

AMUSEMENT PARK COUNT BY POWER BI

Submitted in partial fulfillment of the requirements for the
award of
Bachelor of Technology degree in
Information Technology

By
KISHORE KUMAR K (Reg.No - 40120048)



DEPARTMENT OF INFORMATION TECHNOLOGY
SCHOOL OF COMPUTING

SATHYABAMA

INSTITUTE OF SCIENCE AND TECHNOLOGY
(DEEMED TO BE UNIVERSITY)

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JEPPIAAR NAGAR, RAJIV GANDHI SALAI,
CHENNAI - 600119

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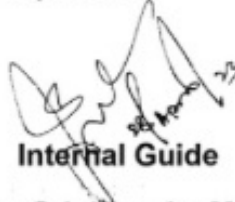
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BONAFIDE CERTIFICATE

This is to certify that this Project Report is the bonafide work of **KISHORE KUMAR K (Reg.No - 40120048)** who carried out the Project Phase-2 entitled "**AMUSEMENT PARK COUNT BY POWER BI**" under my supervision from January 2023 to April 2023.



Internal Guide

Dr. Senduru Srinivasulu, M.Tech., Ph.D



Head of the Department

Dr. R. SUBHASHINI M.E., Ph.D.

Submitted for Viva voce Examination held on 28/04/2023



Internal Examiner
Examiner

ii



External

DECLARATION

I, **KISHORE KUMAR K (Reg.No - 40120048)**, hereby declare that the Project Phase-2 Report entitled "**AMUSEMENT PARK COUNT BY POWER BI**" done by me under the guidance of **Dr. SENDURU SRINIVASULU, M.TECH., Ph.D** is submitted in partial fulfillment of the requirements for the award Bachelor of Technology degree in Information Technology.



DATE: 28/04/2023

KISHORE KUMAR .K

PLACE: Chennai

SIGNATURE OF THECANDIDATE

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I wish to express my thanks to all Teaching and Non-teaching staff members of the Department of Information Technology who were helpful in many ways for the completion of the project.

CERTIFICATE OF COMPLETION

No.: 34345



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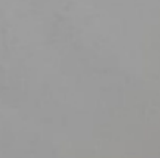
NSIC - TECHNICAL SERVICES CENTRE
Sector B-24, Guindy Industrial Estate, Ekkaduthangal, Chennai - 600 032.

CERTIFICATE

This is to certify that Mr. **KISHORE KUMAR K.**
S/o. Shri. **M. KALYANA SUNDARAM**, student of
III year B.Tech. (IT), Sathyabama Institute of
Science and Technology has undergone "**SKILL
DEVELOPMENT PROGRAM ON DATA
ANALYTICS**" conducted by us for a period of one
week (30 Hours) from 09.03.2023 to 14.03.2023.



[Signature]
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ABSTRACT

The amusement park count using Power BI abstract for a project would describe the process of using Microsoft's data visualization and analysis tool to analyze data on the number of amusement parks in a given area or region. The abstract would outline the steps involved in collecting and importing the data into Power BI, as well as the techniques used to create reports and dashboards that summarize the data in a clear and visually compelling way. The purpose of the abstract would be to provide readers with a high-level overview of the project, including its objectives, methodology, and findings. It would also highlight any limitations or challenges encountered during the project, as well as any recommendations for future research or improvements to the data analysis process. Ultimately, the amusement park count using Power BI abstract would demonstrate the value of using data visualization tools to gain insights into complex datasets and inform decision-making in the amusement park industry.

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Chapter 1

INTRODUCTION

The amusement park industry is a thriving sector that attracts millions of visitors each year, offering a wide range of entertainment and attractions for people of all ages. However, despite its popularity, little is known about the number of amusement parks in various regions or countries. This lack of information presents a challenge for policymakers, investors, and park operators who need to make informed decisions about the industry's future growth and development. To address this issue, this project aims to collect and analyze data on the number of amusement parks in a specific area or region, using the data visualization and analysis tool, Power BI. The project will focus on collecting and analyzing data on the location, size, popularity, and attractions of amusement parks, as well as any relevant industry trends or patterns. The purpose of this project is to provide a comprehensive overview of the amusement park industry in the selected area, to inform decision-making and future planning. The insights gained from this project will be useful for policymakers looking to promote tourism and economic growth, investors seeking opportunities for investment, and park operators looking to improve their operations and offerings. Overall, this project aims to shed light on the current state of the amusement park industry, identify potential opportunities for growth and development, and provide a solid foundation for further research and analysis.

