



Introduction to GIS with ArcGIS Pro

Working with Tabular Data: Associating Tabular Data (Joins and Relates)

Session 14

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Lecture Outline

- Introduction & Recap (5 minutes)
- Associating Tabular Data (Joins and Relates) (45 minutes)
- Guided Exercise & Q&A (10 minutes)

Week 5: Controlling Feature Display and Selection

- **Class 9:** Selecting Features with Queries
- **Class 10:** Managing Feature Visibility
- **Milestone:** Assignment 1 (Data Creation and Mapping) will be assigned.

Week 6: Adding Text to a Map

- **Class 11:** Creating and Modifying Labels
- **Class 12:** Using Label Classes

Week 7: Working with Tabular Data

- **Class 13:** Creating Features from Tabular Data
- **Class 14:** Associating Tabular Data (Joins and Relates)



Week 8: Editing Features and Attributes

Recap of Season 13

- Add x,y coordinate data as a layer
- XY Table To Point (Data Management - Geoprocessing Tool)

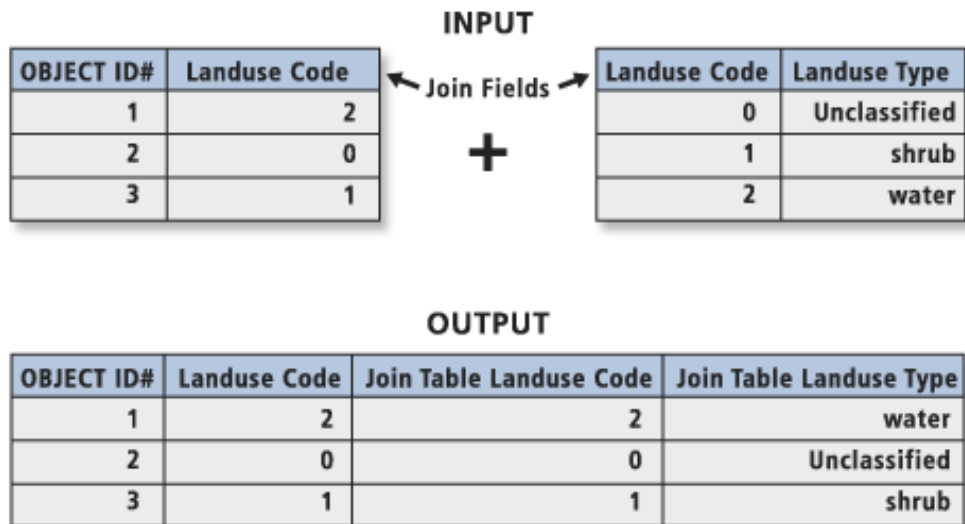
Associating Tabular Data (Joins and Relates)

in ArcGIS Pro

Joins and Relates

Through a common field, known as a key, you can associate records in one table with records in another table. For example, you can associate a table of parcel ownership information with the parcels layer, because they share a parcel identification field. You can make these associations in several ways, including by joining or relating tables temporarily in your map or by creating relationship classes in your geodatabase that maintain more permanent associations. Joins can also be based on spatial location.

Add Join (Data Management)



Joins a layer to another layer or table based on a **common field**. Feature layers, table views, and raster layers with a raster attribute table are supported.

The records in the **Join Table** parameter value will be matched to the records in the **Input Table** parameter value. A match is made when the input field and join field values are equal. This join is temporary.

Join Example

Table A		Table B						
Parcel-ID	Acres		Parcel-ID	Owner		Parcel-ID	Acres	Owner
2	2	+	2	John Smith	=	2	2	John Smith
5	1.5		5	Bruce Martin		5	1.5	Bruce Martin
6	6		6	Anne Davis		6	6	Anne Davis
1	3		1	Steve Arnold		1	3	Steve Arnold
8	1.6		8	Rick James		8	1.6	Rick James

Relationship Types

One-to-one

Every feature has exactly one related record in the other table.

One-to-many

Features in one table may have more than one related record in the other table.

Many-to-one

Multiple features in one table have one related record in the other table.

