Roman Territory

MLPQ

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Agenda

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- Project Goals
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Motivation

Understanding the Geographical Shift by Roman Authority
The Roman Empire under Julius Caesar and Augustus marked a transformative period in Roman history. Exploring the geographic additions in each major ruling.

Historical Curiosity
By analyzing their summarized, geographical timeline through territories paired with government, we can gain create potential insights and hypotheses.

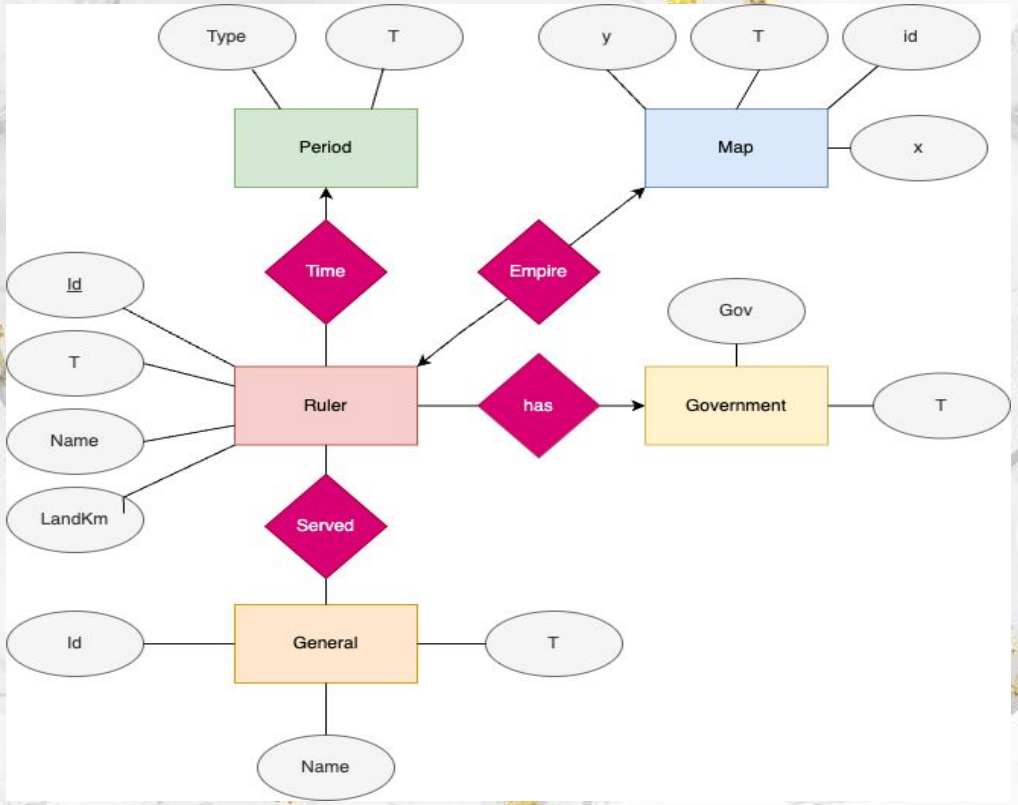
Brief History (Context)

- Rome was a republic (<49 B.C.)
  - Republic: form of government in which a state is ruled by representatives of the citizen body
- Julius Caesar (49-44 B.C.) declared himself ruler
  - Labeled as dictatorship by elites and government representatives
  - Assassinated 44 B.C.
- Octavian (Augustus) Caesar (27 B.C.-14 A.D) officially declared as the first emperor and reformed Rome as an empire (essentially transforms back into a monarchy)
  - Renamed as the ‘First emperor of the empire’

Project Goals

- Provide historical insight to other scenarios
- Utilize MLPQ to map and compare land masses between rulers/time periods
- Query and connect the appropriate information
  - Intersecting listed generals under rulers
  - Time is the most important factor of our foreign key connections

Design Overview (ER Diagram)



T = time
x,y = coordinates

Design Overview (MLPQ)

- Uses multiple constraint tables to map out the territory and tables
  - Uses the MATLAB I2V2C for map constraints
- Concerns:
  - I2V2C map layout is long
  - Intersecting map land difficult due to many differences in polygons from I2V2C