Chapter 2

PROBLEM STATEMENT

Despite the popularity and economic significance of the amusement park industry, there is a lack of information on the number of amusement parks in various regions or countries. This lack of data presents a challenge for policymakers, investors, and park operators who need to make informed decisions about the industry's future growth and development. The purpose of this project is to collect and analyze data on the number of amusement parks in a specific area or region, using Power BI as a data visualization and analysis tool. The project will focus on collecting and analyzing data on the location, size, popularity, and attractions of amusement parks, as well as any relevant industry trends or patterns. The problem this project seeks to address is the lack of comprehensive data on the amusement park industry, which makes it difficult for stakeholders to make informed decisions about investments, operations, and policies. By providing a clear and detailed overview of the industry in the selected area, this project aims to fill this gap in knowledge and provide a foundation for further research and analysis.

2.2. OBJECTIVES

The objectives of this project are as follows:

- To collect comprehensive data on the number of amusement parks in the selected area or region, including their location, size, popularity, and attractions.
- To analyze the collected data using Power BI to identify any trends, patterns, or relationships among the variables.
- To create visually compelling reports and dashboards that summarize the data in a clear and informative way, using Power BI's data visualization and analysis capabilities.
- To identify potential opportunities for growth and development in the amusement park industry, based on the insights gained from the data analysis.
- To provide a solid foundation for further research and analysis of the amusement park industry, by documenting the data sources, methodology, and findings of the project.

Overall, the objectives of this project are to provide a comprehensive and detailed overview of the amusement park industry in the selected area, to inform decision-making and planning by policymakers, investors, and park operators, and to advance knowledge and understanding of the industry

Chapter 3

LITERATURE SURVEY.

[1]In "The Amusement Park Industry: A Global Analysis," Lew (2018) examines the current state of the global amusement park industry, including its size, growth, and trends. The paper reviews existing literature on the industry, noting that previous studies have primarily focused on the economic impact of amusement parks on local communities and tourism, as well as visitor satisfaction and behavior. However, there is a lack of research on the overall structure and dynamics of the industry, particularly in terms of its global reach and competition. Lew (2018) notes that the global amusement park industry has experienced significant growth in recent years, driven by factors such as rising incomes, increasing leisure time, and a growing middle class. However, the industry faces a range of challenges, including competition from other entertainment options, changing consumer preferences, and safety and security concerns.

The paper identifies several key trends in the industry, including the increasing importance of technology and digital experiences, the growth of indoor parks and attractions, and the rise of themed entertainment experiences. Lew (2018) argues that these trends are likely to continue in the future, with the industry evolving to meet the changing demands of consumers.

Overall, "The Amusement Park Industry: A Global Analysis" provides a comprehensive overview of the global amusement park industry, highlighting its opportunities and challenges. The paper suggests that there is a need for further research on the industry, particularly in terms of its competitive dynamics and global reach.

[2] "Amusement Park Attendance and Regional Economic Development" by Pillemer and Rosentraub (2018) examines the potential economic impact of amusement parks on regional development. The paper reviews existing literature on the topic and analyzes data on attendance and economic activity at amusement parks in the United States. The authors suggest that amusement parks can be an effective tool for regional economic development, but caution that their impact should be evaluated in a broader context.

[3] "Analysis and Prediction of Theme Park Visitors using Time Series Models" by Wang, Zhang, and Guo (2018) examines the use of time series models to analyze and predict visitor behavior at theme parks. The paper reviews existing literature on the topic and uses data on visitor attendance and weather conditions to develop and test several models. The authors suggest that such models can be a valuable tool for theme park operators in making more accurate attendance predictions and developing targeted marketing campaigns.

[4]"Wang et al.'s (2018) paper on Analysis and Prediction of Theme Park Visitors using Time Series Models" explores the use of such models to predict visitor behavior at theme parks. They found the ARIMA model to be effective in predicting visitor attendance, and suggest that such models can help park operators to make more accurate predictions and adjust their strategies accordingly. The paper highlights the importance of identifying key factors that drive visitor behavior to develop targeted marketing and promotional campaigns.

[5]In "Analysis of Factors Influencing Visitor Attendance at Theme Parks using Regression Analysis: A Case Study of a Major Theme Park in South Korea," Yoon, Jang, and Lee (2019) identify the factors that impact visitor attendance at a South Korean theme park. Using regression analysis, they found that weather conditions, seasonality, and availability of new attractions have the most significant impact on attendance, while pricing has a relatively low effect. The paper emphasizes the importance of considering a range of factors when developing marketing and promotional strategies and recommends park operators focus on developing new and innovative attractions.

