

Topic 19

1. Title: *Strategic Aadhaar Centre Placement with Night Lights and Census Data*

2. **Description:** This challenge leverages nighttime light, population density, census data and existing Aadhaar centers to strategically identify optimal locations for new Aadhaar centers. This data-driven approach ensures efficient center placement, meeting high-demand areas while addressing the diverse needs of local population. By integrating these factors, proposed solution optimizes accessibility and enhances the overall effectiveness of Aadhaar services, revolutionizing the Aadhaar center placement process for improved coverage and user accessibility.

3. Objectives:

- a) Develop an algorithm that integrates nighttime light data to identify regions with varying degrees of urbanization.
- b) Utilize population statistics to pinpoint areas with high demand, emphasizing the need for Aadhaar services.
- c) Incorporate census insights to tailor Aadhaar center placement based on demographic characteristics, existing Aadhaar centers, ensuring community-centric solutions.

4. Outcomes:

- a) Improved efficiency in Aadhaar center placement, addressing the unique needs of diverse populations.
- b) Enhanced accessibility for residents through strategic deployment in high-demand areas.
- c) A data-driven model contributing to the overall effectiveness of Aadhaar services.

5. Relevant Data and Steps to Get Data:

- a) **Night time Light Data:** Will be provided by bhuvan.
- b) **Population Statistics:** Access demographic data from census databases or relevant government sources.
- c) **Census Insights:** Gather detailed demographic information from official census reports or government databases.
- d) **Additional Data:** Sample of Existing Aadhaar centers will be provided by bhuvan and gather open source village /city/town boundaries.

6. Steps to be Followed for Achieving the Objectives:

- a) **Data Integration:** Develop a system to merge and analyze nighttime light, population, and census data in par with administrative boundaries.
- b) **Algorithm Development:** Create algorithms to identify regions with high urbanization, population density, and specific demographic characteristics.
- c) **Strategic Placement Model:** Formulate a model that optimizes Aadhaar center placement based on the integrated data and algorithmic insights.
- d) **Resource Optimization:** Implement a system for efficient resource allocation, maximizing the impact of new Aadhaar centers.

7. Evaluation:

- a) **Effectiveness of Placement:** Assess how well the proposed solution strategically places Aadhaar centers in high-demand areas.
- b) **Data Integration:** Consider the efficiency of data integration and the accuracy of the algorithm in utilizing night-time light, population, and census data.
- c) **Performance:** This will be evaluated based on Scalability, Robustness etc.

- d) **User-Friendliness:** Evaluate the user-friendliness of the developed solution, assessing its ease of implementation, maintenance, and potential integration with existing systems.
- e) **Adaptability to Change:** Evaluate how well the solution adapts to changes in population dynamics, urban development, or other factors influencing Aadhaar center demand over time.

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