

ECONOMIC COOPERATION ORGANIZATION (ECO)

TRAINING COURSE



The National Cartographic Center of Iran with the support of ECO Secretariat holds a training course on:

**The Current Technologies and Trends in Various
Levels of Spatial Data Infrastructure (SDI)**

23-24 September 2024



National Cartographic Center of Iran



Table Joining Service (TJS) Implementation

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Problem Definition



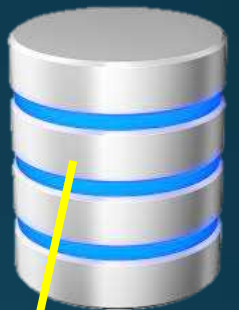
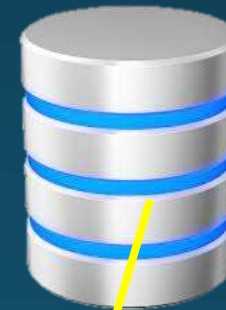
Ministry of roads & Urban development

Ministry of ICT

Municipality and Rural administrations

Statistical DB

MENTAK DB



id	attr1	attr2	attr3
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id	attr1	attr2	attr3
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id	attr1	attr2	attr3
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id	attr1	attr2	attr3
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id	attr1	attr2	attr3
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Problem Definition



id	attr1	attr2	attr3	id	attr1	attr2	attr3	id	attr1	attr2	attr3	id	attr1	attr2	attr3	id	attr1	attr2	attr3
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Introduction



- The **TJS** service represents one of the **OGC** standards, as it offers a reliable method for establishing connections between statistical information and spatial features.
- In the **TJS** system, instead of **repeatedly republishing spatial information** each time a new statistical attribute is added to the data, the spatial information is **published only once**. Moreover, any change in the statistical information is **seamlessly incorporated** into the spatial information through the web service, ensuring its dynamic display.



Acknowledgment



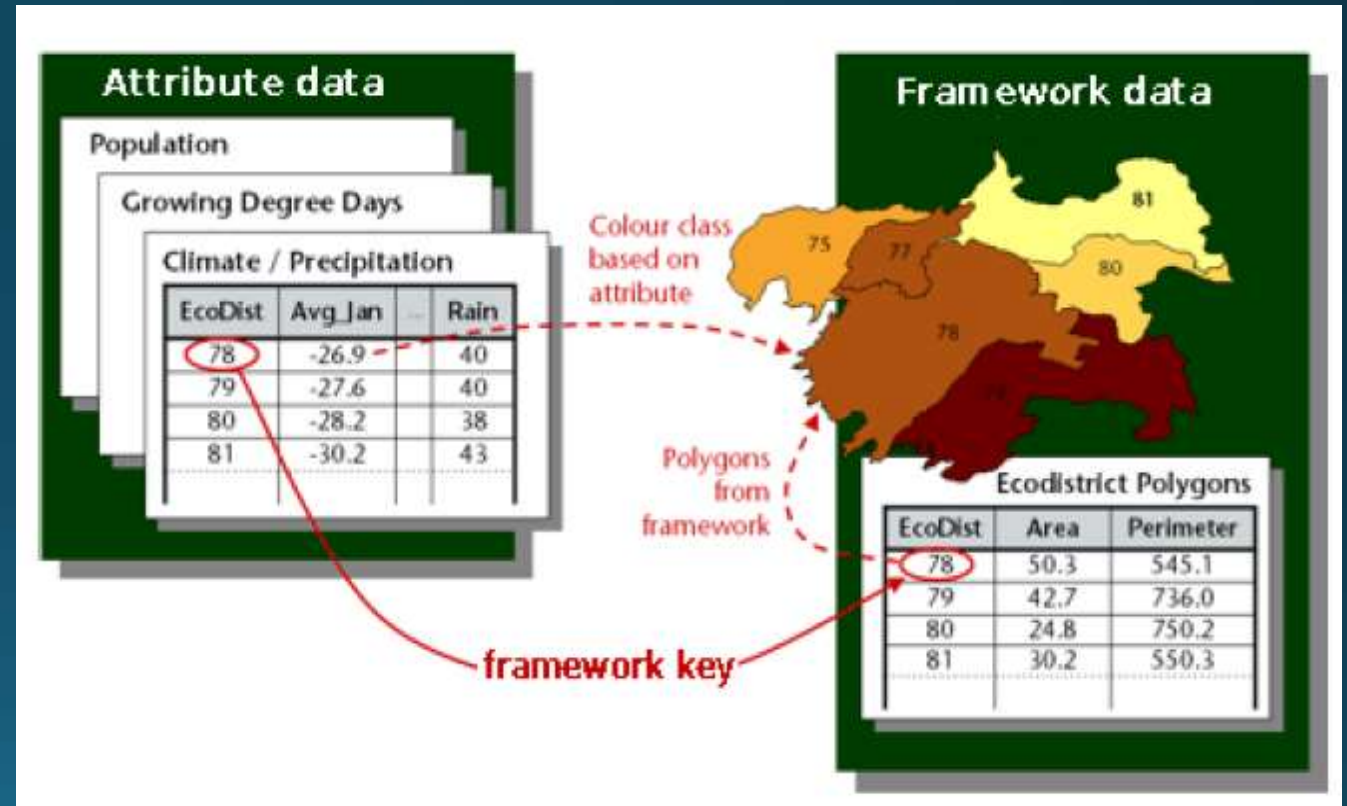
- Thanks to Ms. Sharon Chawanji.
- She implemented the **TJS** service using the Flask framework in her thesis and shared with us details of what she had done.