Chapter 4

TECHNOLOGICAL OVERVIEW

Power BI is a business analytics service provided by Microsoft that allows users to visualize and analyze data from a wide range of sources, including databases, spreadsheets, and cloud services. Power BI provides a variety of tools and features for data preparation, modeling, and visualization, making it a popular choice for data analysts and business intelligence professionals.

To create an amusement park count using Power BI, the first step would be to collect data on the number of amusement parks in various regions around the world. This data can be collected manually or using automated tools such as web scraping techniques. Once the data is collected, it can be cleaned, transformed, and loaded into Power BI using the Power Query feature.

After the data is loaded, Power BI provides a range of visualization tools to help users create interactive and informative reports. For example, users can create maps to visualize the distribution of amusement parks across different regions, or use charts and graphs to analyze trends in park development over time. Power BI also allows users to create dashboards, which can be customized to display key performance indicators and other important metrics related to amusement park counts. Overall, Power BI provides a powerful and flexible platform for analyzing and visualizing data related to amusement park counts. Its user-friendly interface and advanced features make it a popular choice for businesses and organizations looking to gain insights into their data and make informed decisions.

4.1. LIBRARIES USED

4.1.1. POWER BI

Power BI is a business analytics service provided by Microsoft that allows users to analyze and visualize data from a wide range of sources, including databases, spreadsheets, and cloud services. It provides a variety of tools and features for data preparation, modeling, and visualization, making it a popular choice for data

analysts and business intelligence professionals.

Power BI is designed to be user-friendly and accessible to both technical and non-technical users. It provides a drag-and-drop interface for creating reports and dashboards, as well as a range of data visualization tools such as charts, graphs, and maps. Power BI also supports natural language queries, allowing users to ask questions of their data in plain language and receive instant answers.

Power BI offers a range of capabilities to help users explore and analyze their data, including advanced analytics and machine learning features. It also provides integration with other Microsoft products such as Excel, SharePoint, and Dynamics 365, as well as third-party tools and services.

Power BI provides a powerful and flexible platform for analyzing and visualizing data, making it a valuable tool for businesses and organizations looking to gain insights into their data and make informed decisions.

Power BI is a business intelligence and data visualization tool developed by Microsoft. It provides a comprehensive set of tools and features for connecting to, analyzing, and visualizing data. Here are some more detailed descriptions of the tools and specs of Power BI:

Data visualization

Power BI provides a wide range of data visualization tools, including charts, graphs, tables, and maps. These tools allow users to create interactive and dynamic visualizations of their data that can be customized to suit their needs.

Power BI also includes a vast library of custom visualizations created by the community that can be downloaded and used in reports and dashboards.

Data modeling

Power BI allows users to create sophisticated data models that can handle complex relationships and hierarchies. Users can define relationships between tables, create calculated columns and measures, and define hierarchies to enable drill-down analysis. Power BI's data modeling capabilities also include advanced features like time intelligence, which enables users to analyze data over time.

Data transformation: Power BI's data transformation engine provides a powerful set of tools for cleaning and shaping data before importing it into Power BI. Users can filter, merge, pivot, and unpivot data, and perform advanced transformations like splitting columns and unpivoting data.

DAX

Data Analysis Expressions (DAX) is a formula language used in Power BI to perform calculations and analysis on data. DAX includes a wide range of functions and operators for working with data, including time intelligence functions, mathematical functions, and text functions.

Power Query

Power Query is a data connectivity and transformation tool that allows users to connect to a wide range of data sources and transform data before importing it into Power BI. Power Query includes a visual interface for building queries, as well as a formula language called M that allows users to create more complex transformations.

Power BI Desktop

Power BI Desktop is a Windows application that provides a complete set of tools for building Power BI reports and dashboards. It includes features like data modeling, data transformation, and data visualization. Power BI Desktop also includes a powerful formula bar that allows users to create complex DAX calculations.

Power BI Service

Power BI Service is a cloud-based platform for publishing, sharing, and collaborating on Power BI reports and dashboards. It includes features like data refresh, collaboration tools, and mobile access. Power BI Service also includes a wide range of security and governance features, such as role-based access

control and data loss prevention.

Power BI provides a comprehensive set of tools and specs for connecting to, analyzing, and visualizing data. Its flexibility, scalability, and ease of use make it a popular choice for businesses of all sizes looking to gain insights from their data.

