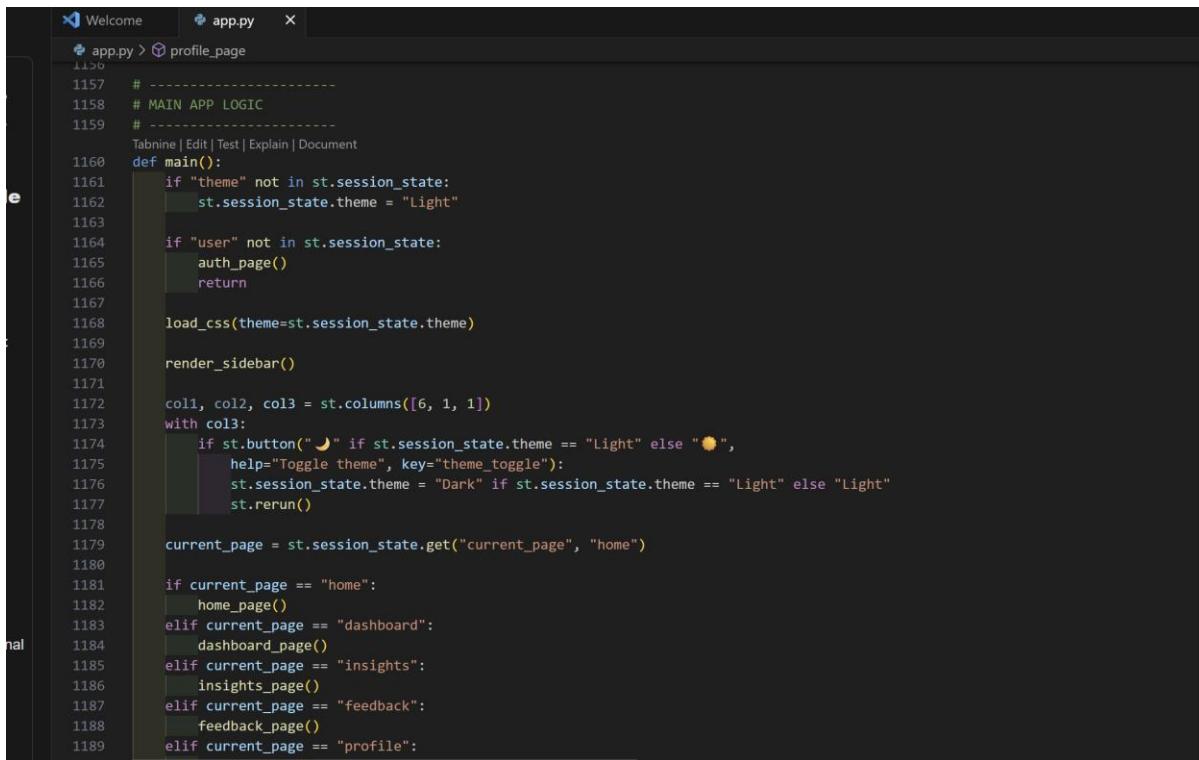
```



```

1098     def profile_page():
1099         <div class="profile-avatar">
1100             
1101         </div>
1102         <div class="profile-name">{user_data.get('full_name', 'Demo User')}</div>
1103         <div class="profile-role">Member</div>
1104     </div>
1105     """", unsafe_allow_html=True)
1106
1107     with col2:
1108         st.markdown('<div class="profile-details">', unsafe_allow_html=True)
1109
1110         st.markdown(f"""
1111             <div class="profile-info">
1112                 <div class="profile-info-label">👤 Full Name</div>
1113                 <div class="profile-info-value">{user_data.get('full_name', 'Demo User')}</div>
1114             </div>
1115             """", unsafe_allow_html=True)
1116
1117         st.markdown(f"""
1118             <div class="profile-info">
1119                 <div class="profile-info-label">✉️ Email Address</div>
1120                 <div class="profile-info-value">{user_data.get('email', 'demo@example.com')}</div>
1121             </div>
1122             """", unsafe_allow_html=True)
1123
1124         st.markdown(f"""
1125             <div class="profile-info">
1126                 <div class="profile-info-label">📱 Mobile Number</div>
1127                 <div class="profile-info-value">{user_data.get('mobile', 'Not provided')}</div>
