World Data: United Nations
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Objectives:

- Add meaningful tables to the World Database, originally:
  - Country, CountryLanguage , and City

- Obtain relevant/accurate data for each table added

- Create connections between tables using:
  - basic queries, subqueries, complex queries, and joins

- Draw conclusions from the newly connected data

Original Tables

Table: country

Columns:
Code	char(3) PK
Name	char(52)
Continent	enum('Asia','Europe','North America','Africa','Oceania','Antarctica America')
Region	char(26)
SurfaceArea	float(10,2)
IndepYear	smallint(6)
Population	int(11)
LifeExpectancy	float(3,1)
GNP	float(10,2)
GNPOld	float(10,2)
LocalName	char(45)
GovernmentForm	char(45)
HeadOfState	char(60)
Capital	int(11)
Code2	char(2)

Table: city

Columns:
ID	int(11) AI PK
Name	char(35)
CountryCode	char(3)
District	char(20)
Population	int(11)

Table: countrylanguage

Columns:
CountryCode	char(3) PK
Language	char(30) PK
IsOfficial	enum('T','F')
Percentage	float(4,1)

Tables Added

Table: unemploymentgdpcapitalincome

Columns:

id	int(11)
name (FK)	text
iso3 (PK)	text
iso2	text
phone_code	text
capital	text
currency	text
currency_symbol	text
region	text
subregion	text
latitude	double
longitude	double
Flag	text
GDP (millions)	double
Unemployment rate (%)(FK)	double
Median Income (FK)	int(11)

Table: migrantpopulation

Columns:

1	int(11)
Country Name (FK)	text
Country Code (PK)	text
Population	int(11)
Yearly immiigration	int(11)
Yearly Migration	int(11)
# on visa	int(11)

Table: govform

Columns:

FormUsage	int(11)
GovernmentForm (PK)	text
Description	text
Percentage used	double
MedianIncome (FK)	int(11)

Why do these tables matter?

1) MigrantPopulation
   - connect accurate migrant/immigrant data to country code present in other tables
   - this can provide logical assumption (educated guesses) based on other parameters, giving possible explanations to other attributes
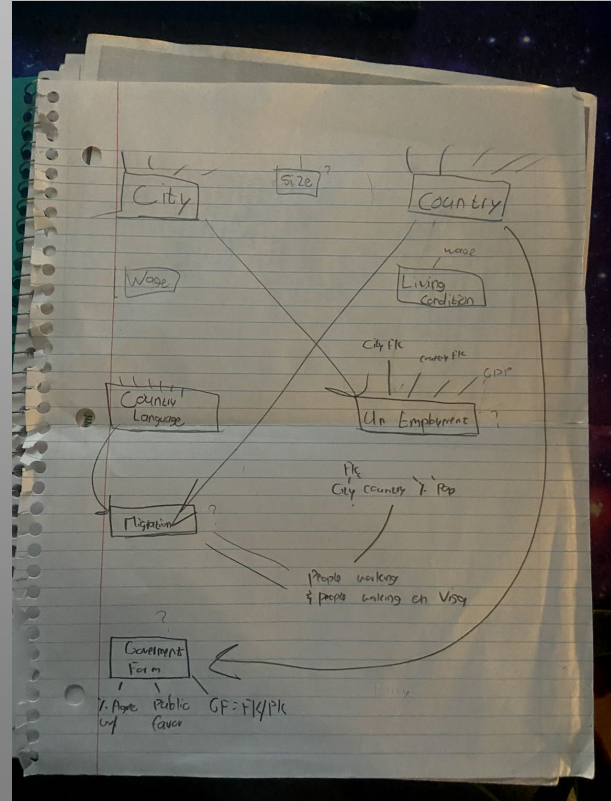
2) GovForm
   - define and quantify the various government types that are present in Country table
   - provides clear explanations of data not previously defined

