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Analytics Based on Government Land Information System Data-Driven Features

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ABSTRACT: This use case explores the development of a comprehensive solution leveraging Government Land Information System (GLIS) data to address multifaceted challenges in urban planning, infrastructure development, environmental conservation, and socio-economic domains. The objective is to enable evidence-based decision-making for sustainable urban development. The solution proposes an integrated approach that utilizes GLIS data as a central information source, integrating advanced technologies, public engagement strategies, and policy recommendations. The proposed solution aims to optimize land utilization, streamline infrastructure projects, protect environmental resources, and address socio-economic disparities. The solution focuses on evidence-based decision-making, fostering long-term sustainability and resilience in urban landscapes. It includes an integrated data platform, geospatial analysis tools, predictive analytics, public engagement, and continuous monitoring.

KEYWORDS: Government Land Information System, Urban Planning, Infrastructure development, Environment conservation, Socio-economic Domains, Evidence-based decision-making, Integrated data platform, Geospatial analysis tools, Continuous monitoring.

I. INTRODUCTION

The potential of Land Information data in addressing the complex challenges faced in modern cities. Government Land Information System (GLIS) contains a vast amount of geospatial data related to land resources, land ownership, boundaries, land use, and other valuable information. However, harnessing the potential of this data and transforming it into actionable insights remains a challenge. The goal is to develop analytics solution that leverage GLIS data to address critical societal challenge and support evidence-based decision-making. This solution should focus on one or more domains. such that urban planning, Infrastructure development, environmental conservation, and socio-economic challenges. Develop this models that correlate land demographic data, economic indicators, and social factors to gain insights into pattern, disparities characteristics. Develop this models that correlate land demographic data, economic indicators, and social factors to gain insights into pattern, disparities, and potential intervention for inclusive development.

The integration of GLIS data into urban planning strategies offers multifaceted benefits. Firstly, it provides a holistic view of land utilization patterns, facilitating informed decision regarding zoning regulation, infrastructure development, and urban expansion. Secondly, GLIS data enables the identification of environmental hotspots, aiding conservation efforts and promoting eco-friendly urban design. Thirdly, by incorporating socio-economic indicators from GLIS. The effective utilization of data plays a pivotal role. Among the vast array of datasets available, the Government Land Information System (GLIS) stands out as a comprehensive and reliable source of information.

GLIS encapsulate a wealth of data regarding land use, ownership, zoning regulation, environmental attributes, and infrastructure planning. Leveraging this data effectively can significantly enhance evidence-based decision-making processes crucial for sustainable development initiatives.

II. LITERATURE REVIEW

Improving its National Spatial Data Infrastructure (NSDI) to enhance land administration information, addressing challenges due to poor infrastructure and potential impact on land management organizations. It Providing a single platform for accessing various land-related information. It Leading of misinformation or incorrect decision. Nigeria's land records to be computerized using Geographic Information System (GIS) technology, aiming to improve land administration, reduce corruption, and support government policies. GIS technology allows for more accurate and precise mapping of land parcels. The upfront cost of digitizing land records and developing a national land information system. E-government system for land management, outlining its design, functions, software architecture, and technical



