

website traffic analysis with ibm cognos-phase 2 document

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1.INTRODUCTION:

Website analysis with IBM Cognos involves using Cognos analytics tools to gain insights into website performance, user behavior, and other key metrics. IBM Cognos is a business intelligence and performance management software suite that enables users to extract and analyze data from various sources, including websites, to make informed business decisions.

1.1Data Collection: Website analysis begins with collecting relevant data from your website. This data can include website traffic, user demographics, page views, bounce rates, and conversion rates. Tools like Google Analytics can collect this data and store it for further analysis.

1.2 Data Integration:IBM Cognos allows you to integrate data from various sources, including your website analytics data. By integrating this data, you can create a comprehensive view of your website performance alongside other business data, such as sales figures or customer demographics.

1.3Data Modeling:After integrating the data, you can create data models using Cognos Framework Manager. Data modeling involves organizing and structuring the data in a way that makes it easier to analyze. You can define relationships, calculations, and business rules to prepare the data for analysis.

1.4 Reporting and Dashboard Creation:Cognos offers a user-friendly interface for creating interactive reports and dashboards. You can use drag-and-drop features to visualize website analytics data. For instance, you can create reports that show website traffic trends over time, popular pages, user engagement, and conversion rates. Dashboards provide a real-time overview of your website's

performance metrics in a visually appealing format.

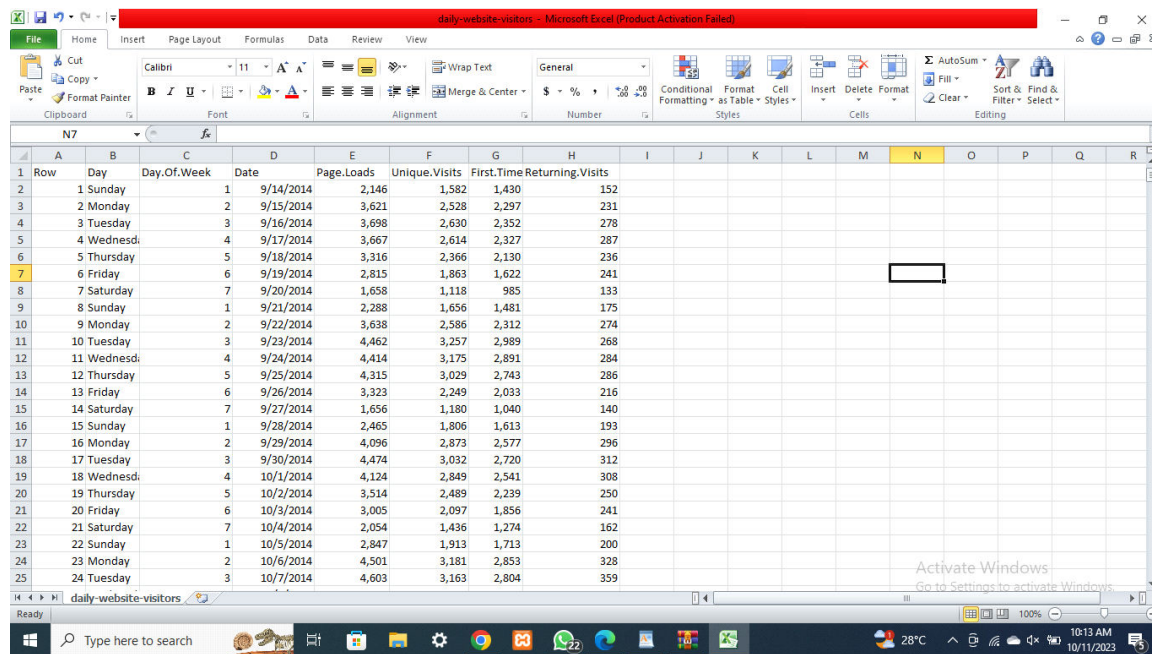
1.5 Data Analysis and Exploration:Cognos allows users to explore data in-depth. You can perform ad-hoc analysis, drill down into specific metrics, and identify patterns and trends. Advanced analytics tools in Cognos enable users to apply statistical methods and predictive analytics to gain valuable insights into user behavior and website performance.