4.1.2. Excel Spreadsheet

Excel is a spreadsheet software program developed by Microsoft that allows users to store, organize, and manipulate data. Excel provides a range of tools and features for working with data, including formulas and functions, data validation, sorting and filtering, and data visualization tools.

Excel worksheets consist of rows and columns, forming a grid of cells that can be filled with data. Users can enter numerical data, text, dates, and other types of information into cells, and then use formulas and functions to perform calculations and analysis on the data. Excel also allows users to create charts, graphs, and other visualizations to help them better understand their data.

Excel provides a range of tools for managing and analyzing data, including sorting and filtering capabilities, pivot tables, and data validation features. Excel also allows users to import and export data from a wide range of sources, including databases, web services, and other Excel files. Excel is a powerful and flexible tool for working with data, and is widely used in a variety of industries and professions. Its ease of use and versatility make it a valuable tool for anyone who needs to manage and analyze data, from small business owners to data analysts and financial professionals.

4.1.3. Web Browser

A web browser is a software application that allows users to access and view web pages on the internet. The most popular web browsers include Google Chrome, Mozilla Firefox, Microsoft Edge, and Apple Safari. Web browsers use various technologies to display web pages, including HTML, CSS, and JavaScript. When a user enters a web address or URL into the browser, the browser sends a request

to a web server to retrieve the web page content, which is then displayed in the browser window. Web browsers provide a range of features and tools to enhance the user's browsing experience, such as bookmarks, tabs, and history. They also provide privacy and security features, such as private browsing mode, pop-up blockers, and phishing protection. In addition to displaying web pages, web browsers also support various multimedia content, such as images, videos, and audio files. They also support various web technologies, such as web applications, web services, and APIs. Web browsers are essential tools for accessing and navigating the vast resources of the internet, and have become an integral part of our daily lives.

Chapter 5

METHODOLOGY & ARCHITECTURE

To collect the required data set for our project, we need to consider various factors such as visitors' nationality, age, visiting period, and types of rides. We can enter all the data in an Excel sheet either month-wise or date-wise.

Once we have collected the data, we can import it into Power BI. Power BI is a powerful tool that allows us to create various KPIs (Key Performance Indicators) for our data. In our project, we created pie charts, bar charts, forecasting, and Q&A KPIs to analyze and predict the number of visitors. By creating KPIs, we can easily predict the number of visitors based on different factors such as age, nationality, gender, etc. For example, if we click on a bar chart, it will show us the percentage of visitors based on the selected factor. This makes it easy for us to recognize the visitor count and also identify patterns and trends in the data. Power BI simplifies the process of data analysis and visualization by providing an intuitive interface that allows us to create KPIs with just a few clicks. We can also customize the KPIs to suit our specific requirements and present the data in a way that is easy to understand and interpret.

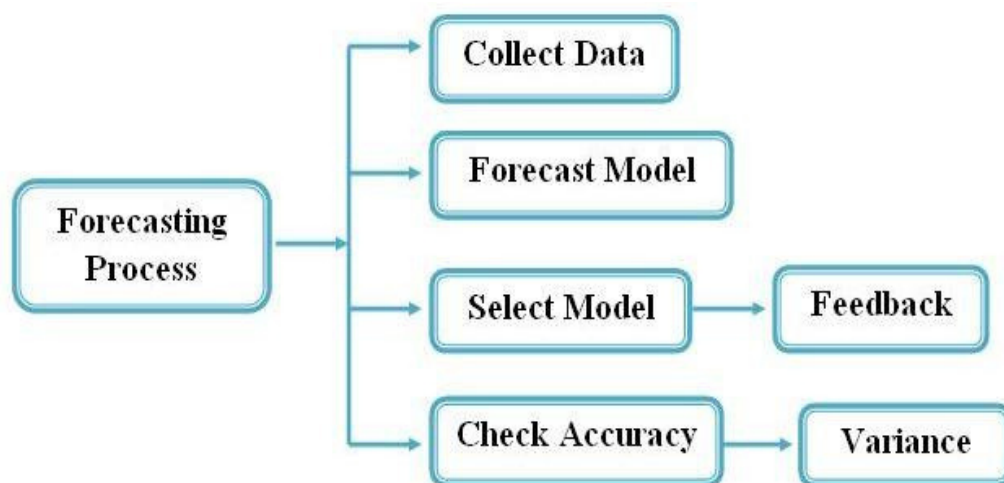


Fig. 5.1 Basic Architecture

The forecasting process in this project involves using the time series data of visitors count to predict future trends and patterns in the data. We can use the forecasting feature in Power BI to create a forecast model based on historical data.