1128             </div>
1129             """", unsafe_allow_html=True)
1130
1131     st.markdown('</div>', unsafe_allow_html=True)

```



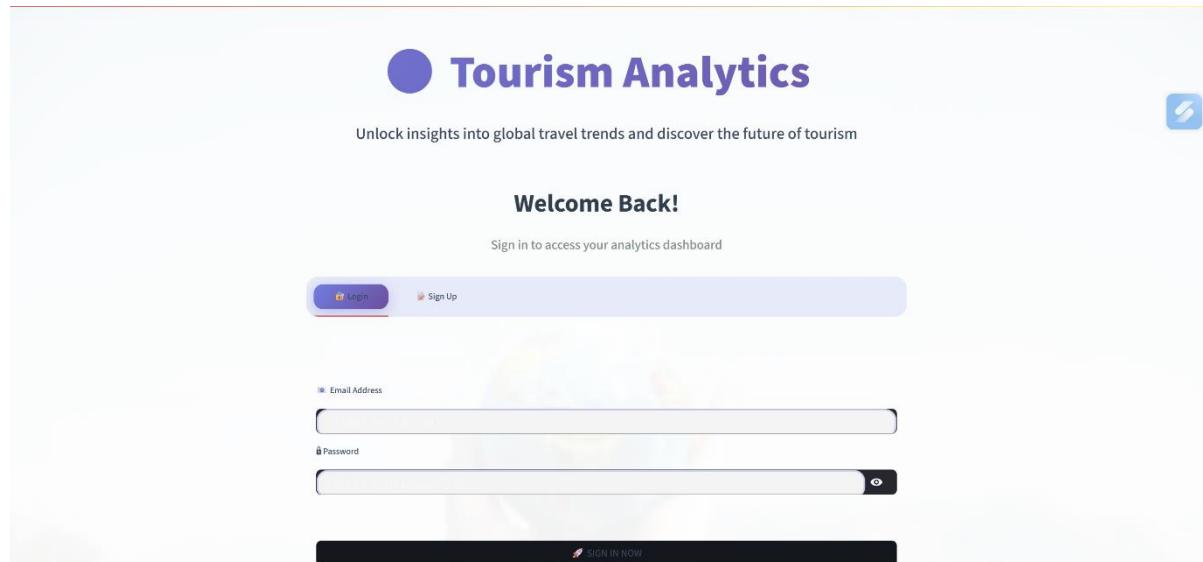
```

1157     # -----
1158     # MAIN APP LOGIC
1159     # -----
1160     Tabnine | Edit | Test | Explain | Document
1161     def main():
1162         if "theme" not in st.session_state:
1163             st.session_state.theme = "Light"
1164
1165         if "user" not in st.session_state:
1166             auth_page()
1167             return
1168
1169         load_css(theme=st.session_state.theme)
1170
1171         render_sidebar()
1172
1173         col1, col2, col3 = st.columns([6, 1, 1])
1174         with col3:
1175             if st.button("🌙" if st.session_state.theme == "Light" else "☀️",
1176                         help="Toggle theme", key="theme_toggle"):
1177                 st.session_state.theme = "Dark" if st.session_state.theme == "Light" else "Light"
1178                 st.rerun()
1179
1180         current_page = st.session_state.get("current_page", "home")
1181
1182         if current_page == "home":
1183             home_page()
1184         elif current_page == "dashboard":
1185             dashboard_page()
1186         elif current_page == "insights":
1187             insights_page()