3) UnemploymentGDPCapitolIncome
   - addition of many important details on countries like GDP, unemployment rate, and income
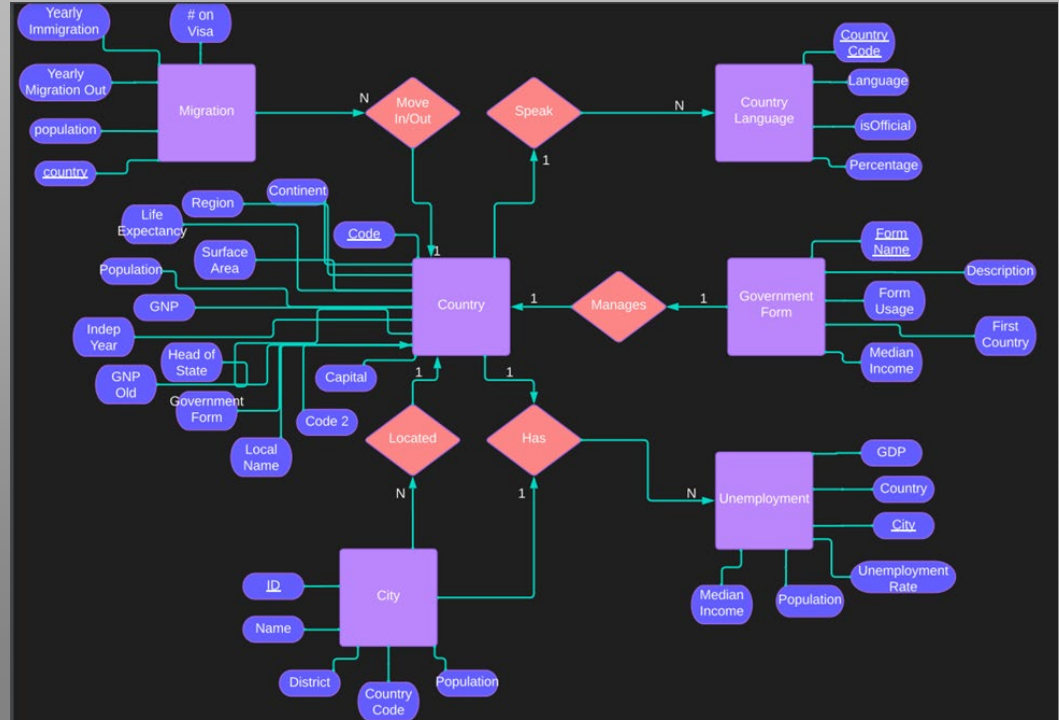   - allows us to make more connections, thus queries of joins

Early Development - ER Diagram

- Goals:
  - Create new tables
  - Learn how to connect tables to one another
  - 2-Way Relationship
- Multiple ideas
  - Not all were relevant/useful
  - Some lacked enough entities

Final Product - ER Diagram

- Analyze:
  - Many to One/One to One Relationships
  - Various attributes included in each table
  - Primary Keys
  - "Logical gates"
- Connect:
  - ER based on attributes present within Country
  - PK/FK relations between attr.
- GENERALLY: most tables are Many-One with Country, resulting in clear connection between tables

Database Investigation

Basic Queries

European_Life_GNP_countries

select Code, Name, Continent, Region, GNP, LifeExpectancy from country
where GNP >= 5000 and Region like '% Europe'
order by Region, LifeExpectancy DESC