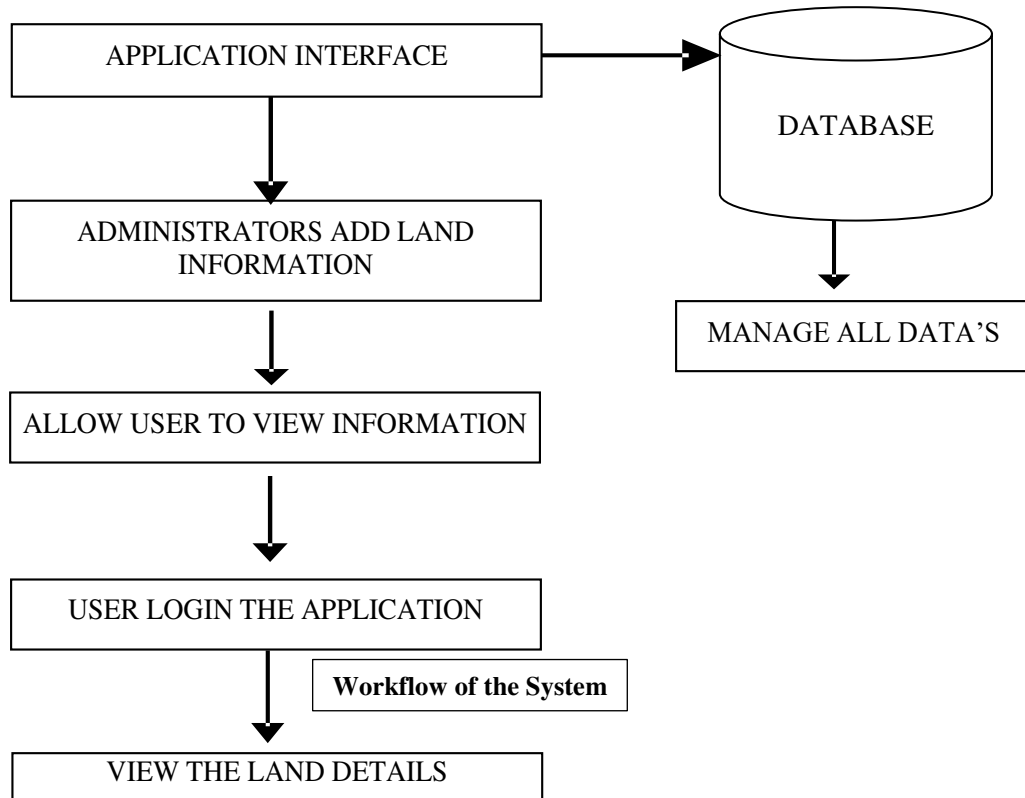
framework. One map system provides unified and comprehensive view of land resource. urban land management rights are limited by informal land occupation, but innovative mapping and satellite images in Buriti Rana could influence national development policies. Enhancing urban planning, promotion of citizen Rights despite efforts to improve data accuracy. A scalable vector graphics-based system for digitizing Bangladesh's land system, enhancing transparency, efficiency, and cost effectiveness by scanning paper-based maps. Efficient land retrieval, convenient land management. Limited internet access in rural areas.

III. EXISTING SOLUTION

The current system provides an overview of the manual processes involved in managing land information, focusing on the roles of land authorities and users. It examines the intricate steps encompassing data collection, documentation, verification, and dissemination within government agencies responsible for land administration. The manual process involves intricate coordination between various stakeholders, including land surveyors, legal experts, and administrative personnel. Challenges such as data integrity, accessibility, and timeliness are highlighted, along with strategies for mitigating these obstacles. Furthermore, the abstract discusses the significance of user engagement and feedback mechanisms in refining land information systems. By understanding the complexities and nuances of manual land information management processes, policymakers can devise strategies to streamline operations, enhance data accuracy, and ultimately foster better land governance practices for sustainable development.

IV. PROPOSED SOLUTION

- The proposed web application serves as a comprehensive platform for accessing and visualizing government land information.
- This application offers users the ability to effortlessly view pertinent land data and interpret it through intuitive visualization graphs.
- With this application users can access a wide array of land-related information, including land parcels, property boundaries, zoning regulations, and historical data.
- The application employs user-friendly interfaces to facilitate seamless navigation and efficient information retrieval.
- One of the key features is its dynamic visualization capabilities, enabling users to interpret complex land data through interactive graphs and charts.
- Through customizable filters and parameters, users can tailor visualizations to suit their specific needs, gaining insights into trends, patterns, and correlations within the data.
- This system prioritizes accessibility and transparency, ensuring that government land information is readily available to stakeholders, including policymakers, urban planners, researchers, and the general public.
- By promoting informed decision-making and fostering greater understanding of land-related issues, Land Vista plays a pivotal role in advancing land management practices and promoting sustainable development initiatives.



V. METHODOLOGY

1. WEB APPLICATION

A web application is a software application that operates on web servers and is accessed through web browsers over a network, typically the internet. Unlike traditional desktop applications, web apps don't require installation on a user's device, making them highly accessible and versatile. These applications utilize a client-server architecture, where the client, typically a web browser, interacts with the server to access resources, process data, and perform tasks. Web applications encompass a wide range of functionalities, from simple web pages displaying static content to complex systems offering advanced features such as e-commerce platforms, social media networks, project management tools, and more. They can be developed using various programming languages, frameworks, and tools, depending on the specific requirements and preferences of the developers. One of the key advantages of web applications is their platform independence, as they can be accessed from any device with a compatible web browser, including computers, smartphones, and tablets. Additionally, web apps facilitate easy updates and maintenance since changes made on the server-side are instantly reflected across all clients, eliminating the need for manual updates on individual devices. Overall, web applications play a crucial role in modern digital ecosystems, offering seamless connectivity, accessibility, and functionality to users worldwide.

