Project Design Phase-II

Solution Requirements (Functional & Non-functional)

Date	28 October 2022
Team ID	PNT2022TMID37686
Project Name	A New Hint To Transportation - Analysis of the NYC Bike Share System
Maximum Marks	4 Marks

Functional Requirements:

Following are the functional requirements of the proposed solution.

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	User Registration	Registration through Form Registration through Gmail Registration through LinkedIn
FR-2	User Confirmation	Confirmation via Email Confirmation via OTP
FR-3	Collection of Data	Utilizing the NYC Citi Bike assists in gathering information on the various trips that various users of Citi Bike take. These data were then organised into datasets and made available for further study and visualisation.
FR-4	Analysis of Data	Preprocessing and filtering the provided data in accordance with the sub-requirements task's is part of the analysis process. Data analysis and visualisation are both aided by the use of machine learning algorithms to glean more insights from the data..
FR-5	Display (Visualization) of Data	Various visualisations are used depending on the subtask being handled. These visualisations are then combined and shown on a dashboard, which is a tool for giving customers business information. Finding the top 10 Start stations according to customer age group and showing the most popular bikes according to trip time are a few of the various sub-tasks included in this requirement.

Non-functional Requirements:

Following are the non-functional requirements of the proposed solution.

FR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	The dashboard gives users access to an operational report that is simple to read and useful for understanding market trends and company insights. Data can be examined from various angles and in more depth by using an interactive dashboard to drill down and filter operating information.
NFR-2	**Security**	Based on the Citi Bike utilisation data and its analysis, several important business decisions will be made, which will be appropriately secured. Data and visualisation reports are only available to a certain group of clients/users.
NFR-3	**Reliability**	This research offers a trustworthy and effective way to understand how well this bike-sharing programme performed in 2018. Utilizing the IBM Cognos Platform ensures operational report production, upkeep, and accessibility with industry-standard reliability (dashboard).
NFR-4	**Performance**	The effectiveness of a bike-sharing system in terms of both its spatial and operational efficiency. In order to increase the operational effectiveness of the bike-sharing system, it is critical to assess the state of bike lanes from the viewpoint of public bike riders. The characteristics of bike stations and the distance between bike stations and other amenities are examined by the bikesharing system dashboard. The evaluation findings can be used to enhance the public bike-sharing service.
NFR-5	**Availability**	The bicycle-sharing programme is a form of shared transportation in which people can rent bicycles at a reasonable cost for a limited amount of time. CitiBike offers two different kinds of docking systems: docking systems, which allow customers to borrow a bike from one dock and return it to another port within the system; and dockless systems, which are node-free and depend on smart technology. Both forms can use smartphone online mapping to find close-by ports and bikes that are available.

NFR-6	**Scalability**	Urban inhabitants can immediately get access to bike-sharing programmes, which may make the transportation system more dependable. The programme can be expanded to include locations that are now unreachable by this type of transportation, as well as cities other than New York City, if the necessary data is available and obtained. This research will eventually be able to give a more in-depth picture of how bike-sharing functions in emergency situations as additional data becomes available, particularly in other cities with comparable extensive bike-sharing systems.