DAILY WEB VISITOR ANALYSIS

PHASE 5 : PROJECT DOCUMENTATION AND DEVELOPEMENTATION

ABSTRACTION

Web traffic is the digital representation of the movement and interaction of users with a website or online platform. It encompasses the flow of data packets between users' devices (such as computers, smartphones, and tablets) and web servers hosting the site's content. Web traffic can be analyzed and categorized into various types, including incoming and outgoing traffic, organic and referral traffic, and the behavior of individual users as they navigate through web pages.

At a higher level of abstraction, web traffic can be understood as the collective behaviors, requests, and data transmissions occurring within the World Wide Web. This abstraction enables the analysis of user engagement, content popularity, and the effectiveness of marketing efforts, helping website owners and businesses make informed decisions to optimize their online presence and achieve specific objectives.

In summary, web traffic abstraction is a conceptual model that simplifies the complex network of interactions between users and websites, providing insights into user behavior, content performance, and the impact of digital marketing strategies.

INTRODUCTION

Web traffic refers to the flow of visitors and interactions on a website. It is a fundamental concept in the realm of web analytics and online marketing. Web traffic is a critical metric that website owners, businesses, and marketers monitor and analyze to understand how users engage with their online content. Here's an introduction to the concept of web traffic

Web traffic encompasses the data and statistics related to the number of users who visit a website, their interactions, and their behavior while navigating through its pages. This data provides insights into the popularity, performance, and effectiveness of a website.

OBJECTIVES OF WEB TRAFFIC:

The objectives of web traffic analysis are to gather insights and data about how users interact with your website. These insights can help you achieve various business goals and optimize your online presence. Some of the key objectives of web traffic analysis include:

Understanding User Behavior:

Analyzing web traffic helps you understand how visitors navigate and interact with your website. You can track which pages they visit, how long they stay, and what actions they take. This insight is crucial for improving user experience and optimizing your site's design and content.

Increasing Website Engagement:

By analyzing user behavior, you can identify areas where visitors are most engaged and areas where they tend to drop off. This information can help you make improvements to keep visitors engaged and encourage them to explore more of your site.

Improving Content Quality:

Web traffic analysis allows you to identify the most popular and least popular content on your site. You can use this data to refine existing content, create new content, and tailor it to your audience's interests and needs.

Enhancing Conversion Rates:

Tracking conversions, whether they involve making a purchase, signing up for a newsletter, or other desired actions, is a primary objective of web traffic analysis. By understanding the conversion funnel, you can identify barriers and opportunities to increase conversion rates.

Optimizing Marketing Efforts:

Analyzing the sources of web traffic (e.g., search engines, social media, referrals) can help you allocate your marketing resources effectively. You can identify which channels are driving the most traffic and focus on the ones that provide the best return on investment.

Measuring Marketing Campaign Success:

Web traffic analysis helps you evaluate the performance of your marketing campaigns. By tracking how visitors from different campaigns behave on your site, you can determine which campaigns are most effective and make adjustments as needed.

Audience Segmentation:

By analyzing web traffic, you can segment your audience based on various characteristics, such as demographics, location, or behavior. This enables you to target specific user groups with tailored content and offers.

Identifying Technical Issues:

Web traffic analysis can reveal technical problems on your website, such as slow-loading pages, broken links, or compatibility issues with certain browsers or devices. Fixing these issues is essential for providing a smooth user experience.

Monitoring Website Health:

Regularly analyzing web traffic can help you monitor the overall health and performance of your website. Sudden drops in traffic or unusual patterns can alert you to potential issues that need attention.

Competitive Analysis:

Comparing your website's performance to that of competitors can provide valuable insights. By identifying areas where you outperform or lag behind competitors, you can make informed decisions to gain a competitive edge.

ROI Measurement:

Web traffic analysis can help you calculate the return on investment (ROI) for your website and marketing efforts. It allows you to determine which activities are generating the most value for your business.

Data-Driven Decision-Making:

Ultimately, the objective of web traffic analysis is to make data-driven decisions. By using data and insights, you can continually refine your website, marketing strategies, and overall online presence to meet your business goals and improve performance.