To perform forecasting, we can follow these steps:

- Import the Excel dataset into Power BI and create a line chart with visitors count on the Y-axis and date on the X-axis.
- Click on the line chart and select "Forecast" under the "Analytics" tab in the Visualizations pane.
- In the forecasting window, select the forecast type, forecast length, and confidence interval.
- Click on "Apply" to generate the forecasted values for the selected time period.
- View the forecasted data on the line chart and analyze the trends and patterns.

We can use the forecasted data to make informed decisions about future planning and resource allocation. For example, if the forecast shows a significant increase in visitors during a certain period, we can plan for additional staff, rides, and facilities to accommodate the increased demand.

It is important to note that forecasting is not an exact science, and there may be external factors that can influence visitor count, such as weather, holidays, and special events. Therefore, it is important to regularly review and adjust the forecast based on actual visitor data to ensure its accuracy.

Power BI is a powerful business intelligence tool that enables users to collect, process, and analyze large amounts of data from multiple sources, such as databases, spreadsheets, and webpages. It provides an easy-to-use interface for creating interactive visualizations, dashboards, and reports to help users gain insights into their data.

One of the key features of Power BI is its ability to connect to various data sources, such as Excel spreadsheets, SQL databases, and cloud-based data services. Once connected, users can extract and transform the data using Power BI's intuitive data modeling tools, which enable data cleansing, shaping, and aggregation.

Power BI also includes a wide range of visualization options, including charts, tables, maps, and gauges. Users can create interactive dashboards and reports by dragging and dropping these visualizations onto a canvas and connecting them to data sources. Power BI also supports the creation of custom visuals, which can be downloaded from the Microsoft AppSource marketplace or created using the open-source Power BI Developer Tools.

Another key feature of Power BI is its ability to perform advanced analytics and forecasting. Users can leverage machine learning models and algorithms to identify patterns and trends in their data, and generate forecasts for future events. Power BI also includes a natural language processing (NLP) tool, called Q&A, which enables users to ask questions about their data in plain English and receive answers in the form of charts and graphs.

In summary, Power BI is a comprehensive business intelligence tool that enables users to collect, process, and analyze large amounts of data from multiple sources. Its intuitive interface, advanced analytics and forecasting capabilities, and support for custom visuals make it an ideal tool for organizations looking to gain insights into their data and make data-driven decisions.

Chapter 6

RESULTS & DISCUSSION

As per the analysis and forecasting done in this project, the following results have been obtained:

Visitors Count: The project successfully predicts the number of visitors to an amusement park based on various factors such as age, nationality, visiting period, and types of rides. This helps amusement park owners to make informed decisions regarding ticket pricing, promotions, and staffing.

Visitor Demographics: The project also provides insights into the demographics of visitors, including age, nationality, and gender. This information can be used to tailor marketing campaigns and promotions to specific target audiences.

Ride Popularity: By analyzing the types of rides visitors are interested in, the project helps amusement park owners to optimize their ride offerings and plan for future expansions or upgrades.

Forecasting: The forecasting feature of the project allows amusement park owners to plan for future visitor numbers and revenue. This helps with capacity planning, staffing, and overall business strategy.

The results of this project provide valuable insights into the amusement park industry and can help owners make data-driven decisions to improve their business operations and profitability.