1.6 Collaboration and Sharing:Cognos enables collaboration among team members. You can share reports and dashboards with stakeholders, allowing them to interact with the data and gain insights. Scheduled reports and automated alerts can keep stakeholders informed about critical website metrics.

1.7 Performance Optimization:By analyzing website data using Cognos, you can identify areas for improvement. For instance, if you observe a high bounce rate on certain pages, you can investigate further to understand why users are leaving those pages. Data-driven insights can guide website optimization efforts to enhance user experience and increase conversions.

2.0 DATASET:

The dataset used for this analysis is "Daily website visitors" document by kaggle.com website.



Row	Day	Day.Of.Week	Date	Page.Loads	Unique.Visits	First.Time Returning.Visits
1	Sunday	1	9/14/2014	2,146	1,582	1,430
2	Monday	2	9/15/2014	3,621	2,528	2,297
3	Tuesday	3	9/16/2014	3,698	2,630	2,352
4	Wednesday	4	9/17/2014	3,667	2,614	2,327
5	Thursday	5	9/18/2014	3,316	2,366	2,130
6	Friday	6	9/19/2014	2,815	1,863	1,622
7	Saturday	7	9/20/2014	1,658	1,118	985
8	Sunday	1	9/21/2014	2,288	1,656	1,481
9	Monday	2	9/22/2014	3,638	2,586	2,312
10	Tuesday	3	9/23/2014	4,462	3,257	2,989
11	Wednesday	4	9/24/2014	4,414	3,175	2,891
12	Thursday	5	9/25/2014	4,315	3,029	2,743
13	Friday	6	9/26/2014	3,323	2,249	2,033
14	Saturday	7	9/27/2014	1,656	1,180	1,040
15	Sunday	1	9/28/2014	2,465	1,806	1,613
16	Monday	2	9/29/2014	4,096	2,873	2,577
17	Tuesday	3	9/30/2014	4,474	3,032	2,720
18	Wednesday	4	10/1/2014	4,124	2,849	2,541
19	Thursday	5	10/2/2014	3,514	2,489	2,239
20	Friday	6	10/3/2014	3,005	2,097	1,856
21	Saturday	7	10/4/2014	2,054	1,436	1,274
22	Sunday	1	10/5/2014	2,847	1,913	1,713
23	Monday	2	10/6/2014	4,501	3,181	2,853
24	Tuesday	3	10/7/2014	4,603	3,163	2,804

figure 1:sample dataset

3.0 INNOVATION OBJECTIVES

3.1 Data Acquisition:

Download and import the "Daily Website Visitors" dataset from Kaggle into your analytics environment.

3.2 Exploratory Data Analysis (EDA):

Conduct EDA to understand the dataset's characteristics, patterns, and correlations. Visualize key metrics and trends in website traffic.