1188         elif current_page == "feedback":
1189             feedback_page()
1190         elif current_page == "profile":
1191             profile_page()

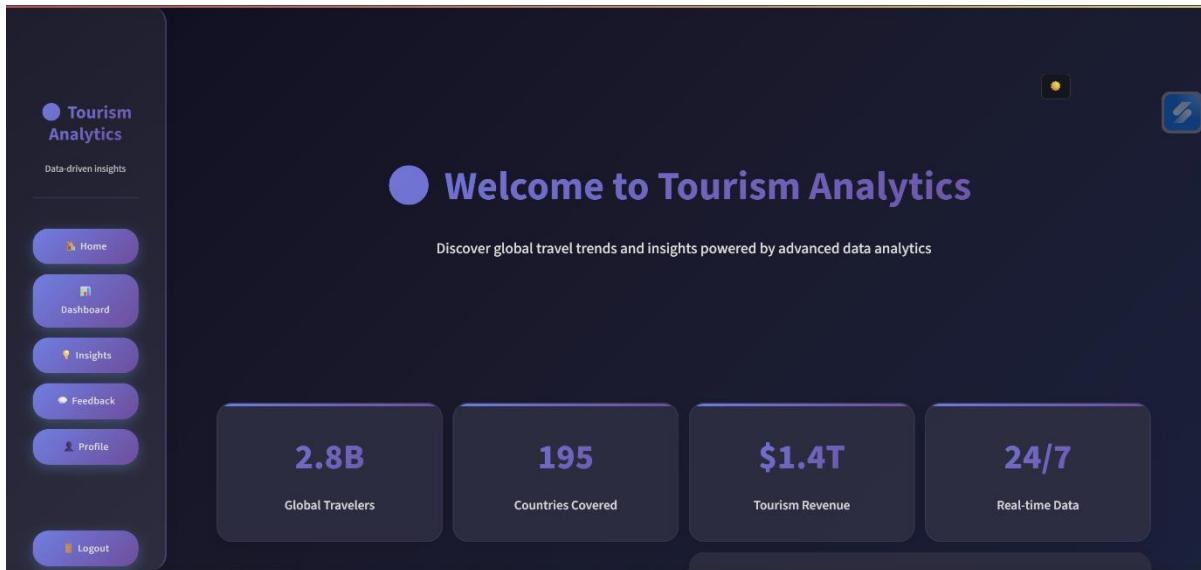
```

Web Application UI

- Login Page



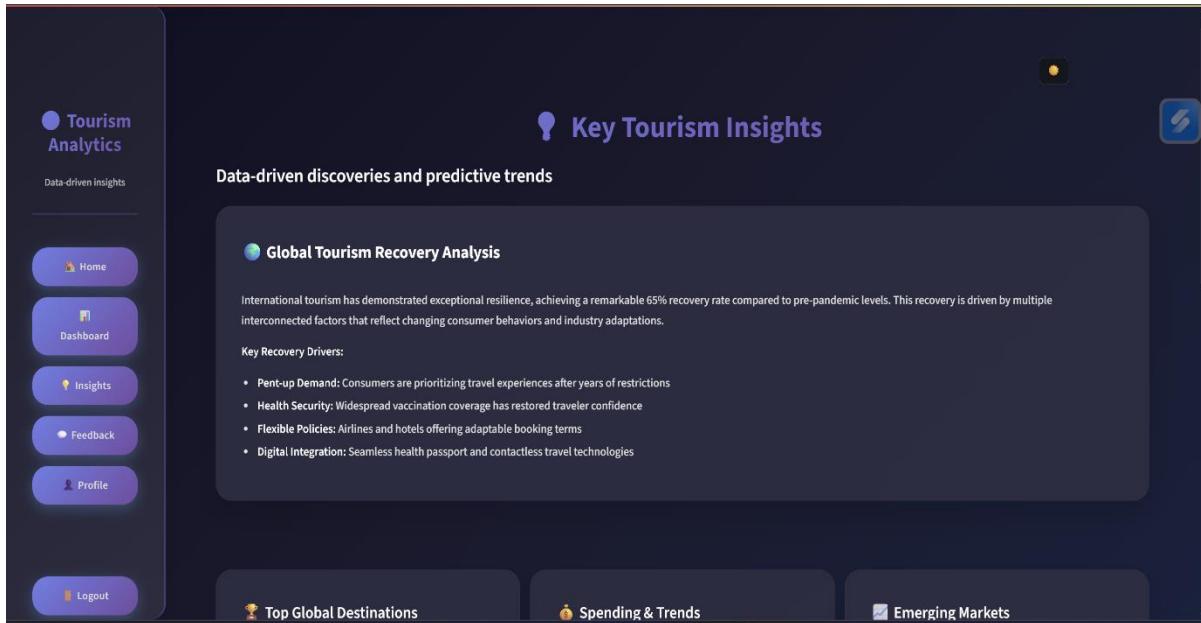
- Home Page



- Dashboard Page



- Insight Page



- **Reports Page**

Top Global Destinations

1. France
89.4M visitors
+12% YoY growth
2. Spain
83.7M visitors
+15% YoY growth
3. United States
79.3M visitors
+8% YoY growth

Spending & Trends

- Luxury Travel
+25% YoY
\$2,847 avg. spending per trip
- Eco-Tourism
+40% YoY
\$1,234 avg. spending per trip
- Digital Nomads
+60% YoY
\$1,856 avg. monthly spending

Emerging Markets

- Asia-Pacific
+15% growth
Led by Vietnam, Thailand
- Latin America
+12% growth
Mexico, Colombia leading
- Africa
+18% growth
Morocco, South Africa surge

Future Predictions & Trends

- **Feedback Page**

Share Your Feedback

Help us improve your experience

Tell us about your experience

Rate your overall experience

Poor Good Excellent

Feedback Category

General Experience

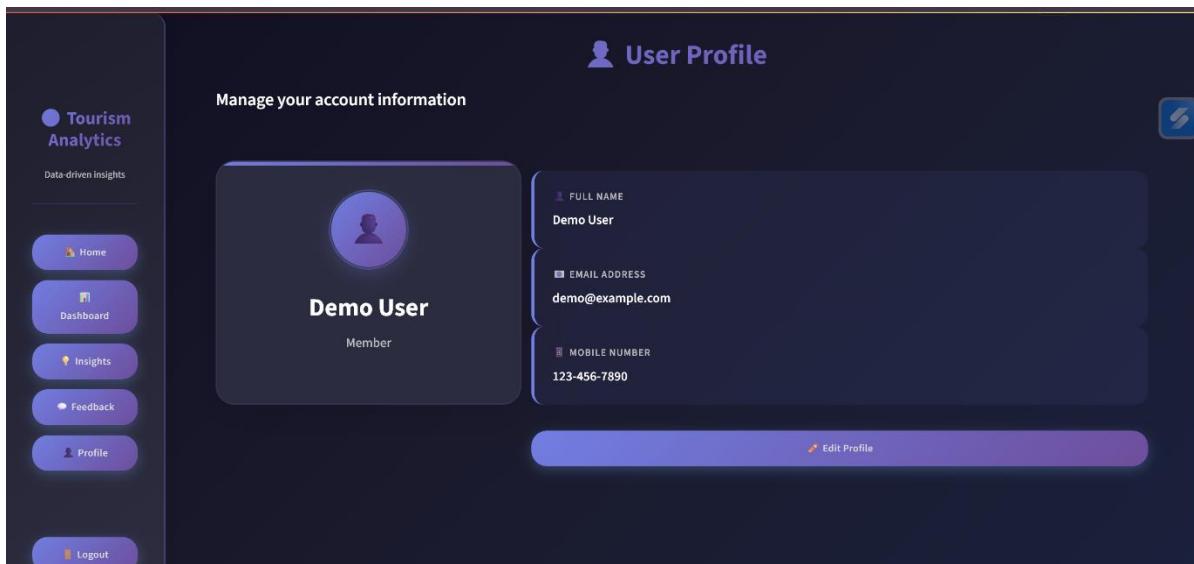
Your detailed feedback

Share your thoughts, suggestions, or report any issues you've encountered...

I would like to be contacted about my feedback

Submit Feedback

- **Profile Page**



7. Challenges Faced

Throughout the development of this project, the team came across several obstacles in data handling, technology adoption, integration, and time management. Each issue was resolved step by step to ensure that progress remained steady and the final outcome met expectations.

1. Data Collection and Preparation

- **Issue:** The datasets were gathered from diverse sources such as Kaggle and open repositories, which led to mismatched formats, missing fields, and duplicate records.
- **Approach Taken:** Applied preprocessing techniques including removal of duplicates, filling or dropping missing values, and unifying naming conventions (e.g., countries and dates).

2. Choosing the Right Preprocessing Methods

- **Issue:** At the start, it was unclear which data-cleaning strategies and transformation methods would be most effective.
- **Approach Taken:** Explored different techniques through research and discussions, and finally adopted normalization, aggregation, and standardization to make the dataset analysis-ready.

3. Power BI and Streamlit Integration

- **Issue:** Bringing Power BI dashboards into Streamlit caused several technical glitches, especially with embedding and authentication.
- **Approach Taken:** After testing multiple configurations, iframes and embed tokens were used successfully to display dashboards smoothly inside the app.

