Problem Statement - 1st AI for Good Hackathon - Theme : Infrastructure

Problem Statement

Of the 17 United Nations Sustainable Development Goals (SDGs), 9 goals are directly impacted by Infrastructure. India is on a massive infrastructure spree - with megacities expansion, special purpose districts, expressways, public infrastructure construction and more. Find trends whether it's in transportation, energy, urban planning, or public services. Predict where we are headed as a country using cutting edge AI. Join the Infrastructure theme to shape a more resilient, sustainable, and interconnected future for India.

The hackathon is focused to find the insights on the different use cases shared below which then can be used for creating solutions and new opportunities. Candidates can choose any of the use cases provided below. They're free to combine problem statements to drive richer insights. Indicative datasets for the problem statements have been provided but participants are expected to explore Open Government Data Platform India for more and other relevant datasets. The final deliverable requires participants to share insights via a Streamlit application built on Snowflake and by using other Snowflake features and capabilities.

Use Cases:

A. Use data from the India State Roads Transport Undertaking to find insights on fleet efficiency, types of fleet running in India, age of fleet, staff employment, number of accidents and others to uncover the state of truck drivers in India. Come up with recommendations as to how their work state can be improved.

   DataSets :

   a. [Growth of Indian Fleet by Type of Vessels from 1985 to 2022](#)
   b. [Fleet, Personnel and Financial Statistics 2016-17](#)
   c. [Road Transport Year Book 2019-20](#)
   d. [Road Transport Year Book 2017-18 & 2018-19](#)
   e. [Road Accidents in India 2019](#)
   f. [Review of the Performance of State Road Transport Undertakings (SRTUs) April,2016 - March, 2017](#)

g. [Review of the Performance of State Road Transport Undertakings (SRTUs) for 2017-18 and 2018-19](#)
h. [Basic Road Statistics of India 2017-18](#)

B. Construction - With ongoing constructions in megacities of India such as Delhi, Mumbai and Bengaluru, there are multiple construction norms and state laws that need to be adhered to. Create a Streamlit dashboard that discovers the state of the construction industry and if they employ safety practices, adhere to EHS standards, recycle waste, or use eco-friendly building materials.

DataSets :

a. [Reforms In Urban Planning Capacity In India](#)
b. [Dwelling and Projects Approved - HUDCO](#)
c. [Physical Performance of Rural Road Scheme](#)
d. [Quality and Quantity of Material Utilized in Road Construction](#)
e. [Status and Effectiveness of the Prescribed Second Tier Quality Control Mechanism](#)

C. Public Transport - As the cities become more populated, there's an innate demand for the availability of public transportation and even more so for micro-mobility. Gather data on public transportation availability, last mile connectivity, or even the impact of Shakti Scheme in India. Create a streamlit app and/or a predictive app that shows us the state of public transit and what we'd need to do to keep up with the demand. Focus on the hygiene of public transportation is a bonus. (hint: bio-toilets in railways)

DataSets:

a. [Passenger Bus Transport Operational Aggregates during 1979-80](#)
b. [Review of the Performance of State Road Transport Undertakings (SRTUs) April,2016 - March, 2017](#)
c. [Review of the Performance of State Road Transport Undertakings (SRTUs) for 2017-18 and 2018-19](#)

d. [Road Transport Year Book 2019-20](#)
   e. [Road Transport Year Book 2017-18 & 2018-19](#)
   f. [Operating Statistics of Trains](#)
   g. [Basic Fare of Ordinary Passenger Trains vis a vis Express Trains Over Non-Suburban Sections for Different Distances](#)

D. Housing - With urban housing rates skyrocketing in some cities, find the percentage of beneficiaries of the Pradhan Mantri Awas Yojana (PMAY) and discover the state of housing and personal sanitation in India.

DataSets:

   a. [Pradhan Mantri Awas Yojana (Urban)](#)
   b. [Progress Under Low Cost Sanitation](#)

Note: The below points should be covered in the provided solution. (Click here for Sample PPT)
1. How does Snowflake add value to the overall solution?
   ● Why was Snowflake considered for the solution,
   ● Are there alternatives?
2. Explain functional requirements.
3. Functional requirements to Snowflake Feature mapping
   a. Core Snowflake features
   b. Streamlit Application
4. (Optional) What are possible non-functional requirements(NFRs)

Judging Criteria: Prototype Round

1. Authenticity (10%): If the solution is yours and not copied. If it's an improvement, mention it.
2. Snowflake Platform Utilization (15%)
3. Snowflake Dev Tools Usage - VSCode Extensions, Snowflake CLI, REST API etc. (10%)
4. Code Quality and Readability (10%)
5. Streamlit App/ Predictive Capabilities (15%)

6. Identification of Functional and Non-functional requirements (20%) (Brownie points if NFRs are covered)
7. Presentation and Storytelling (20%)

Deliverables: Prototype Round

1. Source code in zip file
2. Presentation deck (Click here for Sample PPT)
3. Video Demonstration (with a walkthrough of code + predictive model if applicable + streamlit app) covering the solution and insights/recommendations (total video file(s) should not be more than 10 minutes)