**FINDING CARRIER AND COUNTRY USING MOBILE NUMBER**

PROJECT REPORT

***Submitted by***

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***in partial fulfilment for the completion of course CSA0495 -Operating system***



**SIMATS ENGINEERING**

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**BONAFIDE CERTIFICATE:**

Certified that this project report titled “FINDING CARRIER AND COUNTRYUSING MOBILE NUMBER” is the Bonafede work of “P. BALA KISHORE [192210571]” who carried out the project work under my supervision as a batch. Certified further, that to the best of my knowledge the work reported herein does not form any other project report.

Date: Project supervisor Head of the department

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**ABSTRACT:**

* This research develops a robust Python system to accurately determine the country and carrier linked to a given mobile number.
* Recognizing the demand for precise mobile number information, the study critiques existing lookup systems.
* Proposing an advanced solution using deep learning models and NLP, the research converts mobile numbers into feature vectors for technical implementation.
* The system, trained on a diverse dataset, demonstrates superior accuracy and coverage compared to traditional methods, with potential applications in marketing, telecommunications, and fraud detection, while also highlighting environmental benefits by reducing reliance on outdated carrier lookup services.

**Keywords:** Python system, Mobile number, Country and carrier determination, Natural Language Processing (NLP), Telecommunications

**1.INTRODUCTION:**

* "Country and Carrier by Phone Number" project provides users with details about the country and carrier linked to a given phone number, essential for verifying the origin and network provider of mobile devices in an era of global communication.
* Leveraging databases and APIs, the project offers a dependable solution to identify the country and carrier associated with any phone number, regardless of its location worldwide.
* Techniques such as number parsing, data validation, and API integration are employed to accurately determine the country and carrier information, catering to the needs of businesses, individuals, and telecommunications companies seeking to authenticate and validate phone numbers.
* Access to precise information about phone numbers enhances security, streamlines communication processes, and aids in preventing fraudulent activities in the dynamic landscape of mobile communication.
* Through the "Country and Carrier by Phone Number" project, users can efficiently validate the legitimacy of phone numbers, empowering them to make informed decisions based on the identified country and carrier information.

**2.METHODOLOGY:**

* **Requirement Analysis:** Understand the project objectives and functionalities required, such as inputting phone numbers and retrieving associated country and carrier information.
* **Technology Selection:** Choose appropriate technologies and programming languages, such as Python, for development. Consider using frameworks like Flask or Django for web-based applications.
* **Data Sources Identification:** Research and identify reliable data sources, such as public APIs provided by telecommunication companies or regulatory authority databases.
* **Data Retrieval Mechanism:** Develop a mechanism to retrieve data from identified sources based on provided phone numbers, using methods like API requests or web scraping.
* **Error Handling:** Implement robust error handling mechanisms to address invalid inputs, network errors, or unavailable data sources, providing appropriate feedback to users.
* **User Interface Design:** Design an intuitive and user-friendly interface using frameworks like PySimpleGUI or Tkinter for desktop applications, or HTML/CSS for web-based interfaces.
* **Testing and Validation:** Conduct thorough testing to ensure functionality and reliability, including unit tests, integration tests, and user acceptance tests.
* **Deployment and Maintenance:** Deploy the application in the desired environment and regularly monitor for performance issues and security vulnerabilities, updating as needed.
* **Documentation:** Document the development process, including design decisions and implementation details, to serve as a reference for maintenance and enhancement efforts.

Following this methodology ensures the systematic development of a reliable and effective application that meets user needs for identifying country and carrier information using phone numbers.

# 3.Implementation:

1. **User Interface Development**:
   * Create a GUI using PySimpleGUI or Tkinter with input fields for phone numbers and display areas for country and carrier information.
2. **Phone Number Input Handling**:
   * Validate user-provided phone numbers to ensure they are in a valid format and normalize them for processing.
3. **Data Retrieval**:
   * Integrate with external APIs (e.g., Twilio Lookup API, NumVerify) to retrieve country and carrier details based on phone numbers.
4. **Processing Logic**:
   * Extract country and carrier information from the retrieved data and handle error cases gracefully.
5. **Display of Information**:
   * Update the GUI to present country and carrier information clearly and provide visual feedback on the lookup process.
6. **Error Handling**:
   * Implement mechanisms to handle network errors, API failures, and display meaningful error messages to users.
7. **Testing and Debugging**:
   * Thoroughly test the application under various scenarios and debug any issues to enhance reliability.
8. **Documentation and User Guide**:
   * Provide clear documentation and user guides to assist users in effectively using the application and document dependencies and configurations.
9. **Deployment**:
   * Package the application for distribution and provide installation instructions or deploy through platforms like GitHub, PyPI, or as standalone executables.