4. User Interface and Experience

- **Issue:** With multiple modules (dashboards, chatbot, feedback, reports, profile), creating a uniform and responsive design without overloading the system was challenging.
- **Approach Taken:** Adopted a minimal, modern design supported by Lottie animations and responsive layout tweaks, refined through continuous feedback and testing.

5. Managing Timelines

- **Issue:** Balancing various tasks — from data cleaning and visualization to app development and documentation — within the limited internship duration was demanding.
- **Approach Taken:** Followed a structured week-wise plan with defined checkpoints, ensuring that each phase was completed on schedule and the final product was delivered on time.

8. Learnings & Skills Acquired

This internship gave me the opportunity to sharpen both my technical expertise and personal competencies. The experience not only strengthened my foundation in data analytics and visualization but also helped me grow as a problem solver and team contributor.

1. Technical Proficiency

- **Power BI:** Designed and deployed interactive dashboards to explore travel and holiday trends across countries.
- **Streamlit:** Built a complete web application that combined multiple features such as dashboards, reports, chatbot, user profiles, and feedback.
- **Python & Libraries:** Utilized Pandas and NumPy for data preparation and Altair for producing insightful visualizations.
- **AI Chatbot:** Learned how to integrate the OpenAI GPT API to enable conversational support within the platform.
- **Data Processing:** Enhanced my ability to handle raw datasets, resolve missing values, remove inconsistencies, and structure data for effective analysis.

1. Domain Knowledge

- **Exposure to global travel data and analytics** – learned how to work with international datasets on tourism, holidays, and expenditure.
- **Understanding how data can assist in tourism decision-making** – realized how data-driven insights can guide travel companies, policymakers, and researchers.
- **Tourism Economics Insight** – gained awareness of factors like visitor arrivals, country-wise spending, and holiday patterns that influence global tourism.
- **Trend Identification** – ability to detect seasonal travel patterns, emerging destinations, and shifts in traveler preferences

2. Soft Skills

- **Team Discussions & Reviews:** Actively participated in weekly review meetings and group discussions, which improved the ability to explain project progress clearly and justify technical decisions effectively.
- **Presentation Skills:** Strengthened communication skills by preparing and delivering the final **PowerPoint presentation** and **web application demo**, ensuring complex ideas were conveyed in a simple and professional manner.
- **Collaboration & Coordination:** Worked with mentors and peers to align tasks, share responsibilities, and meet deadlines consistently.

3. Personal Development

- **Problem-Solving:** Tackled real-world challenges in data cleaning, system integration, and visualization, which strengthened my analytical and troubleshooting abilities.
- **Time Management:** Successfully managed tasks by following a structured 8-week plan with defined checkpoints, ensuring consistent progress and timely delivery of project outputs.

- **Self-Learning:** Gained confidence as an independent learner by researching and experimenting with new tools, frameworks, and APIs to enhance the project's scope and functionality.

9. Testimonials from team

Working on this project was a transformative experience that allowed me to apply classroom learning to a real-world dataset. Building an interactive and AI-powered solution gave me valuable exposure to both analytics and application development. Using Power BI alongside Streamlit provided practical knowledge in designing an end-to-end system, from data preprocessing to user interaction. Beyond the technical side, this internship improved my confidence, taught me the importance of structured teamwork, and strengthened my ability to deliver within set deadlines.

10. Conclusion

The internship project, "*Interactive Data Visualization of Global Travel and Holidays*", was a highly rewarding experience that combined technical learning with real-world application. From collecting and preprocessing global tourism datasets to developing dashboards in Power BI and building a Streamlit-based web application, every stage of the project contributed to both my technical expertise and personal growth.

The integration of AI through a chatbot, along with responsive visualizations, demonstrated how advanced analytics and user-friendly design can work together to create meaningful insights. This project not only improved my skills in Python, Power BI, and Streamlit but also deepened my understanding of how data-driven solutions can support decision-making in the travel and tourism sector.

Equally important, the internship strengthened essential skills such as teamwork, problem-solving, and time management. Working under defined timelines and overcoming challenges taught me the value of structured planning and adaptability.

Overall, this project served as a stepping stone toward my future career in data analytics and AI-driven solutions. It proved that with the right mix of data, technology, and creativity, complex problems can be transformed into accessible and impactful solutions.

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