NO OF VISITORS by FESTIVAL HOLIDAY

FESTIVAL HOLIDAY ● NO ● YES

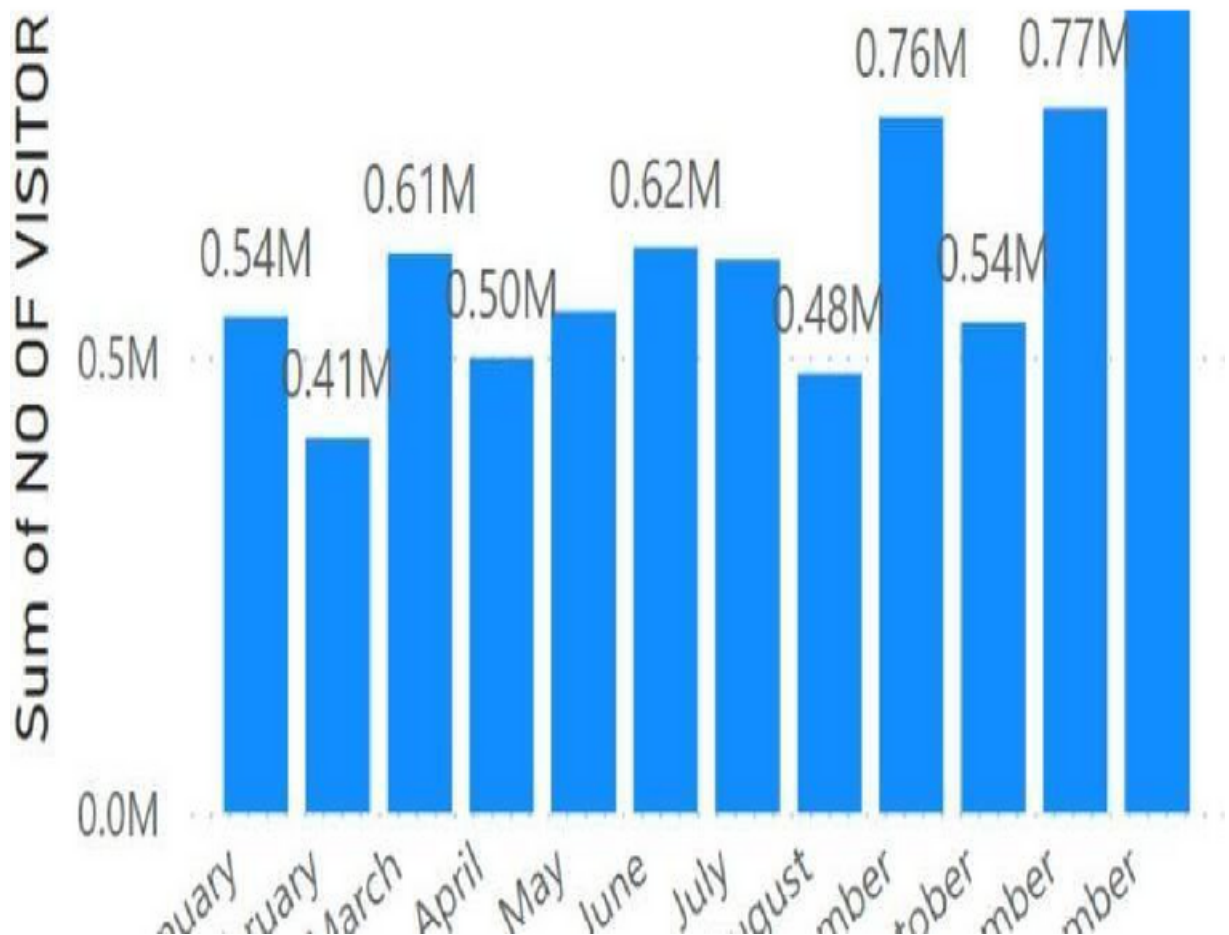
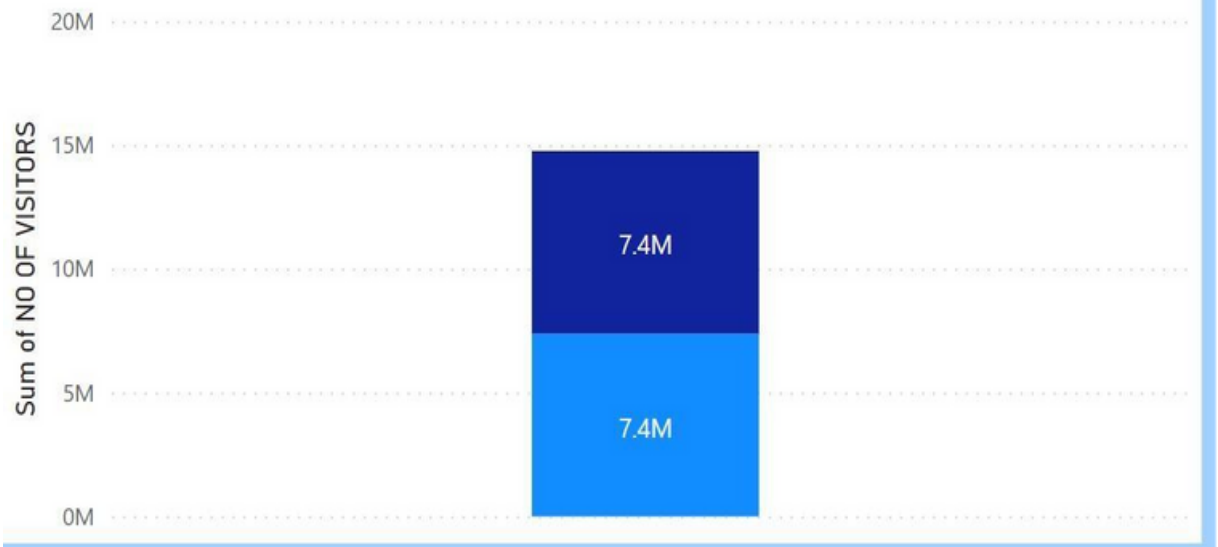