Code	Name	Continent	Region	GNP	LifeExpectancy
CZE	Czech Republic	Europe	Eastern Europe	55017.00	74.5
SVK	Slovakia	Europe	Eastern Europe	20594.00	73.7
POL	Poland	Europe	Eastern Europe	151697.00	73.2
HUN	Hungary	Europe	Eastern Europe	48267.00	71.4
BGR	Bulgaria	Europe	Eastern Europe	12178.00	70.9
ROM	Romania	Europe	Eastern Europe	38158.00	69.9
BLR	Belarus	Europe	Eastern Europe	13714.00	68.0
RUS	Russian Federation	Europe	Eastern Europe	276608.00	67.2
UKR	Ukraine	Europe	Eastern Europe	42168.00	66.0
ITA	Italy	Europe	Southern Europe	1161755.00	79.0
ESP	Spain	Europe	Southern Europe	553233.00	78.8
GRC	Greece	Europe	Southern Europe	120724.00	78.4
PRT	Portugal	Europe	Southern Europe	105954.00	75.8
SVN	Slovenia	Europe	Southern Europe	19756.00	74.9
HRV	Croatia	Europe	Southern Europe	20208.00	73.7
YUG	Yugoslavia	Europe	Southern Europe	17000.00	72.4
CHE	Switzerland	Europe	Western Europe	264478.00	79.6
FRA	France	Europe	Western Europe	1424285.00	78.8
NLD	Netherlands	Europe	Western Europe	371362.00	78.3
BEL	Belgium	Europe	Western Europe	249704.00	77.8
AUT	Austria	Europe	Western Europe	211860.00	77.7
DEU	Germany	Europe	Western Europe	2133367.00	77.4
LUX	Luxembourg	Europe	Western Europe	16321.00	77.1
NULL	NULL	NULL	NULL	NULL	NULL

Unemployed_over_50_countries

Select name as 'Country', `GDP(millions)`, `Unemployment_rate(%)`,Median_Income
FROM unemployment_gdp_capital_income
where `Unemployment_rate(%)` > 50
order by `Unemployment_rate(%)`

Country	GDP(millions)	Unemployment_rate(%)	Median_Income
Serbia	26.28259523	50.16981669	51117
Germany	51.65714376	50.31911828	70175
Niger	92.79503239	50.44339548	12443
Fiji Islands	97.67028661	51.01980898	21867
Somalia	86.10160636	51.10181761	2303
Tunisia	57.13239742	51.1750435	9780
Iraq	6.912329637	51.55291613	84753
Wallis And Futuna Islands	104.2639585	51.86771385	5500
Swaziland	6.693906234	52.18836096	89356
French Guiana	11.66567216	52.80943876	7604
Uruguay	23.41526794	53.35974976	98246
Yemen	5.934796168	53.36305393	62252
Belgium	20.23651355	54.25534648	64134
Uganda	13.55441868	54.28325243	48825
Saint Helena	53.24171913	54.46642019	648
Seychelles	40.61187865	54.83339689	27219
Bulgaria	88.18585595	54.84307516	36205
Saudi Arabia	80.43609933	54.9839488	55404
Croatia (Hrvatska)	48.00084035	55.13807198	61972
Japan	42.78773279	55.21148158	65197
Trinidad And Tobago	77.08782273	55.41063821	24936
Nepal	71.91968518	56.70636885	22060
Malaysia	45.83342604	57.59464654	99469
Armenia	39.65194802	57.63316328	69600
Man (Isle of)	76.73019773	57.97666879	3849
Benin	94.71995907	59.17017329	15998
Romania	73.67484853	59.23478589	98666
Georgia	59.82525311	59.58055849	53508

Joins

```
SELECT m.Country_Name, m.Country_Code, m.Population, m.Yearly_Immiigration,
m.num_on_visa, c.GovernmentForm, c.LifeExpectancy FROM migrant_population m
join country c
ON c.Code = m.country_code
order by num_on_visa DESC, m.Yearly_Immiigration
```