Live Examples:

```
Ruler(Id, Name, T, LandKm):- Id=1, Name= "Consuls_Senate", T>= -509, T<= -50, LandKm = 1.0.
Ruler(Id, Name, T, LandKm):- Id=2, Name= "Julius_Caesar", T>= -49, T<= -44, LandKm = 1.95.
Ruler(Id, Name, T, LandKm):- Id=3, Name= "Augustus_Caesar", T>=-27, T<= 14, LandKm = 5.0.L
```

```
General(Id, Name, T):- Id=1, Name= "Scipio_Africanus", T<= -236, T<= -183.
General(Id, Name, T):- Id=2, Name= "Titus_Quinctius_Flamininus", T>= -228, T<= -174.
General(Id, Name, T):- Id=3, Name= "Pompey_the_Great", T>= -106, T<= -48.
```

```
Period(Type, T):- Type="Pre-Augustus", T<= -43.
Period(Type, T):- Type="Post-Julius", T> -43.
```

```
Government(Gov, T):- Gov="Republic", T>=-509, T<=-50.
Government(Gov, T):- Gov="Dictatorship_(Monarchy)", T>=-49, T<= -44.
Government(Gov, T):- Gov="Empire_(Monarchy)", T>=-43, T<=324.
```

```
Map(id,x,y,t)  :- id=5, y-0.4285714286x<=2787.916389811696717515558780670166015625, y+1.892857143x>=5140.714239571796497330069541931152343750,
y+2.666666667x<=5945.583118001730326795950531959533691406250, t>=-1000, t<=-900.
Map(id,x,y,t)  :- id=5, y+2.333333333x<=5232.772179155967023689299821853637695312500, y-0.44x<=2917.751886304896743240533396601676940917968750, y-
0.1428571429x>=3158.725913621261042862897738814353942871093750, t>=-1000, t<=-900.
Map(id,x,y,t)  :- id=5, y+1.5x>=4582.796511627907420916017144918441772460937500, x<=935.538760, y-1.5x<=1787.591085271429165004519745707511901855468750, t>=-1000, t<=-900.
Map(id,x,y,t)  :- id=5, y+9.0x<=9440.784237725933053297922015190124511718750000, y-3.857142857x<=542.262643041736737359315156936645507812500, y-2.25x>=1643.880167958656556947971694171428680419921875,
t>=-1000, t<=-900.
```

Design Overview (MLPQ): Map Query

BASIC SQL

VIEW NAME: JuliusMap

SELECT: Map.x, Map.y

FROM: Ruler, Map

WHERE:
Ruler.T = Map.t,
Ruler.Name = "Julius_Caesar"

OK | Cancel | Save | Load | Clear

Julius

Design Overview (MLPQ): Map Query

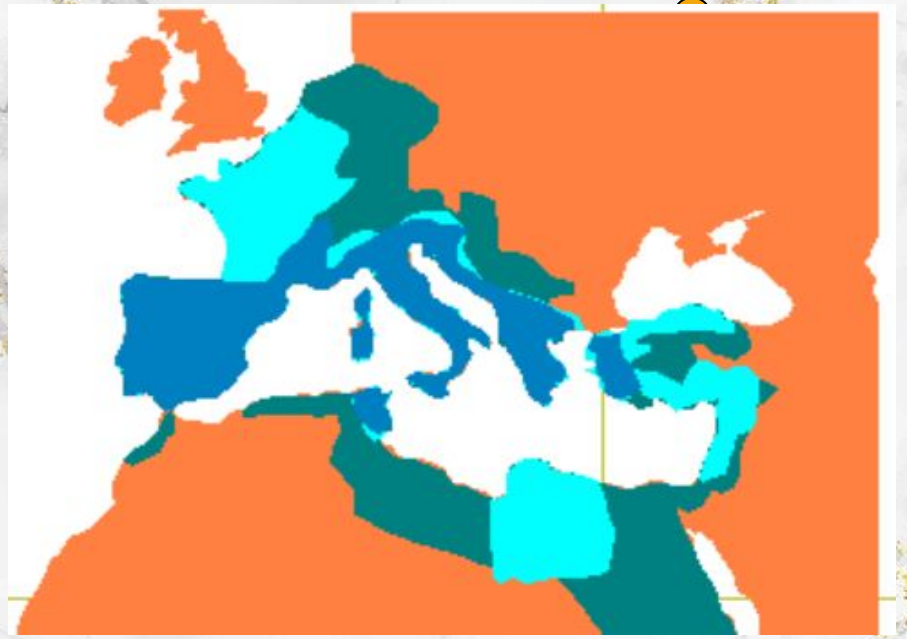
Base

Republic (509 BC- 50 BC)

Augustus (27 BC - 12 AD)

Julius (49 BC - 44 BC)

Design Overview (MLPQ): Map Query



SQL Query

Query generals by ruler

Query:

Intersect relations

JulGen

General_Name	CONSTRAINTS
"Pompey_the_Great"	
"Marcus_Antonius"	
"Marcus_Vipsanius_Agrippa"	