2. DATA ANALYSIS

Data analysis is the systematic process of inspecting, cleansing, transforming, and modelling data to uncover meaningful insights, aid decision-making, and extract valuable information. In today's data-driven world, where massive volumes of data are generated every second, effective data analysis has become indispensable across various domains including business, science, healthcare, finance, and beyond. The primary objective of data analysis is to derive actionable insights from raw data, facilitating informed decision-making and strategic planning. This involves a series of steps, starting from data collection and preprocessing to the application of statistical methods, machine learning algorithms, and visualization techniques. Data analysis encompasses both descriptive and inferential statistics. Descriptive statistics involve summarizing and interpreting data to describe its key characteristics, such as central



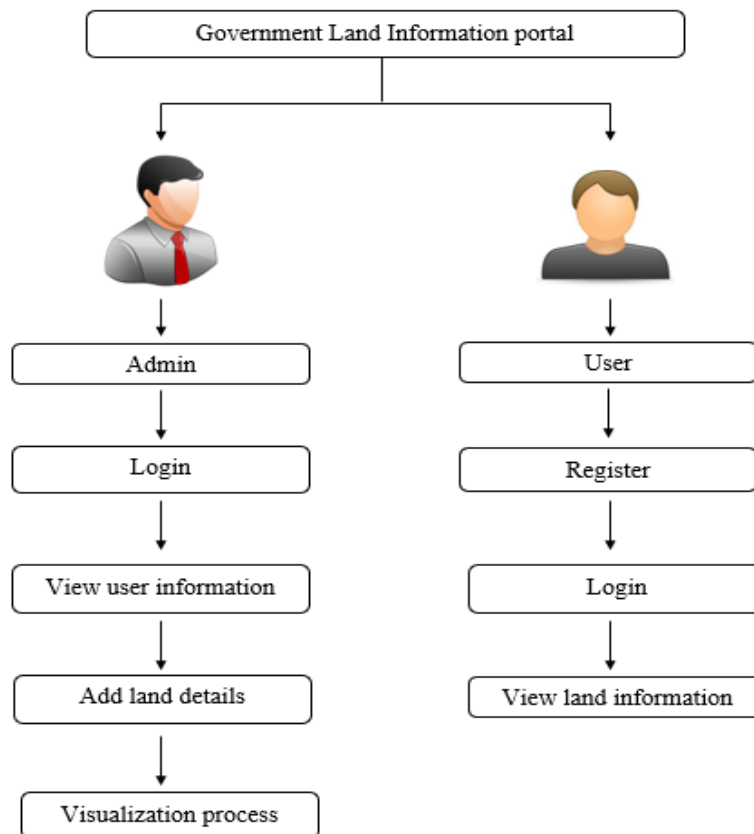
tendency, dispersion, and distribution. Inferential statistics, on the other hand, involve making inferences and predictions about a population based on sample data. Effective data analysis requires proficiency in various tools and technologies such as statistical software (e.g., R, Python), and database management systems (e.g., SQL). Moreover, critical thinking, domain knowledge, and problem-solving skills are essential for interpreting results accurately and drawing meaningful conclusions from data analysis processes.

3. BENEFITS OF DATA ANALYSIS

Data analysis offers numerous benefits across various domains, revolutionizing decision-making processes and unlocking insights that drive innovation and efficiency. Here are some key advantages:

- **Informed Decision Making:** Data analysis empowers organizations to make informed decisions based on evidence rather than intuition or guesswork, leading to more effective strategies and outcomes.
- **Improved Efficiency:** By analysing large datasets, organizations can identify inefficiencies, streamline processes, and optimize resource allocation, ultimately improving productivity and reducing costs.
- **Enhanced Performance:** Data analysis enables businesses to monitor performance metrics in real-time, identify trends, and adjust strategies accordingly to stay competitive and achieve goals.
- **Targeted Marketing:** Through data analysis, companies can gain insights into customer behaviour, preferences, and demographics, allowing for personalized marketing campaigns that resonate with target audiences and drive higher conversion rates.

VI. USER FLOW DIAGRAM



VII. CONCLUSION

The Government Land Information System (GLIS) data provides a holistic solution for urban issues, combining technology, public involvement, and policy recommendations. The goal is to improve land use, streamline infrastructure, safeguard the environment, and tackle socio-economic gaps, fostering a sustainable and resilient urban landscape. Through evidence-based decision-making and ongoing monitoring, this approach strives to create cities that are smart, equitable, and environmentally friendly.



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