Country_Name	Country_Code	Population	Yearly_Immiigration	num_on_visa	GovernmentForm	LifeExpectancy
Gabon	GAB	77113017	69613	98911	Republic	50.1
Mauritania	MRT	80022823	66143	98725	Republic	50.8
Armenia	ARM	93270391	77132	98350	Republic	66.4
South Africa	ZAF	67594947	67076	97327	Republic	51.1
Austria	AUT	15353104	16386	96119	Federal Republic	77.7
Barbados	BRB	5269855	33886	95763	Constitutional Monarchy	73.0
Cameroon	CMR	91500468	34505	95622	Republic	54.8
Bangladesh	BGD	77570344	74664	95427	Republic	60.2
Somalia	SOM	52016416	25908	95138	Republic	46.2
Switzerland	CHE	3517180	28009	95047	Federation	79.6
Saudi Arabia	SAU	46482315	78267	93785	Monarchy	67.8
Bolivia	BOL	92206637	37791	92272	Republic	63.7
Spain	ESP	69436986	88665	92237	Constitutional Monarchy	78.8
Philippines	PHL	3237987	71278	91044	Republic	67.5
Venezuela, RB	VEN	56774990	51453	90532	Federal R 72.4	73.1
Peru	PER	9370315	43905	89602	Republic	70.0
Nigeria	NGA	58269822	45595	89089	Federal Republic	51.6
Qatar	QAT	95737965	8164	89051	Monarchy	72.4
Congo, Dem. ...	COD	8934380	2505	88916	Republic	48.8

```
Select c.Name, c.Code, c.Continent, c.Population, u.Median_Income, c.GNP, u.`GDP(millions)`
from Country c
join unemployment_gdp_capital_income u
ON c.code = u.iso3
where c.Population != 0 AND c.GNP != 0 AND U.`GDP(millions)` != 0 And U.median_income >
30000
order by U.median_income DESC
LIMIT 50
```

Name	Code	Continent	Population	Median_Income	GNP	GDP(millions)
Malaysia	MYS	Asia	22244000	99469	69213.00	45.83342604
Sweden	SWE	Europe	8861400	98476	226492.00	85.27935129
Comoros	COM	Africa	578000	98425	4401.00	43.2017136
Uruguay	URY	South America	3337000	98246	20831.00	23.41526794
Solomon Islands	SLB	Oceania	444000	98210	182.00	34.55483022
Micronesia, Federated States of	FSM	Oceania	119000	98125	212.00	62.66506624
Dominica	DMA	North America	71000	98047	256.00	88.04657629
Paraguay	PRY	South America	5496000	95899	8444.00	14.91460325
Iceland	ISL	Europe	279000	95751	8255.00	39.84643957
Gibraltar	GIB	Europe	25000	95448	258.00	56.49955181
Czech Republic	CZE	Europe	10278100	94941	55017.00	84.52246303
Slovakia	SVK	Europe	5398700	94140	20594.00	33.97872532
Belize	BLZ	North America	241000	93005	630.00	49.21832635
Ukraine	UKR	Europe	50456000	92719	42168.00	72.40639902
Guadeloupe	GLP	North America	456000	92612	3501.00	29.44966061
Bolivia	BOL	South America	8329000	91899	8571.00	58.03753481
Vanuatu	VUT	Oceania	190000	91587	261.00	57.0252964
Namibia	NAM	Africa	1726000	91434	3101.00	92.35597906
Slovenia	SVN	Europe	1987800	90738	19756.00	34.31226489
Syria	SYR	Asia	16125000	90699	65984.00	15.65152448
North Korea	PRK	Asia	24039000	90239	5332.00	86.37281021
Switzerland	CHE	Europe	7160400	89659	264478.00	97.1027187
Guyana	GUY	South America	861000	89617	722.00	80.95778848
Swaziland	SWZ	Africa	1008000	89356	1206.00	6.693906234
Italy	ITA	Europe	57680000	87318	1161755.00	86.43104505
Ethiopia	ETH	Africa	62565000	86869	6353.00	15.86818992
Guinea	GIN	Africa	7430000	86495	2352.00	29.25684148
Aruba	ABW	North America	103000	86206	828.00	86.56987987

