**NM PROJECT**

**PHASE 1 REPORT**

***WEBSITE TRAFFIC ANALYSIS***

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**PROBLEM DEFINITION**

The project involves analysing website traffic data to gain insights into user behaviour, popular pages, and traffic sources. The goal is to help website owners enhance the user experience by understanding how visitors interact with the site. This project encompasses defining the analysis objectives, collecting website traffic data, using IBM Cognos for data visualization, and integrating Python code for advanced analysis.

**DATASET CONTENT:**

1. **Website Traffic Logs:**

This dataset contains logs of website traffic, including information such as timestamps, IP addresses, user agents, and requested URLs. It provides the raw data for analysing user behaviour.

1. **User Demographics:**

If available, data on user demographics such as age, gender, location, and interests can provide valuable insights into the website's audience.

1. **Traffic Sources:**

Information about where the website traffic is coming from, including search engines, social media, direct visits, and referral websites. This helps in understanding the effectiveness of different marketing channels.

1. **Page Views:**

Data on the pages visited by users, including the page URL, time spent on each page, and the sequence of pages visited. This helps identify popular pages and user navigation patterns.

1. **Conversion Data:**

If applicable, data on user conversions, such as form submissions, purchases, or downloads. This is crucial for assessing the website's effectiveness in achieving its goals.

1. **Bounce Rates:**

Information about users who land on a page and leave without interacting with the site further. High bounce rates may indicate issues with landing page design or content.

1. **Session Data:**

Details on user sessions, including session duration, entry and exit pages, and interactions within a session. This helps in understanding user engagement.

1. **Event Tracking:**

If the website uses event tracking, data on specific user interactions like clicks, downloads, video views, or other custom events.

1. **Error Logs:**

Records of any errors or issues encountered by users during their visits, including broken links or server errors.

**DESIGN THINKING:**

**1. Define Analysis Objectives:**

Clearly define the specific goals of the analysis. For example, improving user engagement, optimizing conversion rates, or identifying website performance issues.

**2. Data Collection and Preprocessing:**

Collect website traffic data from various sources, including server logs, analytics tools (e.g., Google Analytics), and databases.

Clean and preprocess the data to handle missing values, outliers, and inconsistencies.

**3. Data Integration:**

Integrate data from different sources into a unified dataset for analysis. Use tools like ETL (Extract, Transform, Load) processes if necessary.

**4. Exploratory Data Analysis (EDA):**

Conduct EDA to gain initial insights into the data. Explore user behavior patterns, traffic sources, and page popularity.

Visualize key metrics such as page views, bounce rates, and conversion rates.

**5. Data Visualization with IBM Cognos:**

Utilize IBM Cognos or similar data visualization tools to create interactive dashboards and reports for website owners and stakeholders.

Visualize trends, user segments, and traffic sources to make data-driven decisions.

**6. Advanced Analysis with Python:**

Use Python for more advanced analysis, such as machine learning models to predict user behavior or anomaly detection for identifying website issues.

Implement custom scripts to extract insights from raw data, perform sentiment analysis on user comments, or create recommendation systems.

**7. User Behavior Analysis:**

Analyze user navigation patterns to identify common paths users take through the website.

Investigate factors leading to high bounce rates and low engagement.

**8. A/B Testing and Experimentation:**

Implement A/B tests to assess the impact of changes to the website, such as design modifications or content updates.

Analyze A/B test results to determine which changes are effective.

**9. Recommendations and Actionable Insights:**

Provide actionable recommendations to website owners based on the analysis, such as optimizing landing pages, improving site speed, or targeting specific user segments with tailored content.

**10. Monitoring and Iteration:**

Set up continuous monitoring of website metrics to track the impact of changes over time.

Iterate on the analysis and recommendations as new data becomes available and the website evolves.

**11. Feedback Loop:**

Maintain an open feedback loop with website owners and stakeholders to incorporate their insights and adapt the analysis approach to evolving needs and goals.

This design thinking process will help you systematically analyze website traffic data and provide valuable insights for enhancing the user experience and achieving website objectives.