



**SMART INDIA  
HACKATHON  
2022**

# Basic Details of the Team and Problem Statement

Ministry/Organization Name/Student Innovation:

Indian Space Research Organisation (ISRO)

PS Code:1517

**Problem Statement Title:** Identification of place names from a natural language sentence.

**Team Name:** Space Xplorers

**Team Leader Name:** Naitik Kharat

**Institute Code (AISHE):** S-1801

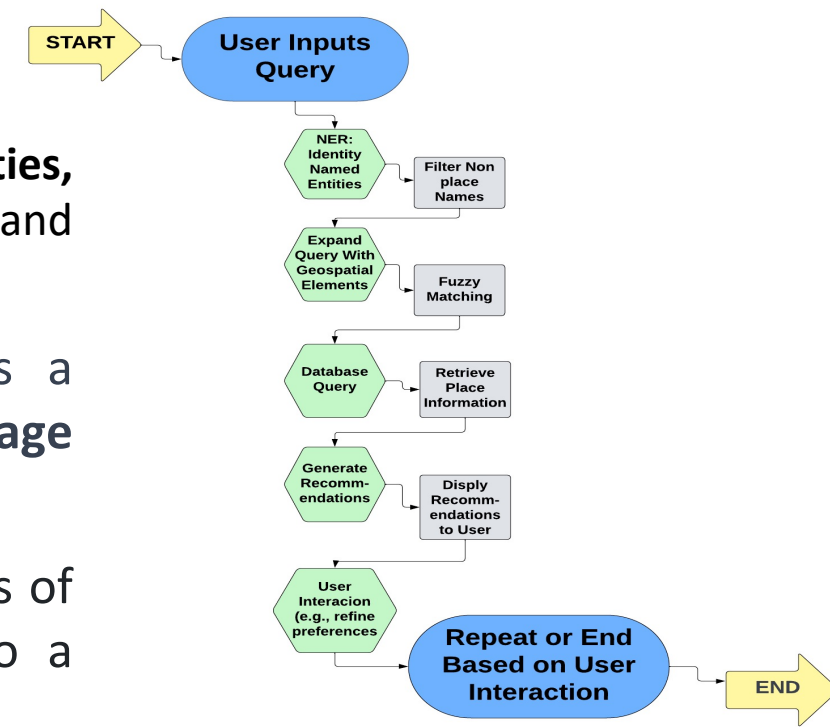
**Institute Name:** Government Polytechnic, Mumbai

**Theme Name:** Space Technology

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# Idea/Approach Details

- Developing a system that can extract the name of **geographical location, such as cities, country, landmarks** etc.. From given text input to enable geospatial queries and analyses
- ~~Standardized data is valuable~~ for geospatial systems, as it provides a reference for recognizing and normalizing place names in **natural language** input, making it easier to process and query geospatial information.
- It should take into account spelling errors in the names and multiple ways of spelling and mentioning the same entity in the query and map it to a **canonical name**
- This process ensures precise identification of **geospatial entities** in user queries, allowing for accurate geospatial analysis.
- Machine learning algorithms**, such as **Levenshtein distance** or more advanced techniques like deep learning models, can be used to improve fuzzy matching and identify the correct canonical name, even when there are **minor spelling errors**.
- These algorithms can handle **variations in spelling** and find the closest match in the canonical names database.



# Idea/Approach Details

## Dependencies

- ✓ **Natural Language Processing (NLP) Libraries**
- ✓ **Frameworks:** spaCy, NLTK
- ✓ **Geospatial Data Sources:** OpenStreetMap, HERE, Google Maps.
- ✓ **Web APIs:** APIs for converting place names into coordinates.
- ✓ **User Interface Tools:** HTML, CSS, JavaScript)
- ✓ **Skills and Expertise:** NLP, machine learning, geospatial data, data engineering, software development, and user experience design.

## Show stopper

- ❑ **Data Privacy and Security:** Handling location data requires careful consideration of privacy and security.
- ❑ **Accurate Geocoding:** Accurately converting place names mentioned in natural language into geographic coordinates (geocoding) can be challenging, especially with ambiguous or less common names.
- ❑ **Fuzzy Matching and Misspellings:** Accommodating misspellings, abbreviations, and alternate spellings of place names can be difficult.
- ❑ **Feedback and Error Handling:** Implementing a feedback mechanism and handling user-reported errors can be challenging.



# Team Member Details



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## Team Leader Name: Naitik Kharat

Branch : Diploma

Stream : AIML

Year (I,II,III,IV): I

## Team Member 1 Name: Isha Mathkar

Branch : Diploma

Stream : AIML

Year (I,II,III,IV): I

## Team Member 2 Name: Purva More

Branch : Diploma

Stream : AIML

Year (I,II,III,IV): I

## Team Member 3 Name: Nihanshu Jadhav

Branch : Diploma

Stream : AIML

Year (I,II,III,IV): I

## Team Member 4 Name: Nikhil Jadhav

Branch : Diploma

Stream : AIML

Year (I,II,III,IV): I

## Team Member 5 Name: Nikhil Gore

Branch : Diploma

Stream : AIML

Year (I,II,III,IV): I