SenGen

General_Name	CONSTRAINTS
"Scipio_Africanus"	
"Titus_Quinctius_Flamininus"	
"Pompey_the_Great"	
"Marcus_Licinius_Crassus"	
"Marcus_Antonius"	
"Marcus_Vipsanius_Agrippa"	

Output: Generals under Julius and Republic

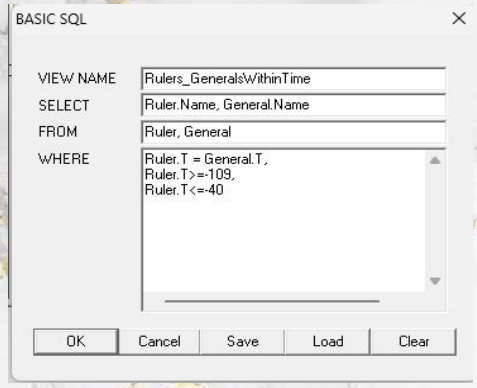
JulSenGen

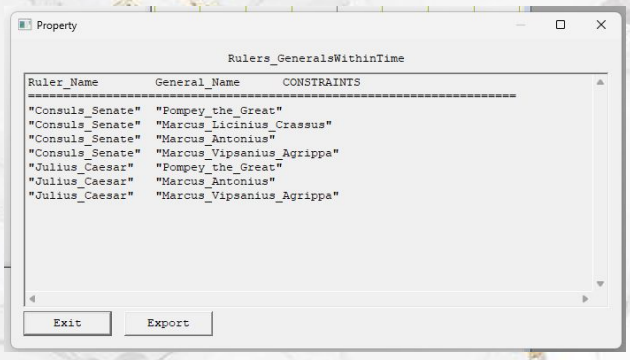
i	x	y	CONSTRAINTS
"Pompey_the_Great"	x	y	
"Marcus_Antonius"	x	y	
"Marcus_Vipsanius_Agrippa"	x		y

SQL Query

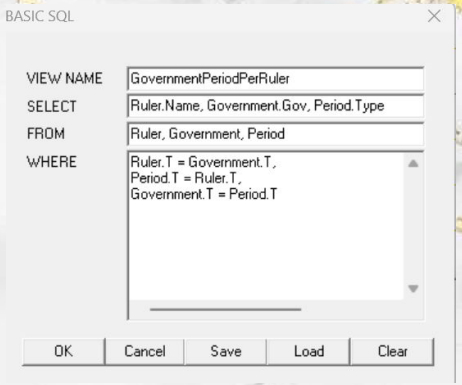
Rulers and generals within a range

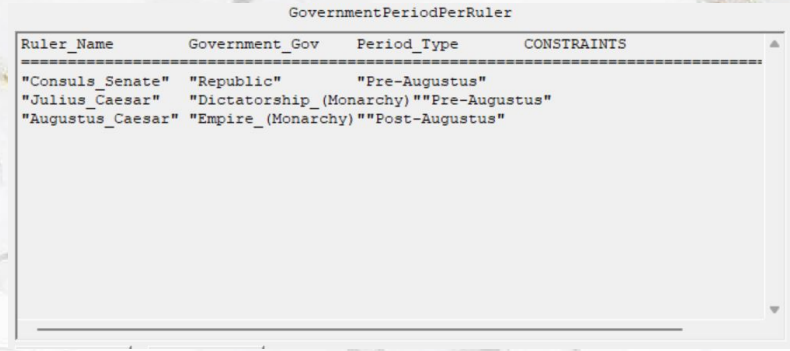
Query:





Government and Period per Ruler





Future Additions

1. Concise MATLAB map
2. This project can be extended by adding all the other rulers and the regions to create a rich source of historical information about Rome.
3. We could also add more details associated to the rulers and their kingdom, cities, historical events, wars etc

Conclusion

- **Project Foundation:**
  - Provides a summarized historical analysis of Julius Caesar and Augustus' territory.
  - With this project, we have been able to represent different rulers, their territory and their timelines.
- **Potential Applications:**
  - ***Relevancy:*** Supports teaching history and/or geography through interactive visualizations.
  - ***Utilities:*** Demonstrates the use of MLPQ for geographical mapping.
  - ***Prediction Mapping:*** We can draw hypothesis using prediction mapping.
    - What land gain would have looked like if Julius Caesar ruled for longer?
    - What and where Rome would have expanded after Augustus? etc.

References

Julius Caesar, 100-44 BC. digitalmapsoftheancientworld.com. (2024, March 1).

https://digitalmapsoftheancientworld.com/digital-maps/roman-republic/julius-caesar-100-44-bc/

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THANK YOU!