Neural Design challenge for Business Analysts

1. **To monitor app engagement, there are some traditional KPIs that could be used, like:**

   - Retention rate and Churn rate: This two KPIs shows the number of users lost and retained by comparing the number of users in the current period and in a previous period.
     - Retention rate = Users that use the app in current period / Users that use the app in past period.
     - Churn rate = 1 - retention rateActive Users (Daily and Monthly): Number of users that opened the app in the defined period of time.

     This two KPIs should be monitored in a monthly bases as it is a long enough period to count all the active but not very frequent users of the app. We could also evaluate it in a shorter period of time by monitoring it weekly to identify patterns of use in different groups of users.

   - Number of active users (Daily and Monthly):
     - Number of users that opened the app in the stablished period of time

     This KPI Should be monitored in a daily, weekly and Monthly basis as it can help identify use patterns and give us an idea of how frequently are users active in the app. These KPIs can also be used to calculate other KPIS.

   - Sessions per active users (Daily):
     - Number of times in a day that the users open the app

     This KPI is calculated daily to determine how interested are the users in what is going on in the app. It can also help make decisions to improve the notifications or if it is necessary to implement a strategy to increase the attention towards the app.

   - Stickiness: It measures how likely to return the users are by comparing the daily users with the monthly users, the closer this two metrics are the more likely it is that the users return frequently to the app.
     - Stickiness = daily active users / monthly active users

     This KPI should be monitored monthly

   - Average Session length: Average time that users are spending on the app. To evaluate the engagement, it is enough with monitoring how often a user opens the app, it is also necessary to monitor the amount of time that a user spends in the app.
     - Average Session length = Total minutes spend in the app / Total number of users

     This KPI should be monitored daily and monthly.

   - Average number of interactions in the app: A valuable KPI to monitor for app engagement is the number of interactions the user have in every session, this would show if the users are really paying attention to the app or if they are just

opening and leaving it forgotten. Defining interactions as touching or clicking through the app to navigate to other sections.
- Average number of interactions in the app = number of interactions/ Number of sessions

This KPI should be monitored daily and monthly.

For more business related KPIs I would suggest specific KPIs to measure engagement of companies and influencer separately as they have different ways of using the app

Influencers
- Average number of posts: The average number of posts done by an influencer.
  - Average number of posts = number of posts done by influencers / Number of active influencer users

  This KPI should be monitored monthly.
- Average number of jobs accepted: The average number of jobs influencers accept in a month (or stablished period of time)
  - Average number of jobs accepted = Total number of accepted jobs/Total number of jobs posted

  This KPI should be monitored monthly

- Average number of jobs accepted per influencer: The average number of jobs that an influencer accept in a stablished period of time.
  - Average number of jobs accepted = Total number of accepted jobs/Total number of active influencers users

  This KPI should be monitored monthly

Brands
- Average number of jobs posted: The average number of jobs posted by brand users.
  - Average number of jobs posted = Number of jobs posted / Number of active brand users

  This KPI should be monitored monthly

- Average number of payments deposited: Average number of payments deposited by brand users.
  - Average number of payments deposited = Number of payments deposited/ Number of jobs posted

  This KPI should be monitored monthly

- Average number of influencers profiles viewed: Average number of influencers profile that a brand user view.
  - Average number of influencers profiles viewed = Number influencers profile viewed/ Number of active brand users

  This KPI should be monitored monthly

2. **How would you propose a problem resolution strategy with the stakeholders? Which facts would you present to them?**

   To resolve the definition difference between the two stakeholders I would introduce the concept of granularity that a KPI can have. Granularity makes reference as looking to the same metric with different levels of depth. With this we can build with a scope that covers both definitions. So for the stakeholder that understands active user as login frequency we can have a chart that show the number of users logged in within a period of time but for the stakeholder that understands active users as one that have interactions (click, touch, navigations) within the app we can show the number of interactions in certain period of time, both being the same KPI but with different levels of granularities one granularity being general interactions in the app and the other showing a specific interaction, to log in.

3. **It is a common practice to have many systems scattered all over: one might be hosting the Influur app, and others might be hosting models needed for daily operations. This usually benefits usability over scalability. Nevertheless, data centralization is crucial for its exploitation.**

   What should we do to centralize the data in order to display it in charts for KPI monitoring? What would you propose the data governance strategy should be?

   To centralize the data for monitoring the KPIs the best strategy is to create a data warehouse that stores all the transformed data (already calculated measures). This way the data is centralized but without storing all the data again. To be able to do this, different systems have to be implemented:

   1. Design a data warehouse with all the necessary KPIs and its attributes. For this I would suggest using a star schema composed of fact tables and dimensions where in the fact tables the numeric values are stored and in the dimensions the descriptive information is stored.

      Determine the different users that will have access to the data warehouse and its permissions. Because the raw data is not stored in there, the access policies can be a bit more relaxed.

   2. Create different ETLs that connect the data systems with the data warehouse. This programs will be responsible for extracting the needed data from the data systems, transforming it into what the star schema requieres and uploading it into the data warehouse automatically. For this we could use tools such as AWS Glue.

3. Connect the reports and dashboards to the data wharehouse. This solution will accelerate the report creation because the kris and metrics that are needed will come already calculated.

4. **Download the attached .csv file. This database contains credit card information and transactions from multiple customers. Your task is to exploit the information contained in this database as you seem fit. Also, take the following affirmations into consideration.**

   The results of this last exercise can be checked in the following repository
   https://github.com/mdr-leon10/Business-Specialist-Challenge