Subqueries

city_capitals_low_Unemployment

```sql
SELECT name, iso3, region, `Unemployment_rate(%)`, Median_Income FROM
unemployment_gdp_capital_income
Where capital IN (SELECT Name FROM City) AND `Unemployment_rate(%)` < 22
Order by `Unemployment_rate(%)` DESC
```

name	iso3	region	Unemployment_rate(%)	Median_Income
United Arab Emirates	ARE	Asia	21.92255732	50492
Kenya	KEN	Africa	21.39494001	46543
Ghana	GHA	Africa	21.30400446	10845
Cambodia	KHM	Asia	20.78088121	37470
Turkmenistan	TKM	Asia	20.74501449	2757
Guyana	GUY	Americas	20.66418443	89617
Egypt	EGY	Africa	19.57631222	42816
Malta	MLT	Europe	19.19366395	30995
Tanzania	TZA	Africa	19.06947772	40816
Mauritania	MRT	Africa	18.89356555	81714
Central African Rep...	CAF	Africa	18.77633608	10142
Guadeloupe	GLP	Americas	18.08388151	92612
East Timor	TLS	Asia	18.05104087	82028
Korea North	PRK	Asia	17.92801937	90239
Syria	SYR	Asia	17.84617106	90699
Virgin Islands (US)	VIR	Americas	17.06821403	66230
Cocos (Keeling) Isla...	CCK	Oceania	17.05702418	24079
Argentina	ARG	Americas	17.01109034	27060
Turks And Caicos Isl...	TCA	Americas	16.93330955	8522
Bhutan	BTN	Asia	16.77551551	44555
Bolivia	BOL	Americas	16.62311523	91899

Higher_than_avg_median_income_countries

```sql
SELECT name, iso3, capital, currency, `GDP(millions)`, Median_Income from
unemployment_gdp_capital_income
Where Median_Income + 10000 > (SELECT AVG(Median_Income) FROM
unemployment_gdp_capital_income)
order by Median_Income + 10000 DESC
limit 30
```

name	iso3	capital	currency	GDP(millions)	Median_Income
Malaysia	MYS	Kuala Lumpur	MYR	45.83342604	99469
Romania	ROU	Bucharest	RON	73.67484853	98666
Sweden	SWE	Stockholm	SEK	85.27935129	98476
Comoros	COM	Moroni	KMF	43.2017136	98425
Uruguay	URY	Montevideo	UYU	23.41526794	98246
Solomon Islands	SLB	Honiara	SBD	34.55483022	98210
Micronesia	FSM	Palikir	USD	62.66506624	98125
Dominica	DMA	Roseau	XCD	88.04657629	97915
Paraguay	PRY	Asuncion	PYG	14.91460325	95899
Iceland	ISL	Reykjavik	ISK	39.84643957	95751
Gibraltar	GIB	Gibraltar	GIP	56.49955181	95448
Czech Republic	CZE	Prague	CZK	84.52246303	94941
Slovakia	SVK	Bratislava	EUR	33.97872532	94140
Belize	BLZ	Belmopan	BZD	49.21832635	93005
Ukraine	UKR	Kiev	UAH	72.40639902	92719
Guadeloupe	GLP	Basse-Terre	EUR	29.44966061	92612
Bolivia	BOL	Sucre	BOB	58.03753481	91899
Vanuatu	VUT	Port Vila	VUV	57.0252964	91587
Namibia	NAM	Windhoek	NAD	92.35597906	91434
Slovenia	SVN	Ljubljana	EUR	34.31226489	90738
Syria	SYR	Damascus	SYP	15.65152448	90699
Korea North	PRK	Pyongyang	KPW	86.37281021	90239
Greenland	GRL	Nuuk	DKK	61.17371384	89842
Switzerland	CHE	Bern	CHF	97.1027187	89659
Guyana	GUY	Georgetown	GYD	80.95778848	89617
Swaziland	SWZ	Mbabane	SZL	6.693906234	89356
Italy	ITA	Rome	EUR	86.43104505	87318
Ethiopia	ETH	Addis Ababa	ETB	15.86818992	86869