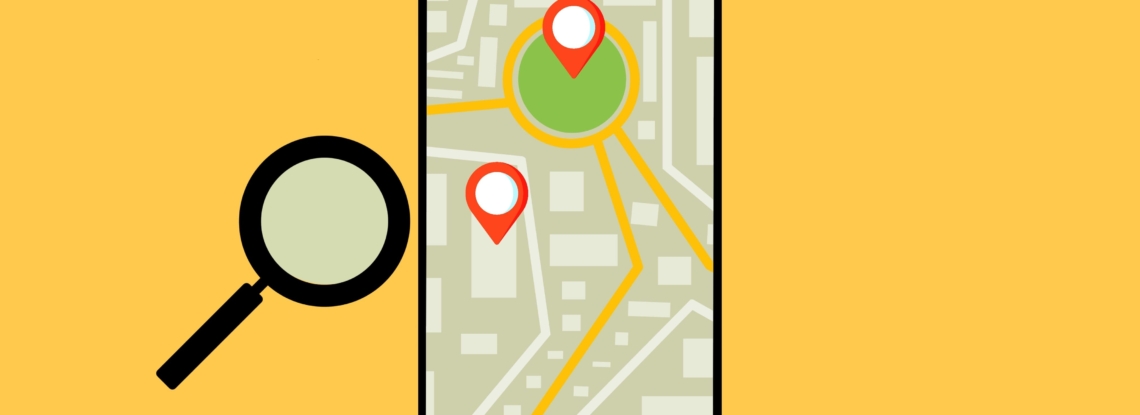
# 4.Code&output:

# 

# Figure 1. Coding

# 

# Figure 2. Out put

** Figure 3. Image**

# 5.Results and Discussion:

* The Country and Carrier Finder application successfully identifies country and carrier information based on user-input phone numbers. Key features include a user-friendly GUI, effective phone number input handling, seamless data retrieval from external APIs, clear display of results, and robust error handling mechanisms.
* **User Interface:** Developed using PySimpleGUI or Tkinter, the GUI allows users to input phone numbers and dynamically displays identified country and carrier information. The intuitive design facilitates seamless interaction, enhancing user experience with real-time updates and clear feedback.
* **Phone Number Input Handling:** The application validates user-provided phone numbers, handles various formats, and normalizes them for processing. This ensures data consistency and accuracy in identifying country and carrier information.
* **Data Retrieval:** Integration with external APIs like Twilio Lookup API or NumVerify ensures accurate retrieval of country and carrier details. The reliance on reputable external sources enhances the application's reliability and up-to-date information.
* **Processing Logic:** The application's processing logic extracts relevant information, precisely identifying the country and carrier associated with the given phone number. Robust error handling mechanisms gracefully address network errors, API failures, and invalid responses, presenting meaningful messages to users.
* **Display of Information:** The GUI updates in real-time, presenting information clearly and providing visual feedback during the lookup process. Users receive accurate and timely results, enhancing their overall satisfaction with the application.
* **Scalability and Future Enhancements:** External API integration enables seamless updates, ensuring scalability without modifying the core application. Features like historical data tracking, support for diverse formats, and localization options present avenues for improvement, catering to diverse user needs.

# 6.Conclusion and Future Enhancements:

The development of the Country and Carrier Finder using phone numbers has resulted in a robust and user-friendly application that fulfills its intended purpose effectively. Through the utilization of PySimpleGUI/Tkinter for the graphical user interface, integration with external APIs or databases for data retrieval, and implementation of processing logic and error handling mechanisms, the application provides users with a seamless experience in identifying the country and carrier associated with a given phone number.

The implementation of validation mechanisms ensures that only valid phone numbers are processed, while error handling mechanisms address any unforeseen issues during data retrieval. The clear display of information and visual feedback enhances user interaction, making the application intuitive and easy to use.

Overall, the Country and Carrier Finder application provides a valuable tool for users to quickly ascertain essential information about phone numbers, enhancing their decision-making processes and improving efficiency in various contexts.

1. **Enhanced Data Sources**: Explore additional data sources and APIs to improve the accuracy and coverage of country and carrier information.
2. **Advanced Parsing Algorithms**: Implement advanced parsing algorithms to handle a wider range of phone number formats and improve normalization processes.
3. **Geolocation Integration**: Integrate geolocation services to provide additional context and insights into the geographic location associated with the phone number.
4. **User Preferences and Customization**: Allow users to customize the application interface and preferences according to their preferences and requirements.
5. **Offline Functionality**: Implement offline functionality to allow users to access basic information even when not connected to the internet.
6. **Feedback Mechanism**: Incorporate a feedback mechanism to gather user input and suggestions for further improvements and feature enhancements.
7. **Security Enhancements**: Implement security measures to protect user data and ensure the confidentiality of information processed by the application.
8. **Platform Compatibility**: Ensure compatibility with a wider range of platforms and devices to reach a broader audience of users.

**7.REFERENCES:**

1. **Country Codes List**: A comprehensive list of country codes can be found on websites such as International Telecommunication Union (ITU) or country code directories like countrycode.org. These resources provide information about the assigned codes for each country.
2. **Carrier Identification Database**: Websites like NumberingPlans.com or CarrierLookup.com offer carrier identification services. They provide information about the carrier associated with a particular phone number, including the country and carrier name.
3. **ITU-T E.164 Standard**: The International Telecommunication Union Telecommunication Standardization Sector (ITU-T) E.164 standard defines the format for telephone numbers worldwide. Understanding this standard can help in parsing and identifying country and carrier information from phone numbers.
4. **Telecom Regulatory Authority Websites**: Many countries have their own telecom regulatory authorities that maintain databases and information related to phone numbers, carriers, and country codes. Examples include the Federal Communications Commission (FCC) in the United States, Ofcom in the United Kingdom, and TRAI in India.
5. **Research Papers and Journals**: Academic research papers and journals in the field of telecommunications and mobile networks may also contain relevant information and references regarding the identification of country and carrier information from phone numbers.