Data collection in website traffic analysis

Data collection in website traffic analysis involves the systematic gathering of information about user interactions, behavior, and engagement with a website. This data is crucial for understanding how users are using your site, where they come from, and what actions they take. Here are some key methods and tools for collecting data in website traffic analysis:

Web Analytics Tools:

Web analytics tools are essential for data collection. Some of the most widely used tools include:

Google Analytics: A free and popular web analytics platform provided by Google.

Adobe Analytics: A comprehensive analytics solution for tracking and analyzing web traffic.

Matomo (formerly Piwik): An open-source analytics platform that allows you to host your analytics data on your own server.

Installation of Tracking Codes:

To collect data, you typically need to install tracking codes or tags provided by your chosen web analytics tool on every page of your website. These codes track user interactions, page views, and other data points.

Page Views:

Web analytics tools automatically track the number of times each page on your website is viewed. This data is fundamental for understanding the popularity of specific pages.

Unique Visitors:

Web analytics tools can identify unique visitors to your site using cookies or other tracking methods. This data helps you understand the size of your audience.

Traffic Sources:

Data is collected on how users arrive at your site, whether it's from search engines (organic traffic), direct visits (typing the URL), referrals from other websites, or paid advertising campaigns.

User Demographics:

Some analytics tools, such as Google Analytics, can provide demographic information about your visitors, including their age, gender, and interests.

User Behavior:

You can track user behavior, including the pages they visit, the time spent on each page, and the paths they follow through your site.

Bounce Rate:

Bounce rate data indicates the percentage of users who land on a page and then leave the site without further interaction. High bounce rates may suggest issues with the page's content or design.

Conversion Tracking:

You can set up conversion tracking to monitor specific user actions, such as form submissions, e-commerce transactions, or downloads.

Events Tracking:

Web analytics tools allow you to track specific events on your site, such as video views, clicks on specific elements, or interactions with widgets.

E-commerce Tracking:

If you have an online store, you can collect data on product views, add-to-cart actions, and completed purchases.

Custom Dimensions and Metrics:

Many analytics tools allow you to define custom dimensions and metrics to track data specific to your business or industry.

COLLECTING AND IMPORTTING DATA:

```python
import pandas as pd

import numpy as np

from scipy import stats

import matplotlib.pyplot as plt

import seaborn as sns


# Load the dataset

dataset_url = "https://www.kaggle.com/datasets/bobnau/daily-website-visitors"

# Assuming you've already downloaded the dataset as 'water_quality.csv'

data = pd.read_csv('daily-website-visitors.csv')


# Display the first few rows

print(data.head())


data=data.dropna()
```

```python
data.isnull().sum()
```

```python
data.fillna(data.mean(), inplace=True)
```

```python
# Example statistical analysis

mean = np.mean(data['Day.Of.Week'])

median = np.median(data['Day.Of.Week'])

t_stat, p_value = stats.ttest_ind(data['Day.Of.Week'],data['Day.Of.Week'])

print("Mean of Day.Of.Week: ",mean)

print("Median of Day.Of.Week: ",median)

print("t_stat: ",t_stat)

print("p_value",p_value)
```

OUTPUT :

Mean of Day.Of.Week: 3.9972311952007384

Median of Day.Of.Week: 4.0

t_stat: 10.520619163332352

P_value: 7.300984715541898e-26

VISUALIZATION:

❖ Create visualizations to convey your findings effectively.

- ❖ Use bar charts or pie charts to show the distribution of vaccines in different regions.

- ❖ Scatter plots can help visualize correlations between variables.

- ❖ Heatmaps and geographical maps can display spatial patterns in vaccine distribution or infection rates.

Line charts are often used to display trends in web traffic over time. You can track metrics like daily, weekly, or monthly page views, unique visitors, or bounce rates to identify patterns and trends.