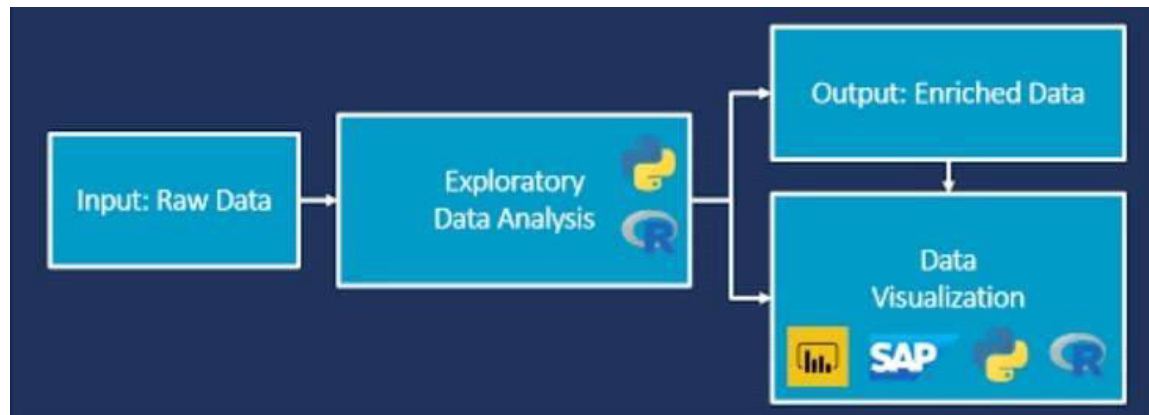


figure 2:EDA process

3.3 Analysing the Data:

Regularly analyze data collected from the real-time analytics tools and experiments. Adjust strategies based on insights derived from the dataset.

4.0 INCLUSION OF MACHINE LEARNING MODEL

4.1 Regression Analysis: Linear regression or more advanced methods like polynomial regression can be used to model and predict traffic trends over time.

4.2 Time Series Analysis: Techniques like ARIMA (AutoRegressive Integrated Moving Average) can help in forecasting website traffic based on historical data.

4.3 Classification Algorithms: These can be used to categorize website visitors, such as decision trees, random forests, or support vector machines, to identify different user segments or traffic sources.

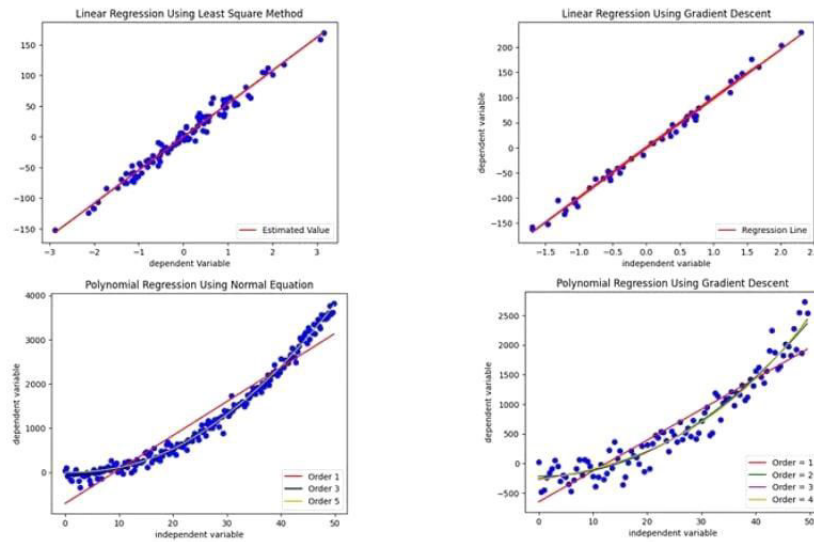


figure 3: regression analysis sample output

5.0 VISUALIZATION METHOD

5.1 Bar Charts: Bar charts are useful for displaying metrics like the number of page views, unique visitors, or bounce rates over a specific time period.

5.2 Line Charts: Line charts are effective for showing trends in website traffic data, such as changes in visitor numbers over time.

5.3 Pie Charts: Pie charts can be used to represent the distribution of traffic sources, showing the percentage of traffic coming from direct visits, search engines, social media, etc.

5.4 Heat Maps: Heat maps can provide insights into user engagement by showing which parts of a webpage receive the most clicks or interaction. This helps in optimizing the website's layout.

6.0 CONCLUSION & FUTURE PHASES

our team has planned to integrate machine learning concepts to solve website traffics ex: traffic in anna university result portal also various regression techniques as an innovative idea through the project and also implement the same in the upcoming phase 3 (i.e) development phase 1.