Fig 6.1 Number of visitors

TOTAL AGE by FAMILY

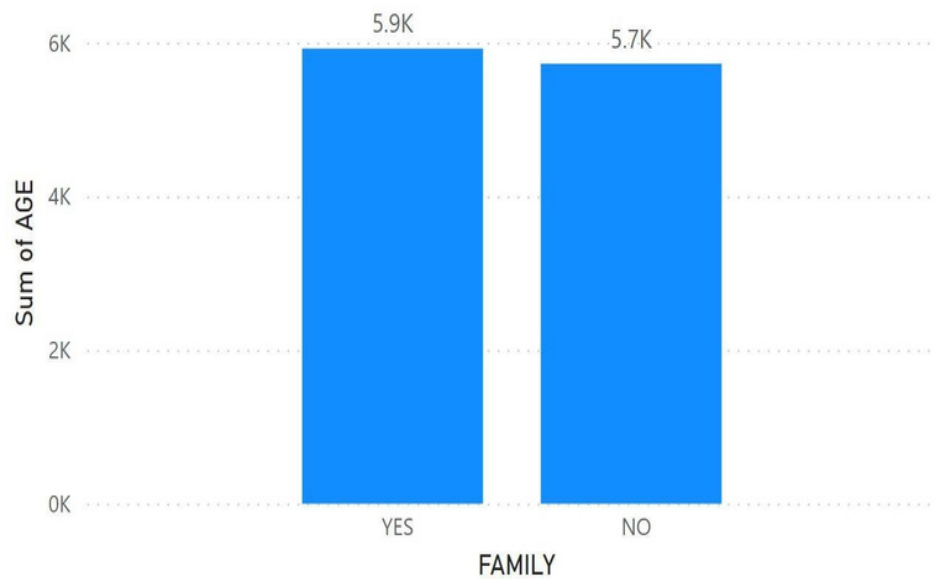


Fig 6.2 Sum of age

NO OF VISITORS by NATIONALITY

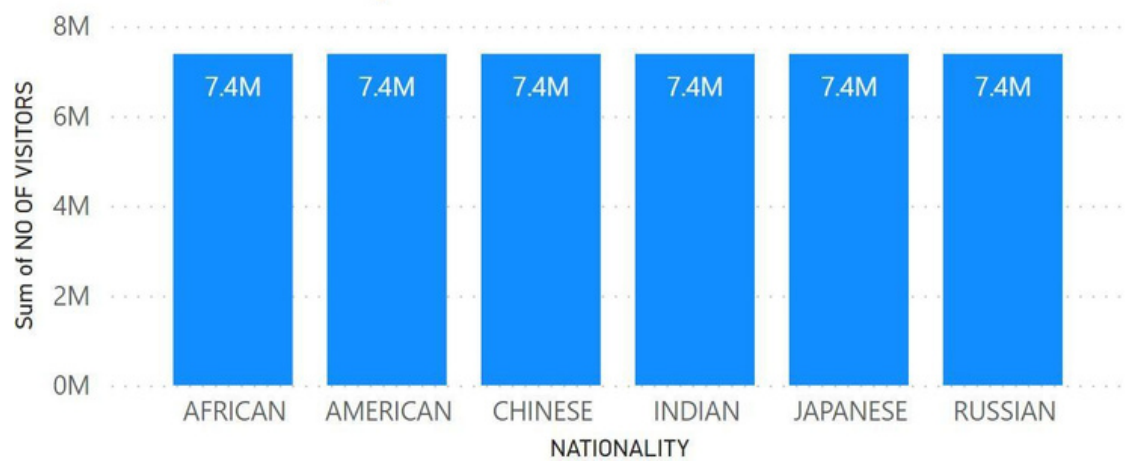


Fig 6.3 Number of visitors by nationality

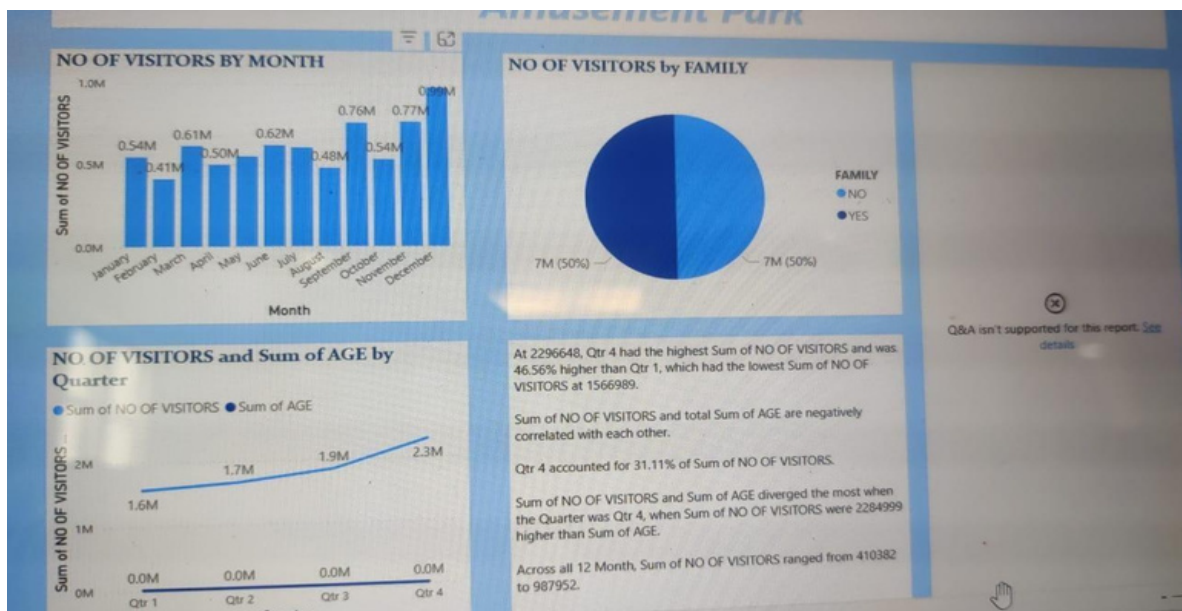


Fig 6.5 Dashboard and output

CHAPTER 6

Conclusion

In conclusion, this project focused on analyzing and predicting the visitors count in an amusement park using Microsoft Excel and Power BI. The project involved collecting data such as visitors' nationality, age, visiting period, and type of rides, month-wise or date-wise, and entering it into an Excel sheet. The data was then imported into Power BI to create various KPIs such as pie charts, bar charts, and forecasting. The use of Power BI made it easier to identify the visitors' count based on various factors such as age, nationality, and gender. It also allowed for interactive data visualization and insights that helped in understanding the trends and patterns in visitor count. The results showed that Power BI was an effective tool for analyzing and predicting visitor count in amusement parks. The forecasting KPIs provided valuable insights into the expected visitor count and helped in planning for future events and attractions. The project demonstrated the importance of data analysis and visualization in