Implementation



- The prerequisite for implementing the **TJS** service is the existence of a **unique field** in both statistical and spatial datasets.





Implementation



- We used **Python** programming language and **Django** framework to implement TJS.
- Django has a structured, cohesive, and predetermined framework. Therefore, it provides excellent security, high development speed, powerfulness, and simplicity. It is great for large and scalable projects.



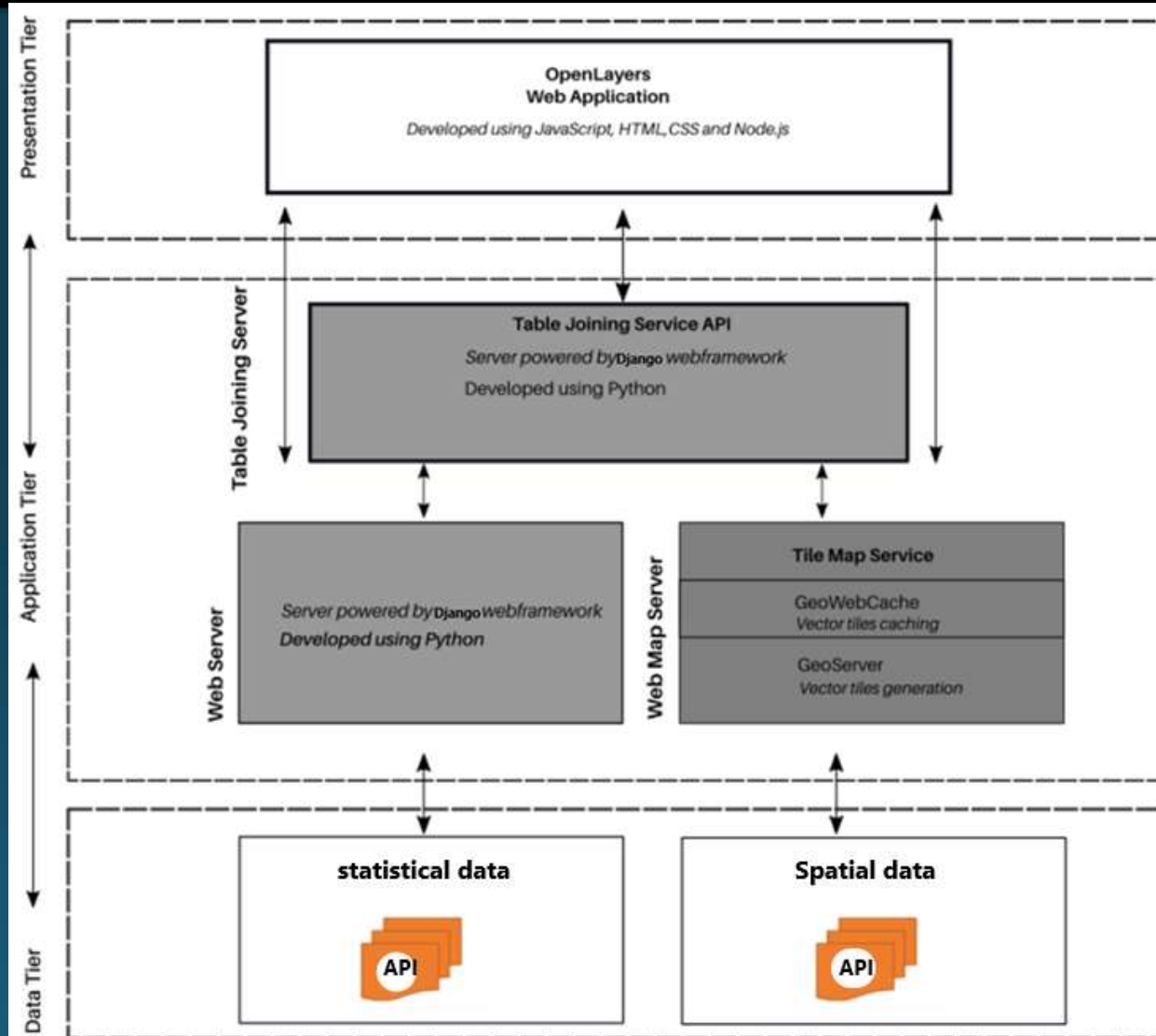
Implementation



- In this work, **Geoserver** software has been used for providing and publishing spatial data.
- On the other hand, attribute and statistical information are provided in the **API** form by the **National Statistics Center**, which has utilized the Tomcat web server to create the service.

