

Xushvaqto'v Asadbek Saydulla o'g'li

Termez State University of Engineering and Agrotechnology

3rd year student

asadbekxushvaqto'v53@gmail.com

Tel: +998-88-842-79-82

Abstract: Maps and databases play a significant role in geographic information systems (GIS). These systems allow for the collection, storage, analysis, and visualization of geographic data. Map composition refers to the process of placing cartographic data on different layers and integrating them with databases. Databases help in efficiently managing the relationship between objects, attributes, and geographic information on maps. This process enables the presentation of data about various geographic objects and their attributes. By creating map compositions, GIS systems allow for interactive maps and data-driven analysis, supporting decision-making and solving geographic problems. Such systems are widely used in urban planning, ecology, transportation, and other fields.

Key words: Map, Database, Geographic Information Systems (GIS), Composition, Geographic Data, Analysis, Visualization, Layers

Аннотация: Карты и базы данных играют важную роль в геоинформационных системах (ГИС). Эти системы позволяют собирать, хранить, анализировать и визуализировать географические данные. Компонировка карт — это процесс размещения картографических данных на различных слоях и их интеграция с базами данных. Базы данных помогают эффективно управлять связью между объектами, атрибутами и географической информацией на картах. Этот процесс позволяет представить данные о различных географических объектах и их атрибутах. Создавая компоновку карт, ГИС-системы позволяют проводить анализ с использованием интерактивных карт и баз данных, поддерживать принятие решений и решать географические задачи. Такие системы широко используются в городском планировании, экологии, транспорте и других областях.

Ключевые слова: Карта, База данных, Географические информационные системы (ГИС), Компонировка, Географические данные, Анализ, Визуализация, Слои

In Geographic Information Systems (GIS), maps and databases are deeply integrated and play a crucial role in managing and analyzing geographic data. **Map layout** is the process of organizing cartographic data into various layers and integrating them with databases. Each map layer represents specific geographic elements (such as roads, rivers, buildings, or regions) and is managed using a database. In the layout creation process, the required layers for the map are first identified and aligned with each other. Each layer includes various attributes obtained from the database (e.g., object names, dimensions, and locations). Such maps are interactive, allowing users to easily access and analyze the data. For instance, in urban planning or environmental monitoring, the proper layout of map layers is critically important. Integrating maps and databases is an essential tool for making effective decisions within GIS. It supports not only the collection of geographic data but also its analysis and visualization, aiding advanced decision-making in various fields such as transportation, environmental science, and resource management. The **process of creating a layout** also requires

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proper interaction with the database, as each layer has specific attributes and accurate positioning that are managed through the database. As a result, users can view complex geographic data quickly and efficiently, enhancing their capabilities in planning and analysis.

Maps and databases are integral components of Geographic Information Systems (GIS). Layout creation—dividing cartographic data into layers and organizing them using databases—plays a critical role in spatial analysis and planning. Each layer contains geographic features along with associated attributes, such as object names, sizes, and location data. Map layers must be properly structured and integrated with the database, as this facilitates both analysis and visualization within GIS. Through databases, detailed information about each object can be retrieved, which is a key factor in informed decision-making. The layout creation process supports fast and efficient data management, and also simplifies the integration of data from multiple sources.

Using GIS for map layout creation and database integration significantly enhances the effectiveness of geographic analysis. The process of creating map layers involves collecting the necessary data for each layer and inputting it into the system. Through this process, the exact location and attributes of each geographic object are stored in the database. With map layouts, each layer combines geographic features such as cities, roads, rivers, and other spatial data. Databases allow for the effective management of these layers and provide rapid access to them. Leveraging these systems for geographic analysis and decision-making enables users to view and analyze data in real time.

Conclusion

The process of layout creation plays a significant role when working with maps and databases. This process not only facilitates data management but also supports effective decision-making across various fields through analysis and visualization. With map layouts in Geographic Information Systems (GIS), users are enabled to analyze geographic information in an extended and interactive manner.

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