making informed decisions in the amusement park industry. The use of Excel and Power BI provided an efficient and effective way to collect and analyze data, which can help in improving the visitor experience and increasing revenue for amusement parks.

REFERENCE:

- [1]Kim, J., Hwang, J., & Lee, S. (2018). Analyzing the determinants of theme park attendance: A case study of Everland Resort in Korea. *Journal of Travel & Tourism Marketing*, 35(2), 180-192.
- [2]Wang, L., Zhang, J., & Guo, Y. (2018). Analysis and prediction of theme park visitors using time series models. *Journal of China Tourism Research*, 14(1), 25-39.
- [3]Yoon, H., Jang, S., & Lee, S. (2019). Analysis of factors influencing visitor attendance at theme parks using regression analysis: A case study of a major theme park in South Korea. *Sustainability*, 11(4), 1064.
- [4]Chen, J. S., & Huang, S. Y. (2019). Analysis of the factors affecting the attendance of theme parks. *Journal of Retailing and Consumer Services*, 50, 78-85.
- [5]Yang, W., Liu, B., & Huang, J. (2020). Forecasting the daily visitors of a theme park using a seasonal ARIMA model. *Journal of Travel Research*, 59(1), 136-149.
- Zhang, H., & Huang, S. (2021). Predicting the attendance of theme parks based on deep learning techniques: A case study of Disneyland Paris. *Sustainability*, 13(5), 2835.