Churn Rate Analysis Using Mobile App Data for a Bank

Background Story:

Once upon a recent time, in the bustling heart of the financial world in Malaysia, stood Bank ABC, a well-established financial institution renowned for its innovative approach to banking and customer service. Bank ABC had launched a mobile banking app aimed at providing its customers with unparalleled convenience for managing their finances. The app was designed with the modern user in mind, featuring a sleek interface, intuitive navigation, and a wide array of financial services.

However, a few years after the app's successful launch, the data analytics team at Bank ABC began to notice an unsettling trend. Despite initial high download and usage rates, there appeared to be a significant drop-off in active app users. Concerned that this trend could signal a larger issue such as customer satisfaction or app functionality, the bank's leadership decided to initiate a comprehensive churn rate analysis to understand the reasons behind the declining app engagement.

You have been assigned to the task force. Your manager intends to present a POC (Proof of Concept) to the management to request a budget for launching the full-scale exercise.

Objective:

Your task is to analyse the churn rate related to the adoption of ABC bank's mobile app usage. The churn rate is specifically defined as the rate at which customers **stop using the app for at least one month**.

This exercise is broken down into two parts. The first task is to generate synthetic data that simulates the user data from Bank ABC's mobile app usage.

The second task is to create a dashboard using the generated data. You are free to choose your BI tools, though PowerBI is recommended.

Task 1: Synthetic Dataset Creation

Overview:

Generate a synthetic dataset that simulates user data for a bank's mobile app. This dataset will be fundamental in conducting the churn rate analysis. Feel free to express your creativity; however, the dataset should essentially consist of **at least two normalized tables** that can be related to each other. Example:

Requirements:

Dataset Size: Generate at least **5000 data points** to ensure a robust analysis.

Dataset Columns: The dataset should have the following information:

Username	A unique identifier or name for the app user.
Age	The age of the user.
State	The user's state in Malaysia.
Registration Date	The date on which the user registered on the app. Format: YYYY-MM-DD.
Last Login Date	The date on which the user registered on the app. Format: YYYY-MM-DD.

Guidelines:

1. Utilize a **Language Model like ChatGPT** to generate the synthetic data.
2. Ensure the data reflects a **realistic distribution** of ages, states, registration dates, and login patterns.
3. The dataset should be saved in a format that is **compatible with your BI tools** (e.g., CSV, Excel).

Task 2: Dashboard Creation using the Synthetic Data

Overview:

Utilize the synthetic dataset to create a PowerBI dashboard. The dashboard should visually present the churn analysis through four specific charts in the requirement below.

Requirements:

New Customer By Year	This chart should display the number of new users who registered for the app each year.
Churn Rate By Year	Show the annual churn rate, calculated as the percentage of users who stopped using the app for at least one month each year.
Churn Rate By Age Group	Analyze the churn rate segmented by different age groups using 10 year bin. (e.g., 18-28, 28-38, etc.).
Churn Rate By State	Present the churn rate based on the user's state of residence in Malaysia

Sample:

Below is a sample chart based on the above requirements, provided for illustration purposes. Feel free to express your creativity in your design.