Many-to-many

Multiple features in one table have multiple records in the other table.

↑ Cardinality Relationships

Remove Join (Data Management)

Removes a join from a feature layer or table view.

Add Relate (Data Management)

Relates a layer to another layer or table based on a field value.

Feature layers, table views, subtype value layers or tables, and raster layers with a raster attribute table are supported.

The records in the **Relate Table** parameter value are matched to the records in the input **Layer Name or Table View** parameter value.

A match occurs when a field value in the **Input Relate Field** parameter value and a field value in the **Output Relate Field** parameter value are equal.

Remove Relate (Data Management)

Removes a relate from a feature layer or a table view.

References

Relate vs Join: What's the Difference in ArcGIS?

<https://gisgeography.com/relate-vs-join-attribute-tables-arcgis/>

Relates and Relationship Classes Explained

<https://www.esri.com/about/newsroom/arcuser/relates-and-relationship-classes-explained>

Exercise

Exercise

1. Create a join in ArcGIS Pro
2. Create a relate in ArcGIS Pro

Use the following data and previously downloaded shapefile/File Geodatabase for administrative boundaries of Bangladesh

BD_COVID19_TotalCases_by_District_Summary.csv

https://drive.google.com/file/d/1t8RNIEt4RhT-hJr9oB_lxCu3cKN1iatc/view?usp=drive_link

BD_COVID19_DailyCases_by_District_Detailed.csv

https://drive.google.com/file/d/19ezY7NTR7CR12FPXR8Saz12NjA_l0-3v/view?usp=drive_link

Challenge

Construct a map like this one.

Basak, P., Dey, S., & Elahi, K. M. (2022). COVID-19 in Bangladesh: a spatio-temporal and gender analysis. In *Coronavirus (COVID-19) outbreaks, vaccination, politics and society: the Continuing Challenge* (pp. 157-180). Cham: Springer International Publishing.

https://doi.org/10.1007/978-3-031-09432-3_11

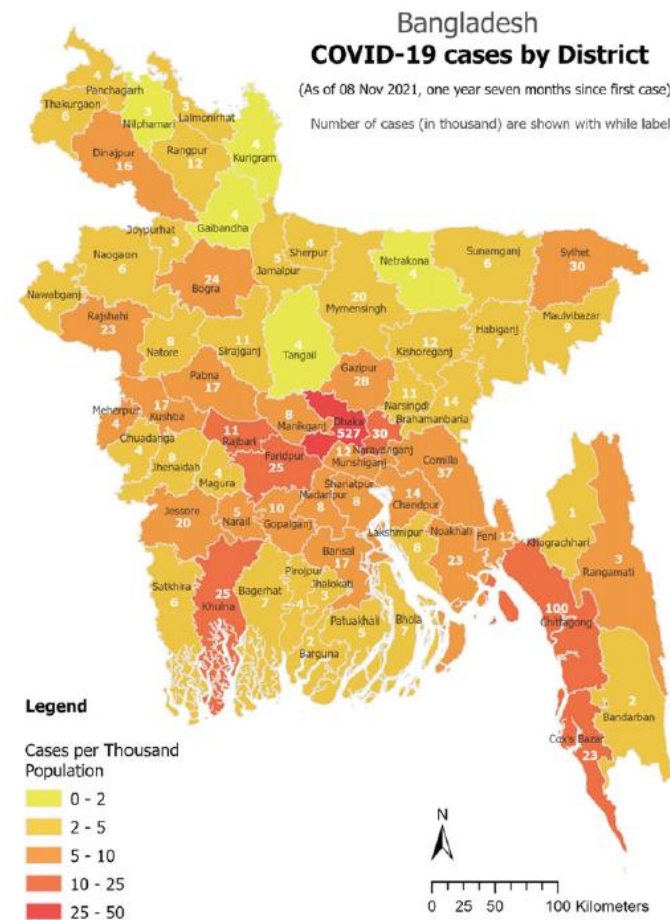


Fig. 3 District-wise distribution of total COVID-19 cases in Bangladesh

Preview for Season 15

Editing Features and Attributes: Creating Features by Digitizing