Complex Queries

Highlest_yearly_pop_increase

SELECT m.Country_Name, m.Country_Code, m.Population, m.Yearly_Immiigration, m.num_on_visa, m.Yearly_Immiigration/ m.Population as 'Approx Pop Inc.(%)' FROM migrant_population m
order by m.Yearly_Immiigration/ m.Population DESC
LIMIT 50

Country_Name	Country_Code	Population	Yearly_Immiigration	num_on_visa	Approx Pop Inc.(%)
South Asia (IDA & IBRD)	TSA	875832	59435	99600	0.0679
Cuba	CUB	1048694	54350	16714	0.0518
Thailand	THA	2424330	93776	74215	0.0387
Philippines	PHL	3237987	71278	91044	0.0220
Angola	AGO	2887294	50845	86781	0.0176
Euro area	EMU	5986184	91384	21715	0.0153
Timor-Leste	TLS	2279827	33690	34406	0.0148
Liberia	LBR	6196754	91003	63770	0.0147
Kenya	KEN	5492879	76124	83631	0.0139
Europe & Central Asia (IDA & IBRD countr...	TEC	2648339	31443	16909	0.0119
Lebanon	LBN	5322339	61612	67559	0.0116
Guyana	GUY	9293128	79676	68530	0.0086
Jordan	JOR	6458638	53286	9352	0.0083
Switzerland	CHE	3517180	28009	95047	0.0080
South Asia	SAS	9027690	64329	18545	0.0071
Belgium	BEL	6924204	48734	5134	0.0070
Indonesia	IDN	5490917	37654	35366	0.0069
Serbia	SRB	12408374	80764	34522	0.0065
Barbados	BRB	5269855	33886	95763	0.0064

foot_per_person_Americas

Select Name, Continent, SurfaceArea, Population, GNP, SurfaceArea/Population as 'Area (ft^2) Per Person' From country
where Continent like '% America'
order by Continent, SurfaceArea/Population DESC

Name	Continent	SurfaceArea	Population	GNP	Area (ft^2) Per Person
Greenland	North America	2166090.00	56000	0.00	38.680179
Canada	North America	9970610.00	31147000	598862.00	0.320115
Belize	North America	22696.00	241000	630.00	0.094174
Bahamas	North America	13878.00	307000	3527.00	0.045205
Saint Pierre and Miquelon	North America	242.00	7000	0.00	0.034571
United States	North America	9363520.00	278357000	8510700.00	0.033639
Panama	North America	75517.00	2856000	9131.00	0.026442
Nicaragua	North America	130000.00	5074000	1988.00	0.025621
Turks and Caicos Islands	North America	430.00	17000	96.00	0.025294
Mexico	North America	1958201.00	98881000	414972.00	0.019804
Honduras	North America	112088.00	6485000	5333.00	0.017284
Costa Rica	North America	51100.00	4023000	10226.00	0.012702
Anguilla	North America	96.00	8000	63.20	0.012000
Dominica	North America	751.00	71000	256.00	0.010577
Cuba	North America	110861.00	11201000	17843.00	0.009897
Guatemala	North America	108889.00	11385000	19008.00	0.009564
Montserrat	North America	102.00	11000	109.00	0.009273
Virgin Islands, British	North America	151.00	21000	612.00	0.007190
Cayman Islands	North America	264.00	38000	1263.00	0.006947
Saint Kitts and Nevis	North America	261.00	38000	299.00	0.006868

Summary

Databases are important to interpret large-scale data:

- Added Government Form, Migrant Population, Unemployment GDP Capital Income

ER Diagrams helps construct a visualization of database tables connecting data

- The graph helps shows clear connection to other tables due to Many-One to Country

Our group took time to construct our tables and relevant data

- Some entities either had a lack of information or irrelevant to the original data given