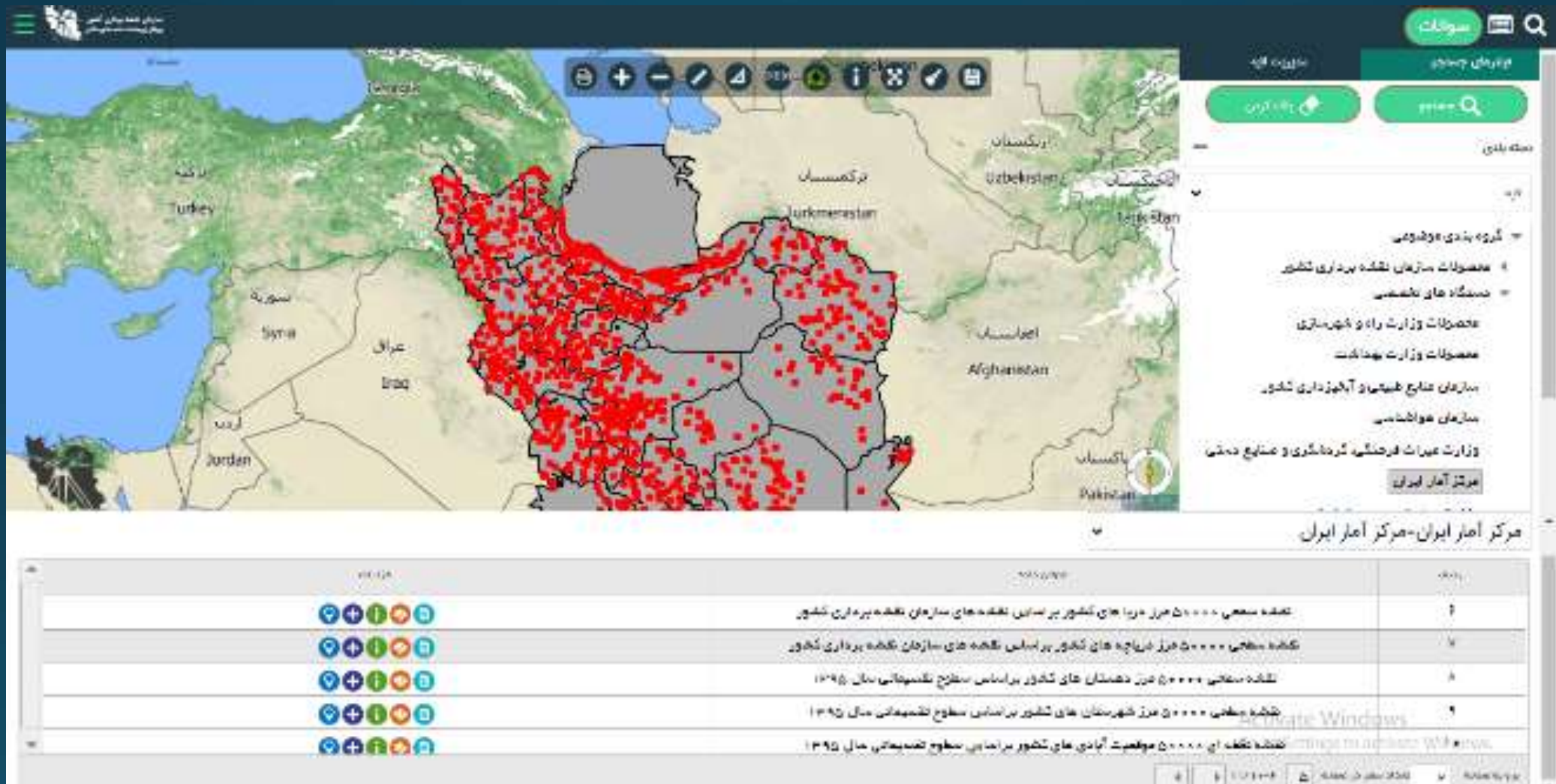


Architecture





Consequence





Consequence



The screenshot displays a GIS web application interface. At the top left, there is a logo for the National Cartographic Center of Iran. The main area is a map of Iran with several red square markers. A popup window titled "شناسایی" (Identification) is open, showing a table of data for the province of Arak. The table has two columns: "عنوان" (Title) and "مقدار" (Quantity). The data rows are as follows:

عنوان	مقدار
pop_woman_۲۰-۲۴_years	۲۱۵۵۳.۰۰۰
pop_man_۳۰-۳۴_years	۲۹۵۰۲.۰۰۰
pop_man_۴۰-۴۴_years	۲۰۴۲۶.۰۰۰
household_count	۱۶۵۷۰۹.۰۰۰
pop_woman_۵۵-۵۹_years	۱۲۰۱۶.۰۰۰
county	اراک

On the right side, there is a "فیلترهای جستجو" (Search Filters) panel. It includes a "نقشه های پایه" (Base Maps) section with "نقشه معابر" (Road Map) and "تصاویر ماهواره ای" (Satellite Images). Below that is a "محذوفه مکانی جستجو" (Spatial Search Exclusions) section with "دسته بندی" (Classification). The "موقعیت آبادی های کشور ۱۳۹۵" (Country Urban Locations 1395) filter is currently turned off, while "موقعیت شهرهای کشور ۱۳۹۵" (Country Cities 1395) is turned on. A list of provinces is shown below, with "اراک" (Arak) highlighted in green.



Conclusion



- Implementing the **TJS** service using the **Django** framework provides a comprehensive and efficient solution for accessing statistical and geographical information dynamically. This system allows users to **simultaneously** access statistical and geographical data.
- Providing spatial data through a standard and **web-based** service enables obtaining spatial and statistical data online and dynamically. This can be used for comprehensive analysis based on spatial and statistical information, for economic, social, and other decision-making purposes.



Thank you for your attention!