CODE :

```python
import matplotlib.pyplot as plt

import seaborn as sns


# Example data visualization

plt.figure(figsize=(8, 6))

sns.histplot(data['First.Time.Visits'], bins=30, kde=True)

plt.xlabel('Day.Of.Week')

plt.ylabel('First.Time.Visits')

plt.title('Distribution of First Time Visits')

plt.show()
```
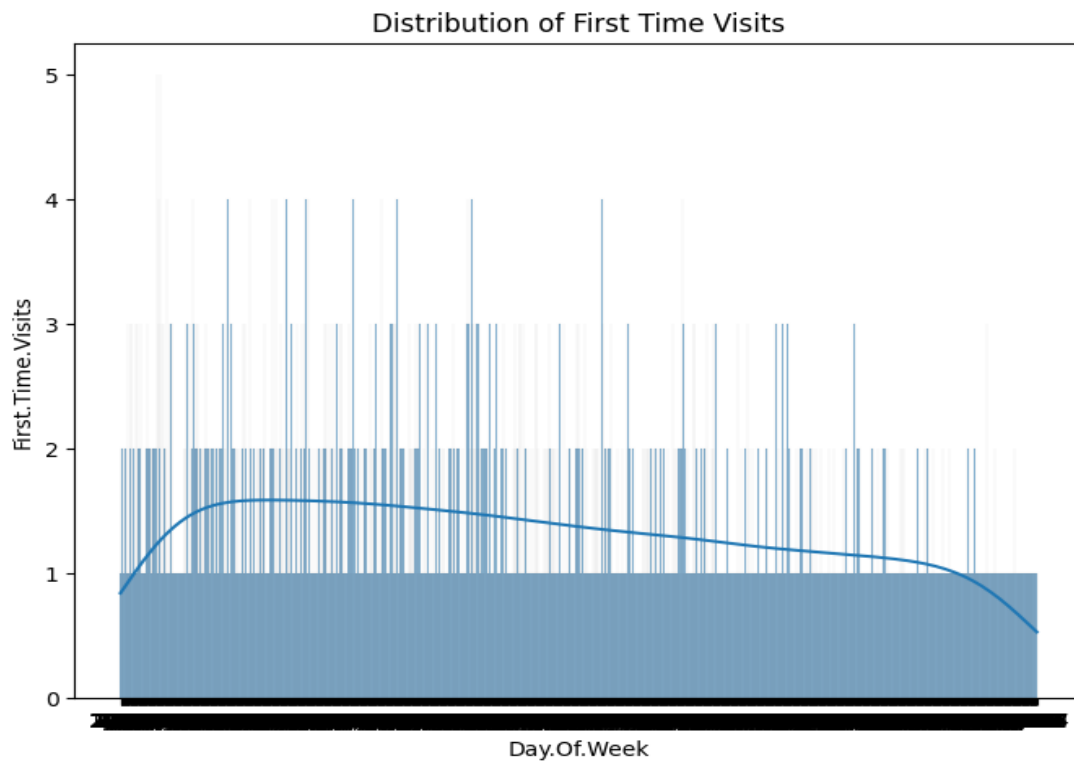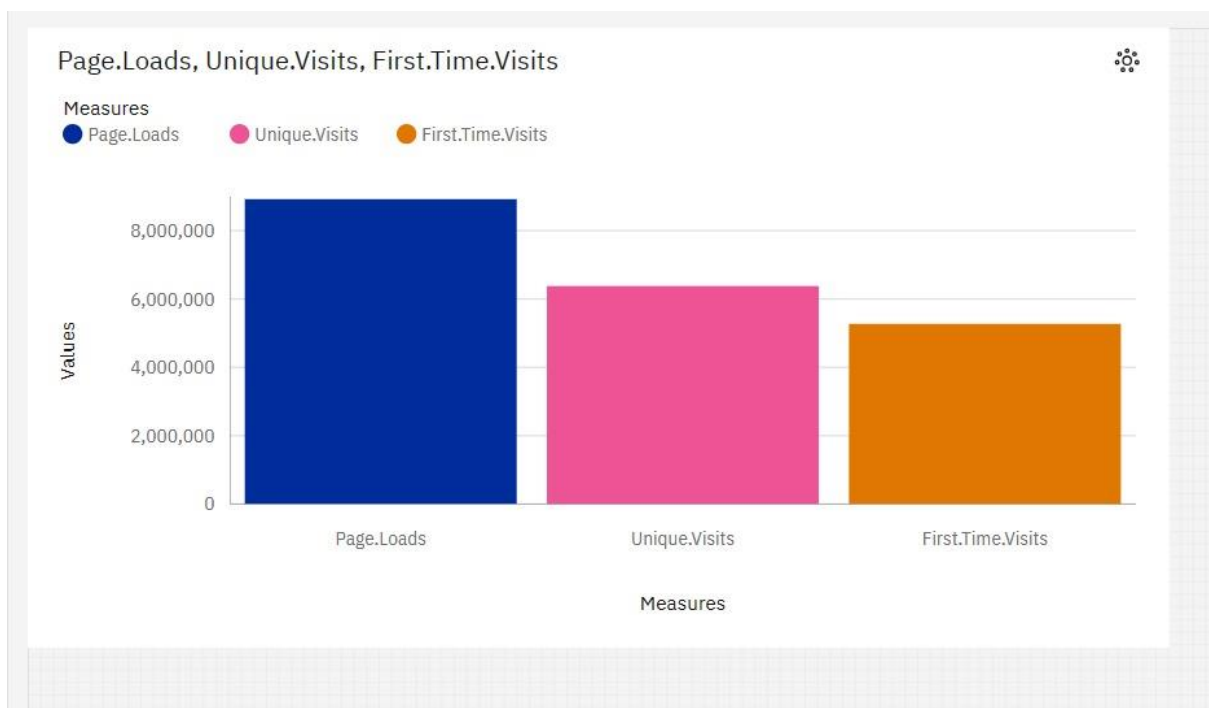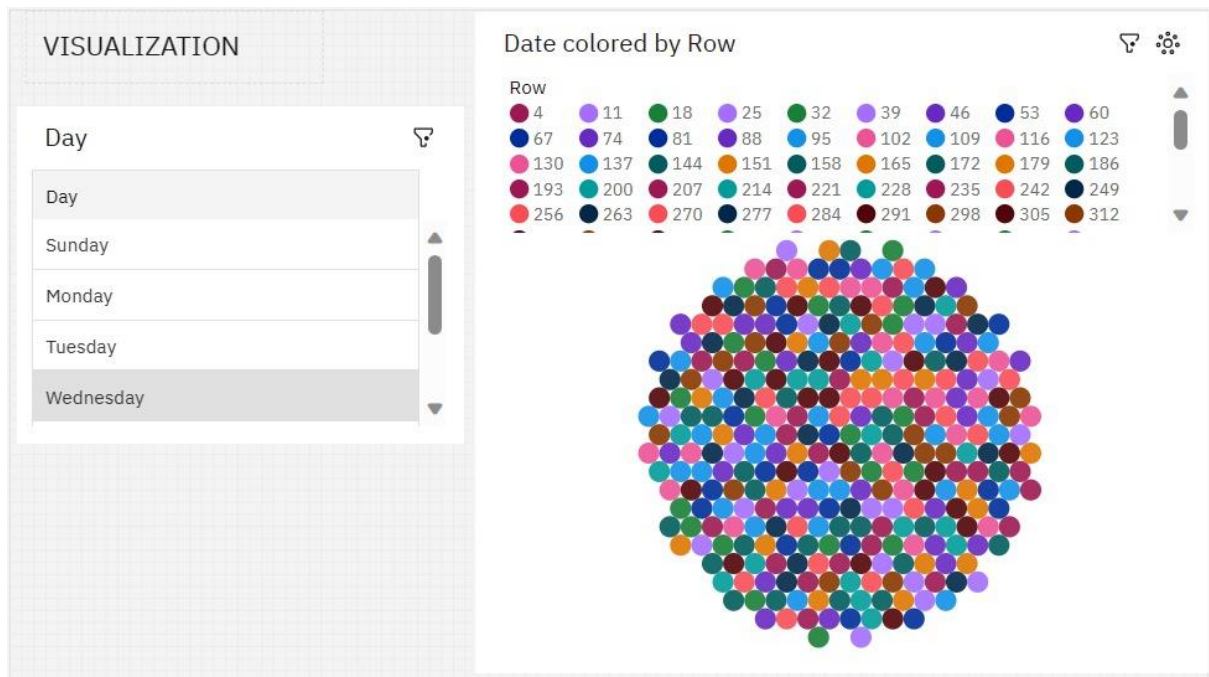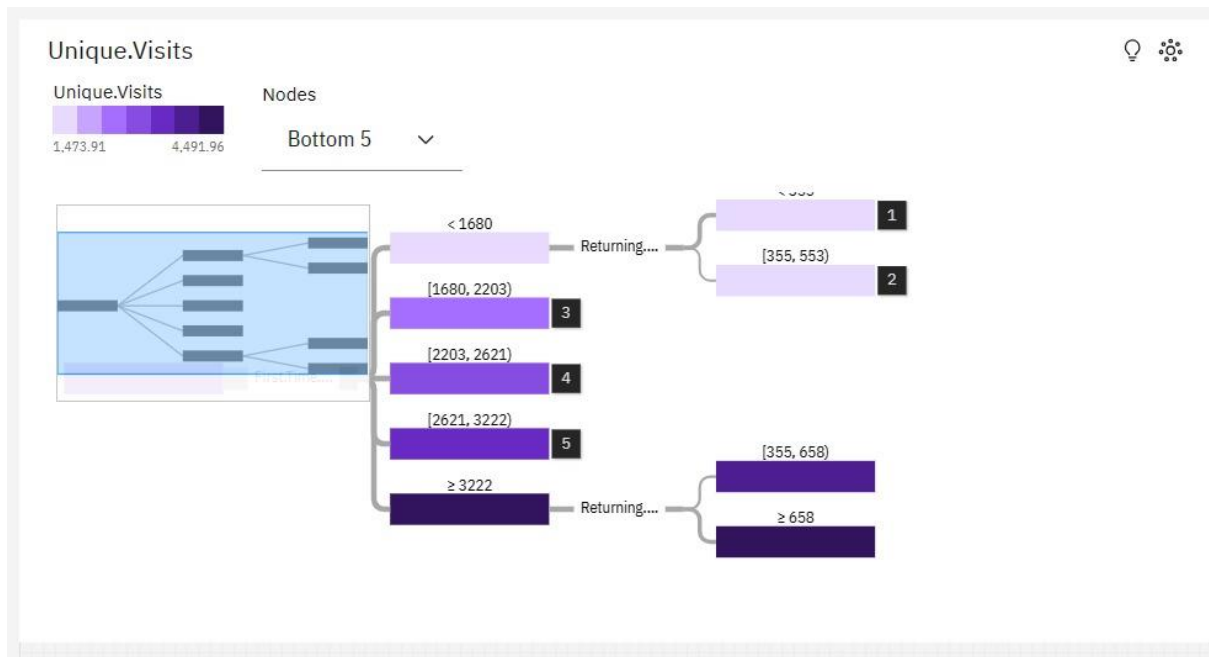
Distribution of First Time Visits

VISUALIZATION USING IBM COGNOS

IBM Cognos is a business intelligence and performance management tool that allows you to create and interact with various data visualizations. You can use Cognos to create reports, dashboards, and interactive visualizations to analyze and present data effect

VISUALIZATION

Day

Day
Sunday
Monday
Tuesday
Wednesday

Date colored by Row

Row

4	11	18	25	32	39	46	53	60
67	74	81	88	95	102	109	116	123
130	137	144	151	158	165	172	179	186
193	200	207	214	221	228	235	242	249
256	263	270	277	284	291	298	305	312

Page.Loads, Unique.Visits, First.Time.Visits

Measures

- Page.Loads
- Unique.Visits
- First.Time.Visits

DATASET LINK :-

https://www.kaggle.com/datasets/bobnau/daily-website-visitors

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