07/03/24

Lab 01 Documentation

→ Distance Matrix Model

- Import from (givens) ⇒ (towns) (hospitals)
- in [Model Designer]

↳ (Input Features) (vector features)
- any geometry
- Mandatory

↳ (Input ID) (vec. field)
- parent = Input Features
- any data type
- Mandatory

↳ (Input Weight) (vec field)
- parent = Input Features
- number data
- ☑ accept multiple fields
- Mandatory

↳ (Target Layer) (vector layer)
- point geometry
- Mandatory

↳ (Target ID) (vec. field)
- point = Target Layer
- any data type
- Mandatory

↳ (Target Weight) (vec. field)
- parent = Target Layer
- number data
- ☑ accept mult. fields
- Mandatory

↳ [Centroids] (algorithm)
- use model input: Input Features
- create centroid for each pt: no

↳ [Join Input Weight by field value] (algorithm)
- use algorithm output: "Distance Matrix"
- table field = Input ID

model input
- input layer 2 = Input Features
- table field 2 = Input ID
- layer 2 fields to copy = Input Weight
- join type = take att. of 1st matching feature

↳ [Join TargetWeight by field value] (algorithm)
- use output: "Joined Layer" from "Join Input Weight"
- table field = Target ID

model input
- input layer 2 = Target Layer
- table field 2 = Target ID
- layer 2 fields to copy = Target Weight
- join type = take att. of 1st matching feature

↳ [Distance Matrix] (algorithm)
- input pt layer = using algorithm "Centroids"
- unique ID field = Input ID
- target pt layer = Target Layer
- target unique ID field = Target ID
- output matrix = linear
- K = 20
- save as "DistanceMatrix Output"

↳ [Field Calc Potential] (algorithm)
- use algorithm output "Joined Layer - joined target weight"
- field name: potential
- result: float · precision = 3
- '@InputWeight ^ "@lamda" ' + ' * ' + '
  @TargetWeight ^ "@alpha" ' + ' /
  ("Distance"/1000) ^ "@beta" '

↳ [Aggregate] (algorithm)
- algorithm output: "Calc from "Field Calc Potential"
- group by expression: TgetID
- Aggregates

0: TargetID	-	first_value
1: attribute(@TargetWeight)	-	first_value
2: " (@InputWeight)	-	sum

↳ Aggregate (algorithm)

- algorithm output "Calc" from "Field Calc Potential"
- group by expression: TargetID
- Aggregates

Source Ex	Function	Delimiter	Type
0: TargetID	- first_value	- TargetID	- text(str)
1: attribute(@TargetWeight)	- "	- TargetWeight	- integer
2: " (@InputWeight)	- sum	- SumInputWeight	- integer

- load templates from "Distance Matrix Output"

↳ alpha
- float
- min=1, default=1
- Mandatory, Advanced

↳ beta
- float
- min=1, default=2
- Mandatory, Advanced

↳ lamda
- float
- min=1, default=2
- Mandatory, Advanced

↳ k
- integer
- min=1, default=20
- Mandatory, Advanced