Topic 9

1. **Title:** ***Optimal Geospatial Indexing System for India***
2. **Description**: This challenge seeks to develop an efficient geospatial indexing system tailored specifically for India. Similar to existing solutions like S2, H3, and Geo-hash, the goal is to create a novel geospatial indexing system optimized for the unique geographic characteristics and data needs of India.
3. **Objectives**:
    a. Design a geospatial indexing system that balances grid granularity and efficiency.
    b. Ensure compatibility with diverse data sources and applications, including geolocation services, urban planning, and disaster management.
    c. Enhance data retrieval and query performance for India's complex and diverse landscapes.
4. **Expected Outcomes:**
    a. A novel geospatial indexing system customized for India.
    b. Improved geolocation services, urban planning, and disaster management.
    c. Enhanced data retrieval and query performance for geospatial data in India.
    d. Potential for broader applications in research, navigation, and logistics.
5. **Relevant data and steps to get the data from Bhuvan/ other sources:**
    a. Access any geospatial data from sources like Bhuvan, OpenStreetMap or any other data for Indian region.
    b. Collect diverse data types, including terrain, urban areas, transportation networks, and landmarks.
    c. Ensure data covers the entire geographic spectrum of India, from urban centers to remote regions.
6. **Steps to be followed for achieving the objectives:**
    a. Gather comprehensive geographic data for India.
    b. Preprocess and clean the data for indexing.
    c. Design an efficient geospatial indexing system taking India's diverse landscape into account.
    d. Ensure the indexing system is compatible with various data sources and applications.
    e. Fine-tune the system for improved data retrieval and query performance.
    f. Test the system against a variety of use cases and real-world data.
7. **Evaluation**
    a. Evaluate the accuracy and efficiency of the indexing system through benchmark testing.
    b. Assess the system's compatibility with different geospatial data sources and applications.
    c. Measure the performance improvements achieved with the new indexing system.
    d. Demonstrate the utility of the system in geolocation services, urban planning, disaster management, and other applications.
    e. Consider the uniqueness and innovation of the proposed geospatial indexing system for India.