

In this project, we'll work with data from the CIA World Factbook, a compendium of statistics about all of the countries on Earth. The Factbook contains demographic information like:

population - The population as of 2015. **population_growth** - The annual population growth rate, as a percentage. **area** - The total land and water area.

In this project, we'll use SQL in Jupyter Notebook to explore and analyze data from this database.

```
In [22]: %%capture
        %load_ext sql
        %sql sqlite:///factbook.db

        # Here we connect the Jupyter notebook to the database file.
```

Out[22]: 'Connected: None@factbook.db'

```
In [2]: %%sql

        SELECT *
        FROM sqlite_master
        WHERE type='table';

        # Here we format the input as a table.
```

Done.

Out[2]:

type	name	tbl_name	rootpage	sql
table	sqlite_sequence	sqlite_sequence	3	CREATE TABLE sqlite_sequence(name,seq)
table	facts	facts	47	CREATE TABLE "facts" ("id" INTEGER PRIMARY KEY AUTOINCREMENT NOT NULL, "code" varchar(255) NOT NULL, "name" varchar(255) NOT NULL, "area" integer, "area_land" integer, "area_water" integer, "population" integer, "population_growth" float, "birth_rate" float, "death_rate" float, "migration_rate" float)

Data set:

The dataset is quite simple and will not allow us to answer complicated question. It is composed of 11 cols and 262 row.

- **id** - id number attributed to a country.
- **code** - country code, made from the two first letters of the country.
- **area** - total area of the country (area_water + area_land).
- **population** - population of the country
- **population_growth** - ratio of the population growth in 2015
- **birth_rate**
- **death_rate**
- **migration_rate** - ratio of people that left the country to another.

It is important to note that the last row (id 262) is not a country but "World" (code: xx). In the end the data is only composed of 261 countries.

```
In [20]: %%sql #this line will make it possible to run a SQL query with Jupyter
SELECT *
FROM facts
```

Done.

```
Out[20]:
```

	id	code	name	area	area_land	area_water	population	population_growth	birth_rate	death_rate	migration_rate
1	af	Afghanistan	652230	652230	0	32564342	2.32	38.57	13.89	1.51	
2	al	Albania	28748	27398	1350	3029278	0.3	12.92	6.58	3.3	
3	ag	Algeria	2381741	2381741	0	39542166	1.84	23.67	4.31	0.92	
4	an	Andorra	468	468	0	85580	0.12	8.13	6.96	0.0	
5	ao	Angola	1246700	1246700	0	19625353	2.78	38.78	11.49	0.46	
6	ac	Antigua and Barbuda	442	442	0	92436	1.24	15.85	5.69	2.21	
7	ar	Argentina	2780400	2736690	43710	43431886	0.93	16.64	7.33	0.0	
8	am	Armenia	29743	28203	1540	3056382	0.15	13.61	9.34	5.8	
9	as	Australia	7741220	7682300	58920	22751014	1.07	12.15	7.14	5.65	
10	au	Austria	83871	82445	1426	8665550	0.55	9.41	9.42	5.56	
11	aj	Azerbaijan	86600	82629	3971	9780780	0.96	16.64	7.07	0.0	
12	bf	Bahamas, The	13880	10010	3870	324597	0.85	15.5	7.05	0.0	
13	ba	Bahrain	760	760	0	1346613	2.41	13.66	2.69	13.09	
14	bg	Bangladesh	148460	130170	18290	168957745	1.6	21.14	5.61	0.46	
15	bb	Barbados	430	430	0	290604	0.31	11.87	8.44	0.3	
16	bo	Belarus	207600	202900	4700	9589689	0.2	10.7	13.36	0.7	
17	be	Belgium	30528	30278	250	11323973	0.76	11.41	9.63	5.87	
18	bh	Belize	22966	22806	160	347369	1.87	24.68	5.97	0.0	
19	bn	Benin	112622	110622	2000	10448647	2.78	36.02	8.21	0.0	
20	bt	Bhutan	38394	38394	0	741919	1.11	17.78	6.69	0.0	
21	bl	Bolivia	1098581	1083301	15280	10800882	1.56	22.76	6.52	0.62	
22	bk	Bosnia and Herzegovina	51197	51187	10	3867055	0.13	8.87	9.75	0.38	
23	bc	Botswana	581730	566730	15000	2182719	1.21	20.96	13.39	4.56	
24	br	Brazil	8515770	8358140	157630	204259812	0.77	14.46	6.58	0.14	
25	bx	Brunei	5765	5265	500	429646	1.62	17.32	3.52	2.43	
26	bu	Bulgaria	110879	108489	2390	7186893	0.58	8.92	14.44	0.29	
27	uv	Burkina Faso	274200	273800	400	18931686	3.03	42.03	11.72	0.0	
28	bm	Burma	676578	653508	23070	56320206	1.01	18.39	7.96	0.28	
29	by	Burundi	27830	25680	2150	10742276	3.28	42.01	9.27	0.0	
30	cb	Cambodia	181035	176515	4520	15708756	1.58	23.83	7.68	0.32	

31	cm	Cameroon	475440	472710	2730	23739218	2.59	36.17	10.11	0.15
32	ca	Canada	9984670	9093507	891163	35099836	0.75	10.28	8.42	5.66
33	cv	Cabo Verde	4033	4033	0	545993	1.36	20.33	6.11	0.63
34	ct	Central African Republic	622984	622984	0	5391539	2.13	35.08	13.8	0.0
35	cd	Chad	None	1259200	24800	11631456	1.89	36.6	14.28	3.45
36	ci	Chile	756102	743812	12290	17508260	0.82	13.83	6.0	0.34
37	ch	China	9596960	9326410	270550	1367485388	0.45	12.49	7.53	0.44
38	co	Colombia	1138910	1038700	100210	46736728	1.04	16.47	5.4	0.64
39	cn	Comoros	2235	2235	0	780971	1.77	27.84	7.57	2.53
40	cg	Congo, Democratic Republic of the	2344858	2267048	77810	79375136	2.45	34.88	10.07	0.27
41	cf	Congo, Republic of the	342000	341500	500	4755097	2.0	35.85	10.0	5.9
42	cs	Costa Rica	51100	51060	40	4814144	1.22	15.91	4.55	0.83
43	iv	Cote d'Ivoire	322463	318003	4460	23295302	1.91	28.67	9.55	0.0
44	hr	Croatia	56594	55974	620	4464844	0.13	9.45	12.18	1.39
45	cu	Cuba	110860	109820	1040	11031433	0.15	9.9	7.72	3.66
46	cy	Cyprus	9251	9241	10	1189197	1.43	11.41	6.62	9.48
47	ez	Czech Republic	78867	77247	1620	10644842	0.16	9.63	10.34	2.33
48	da	Denmark	43094	42434	660	5581503	0.22	10.27	10.25	2.2
49	dj	Djibouti	23200	23180	20	828324	2.2	23.65	7.73	6.06
50	do	Dominica	751	751	0	73607	0.21	15.41	7.91	5.38
51	dr	Dominican Republic	48670	48320	350	10478756	1.23	18.73	4.55	1.91
52	ec	Ecuador	283561	276841	6720	15868396	1.35	18.51	5.06	0.0
53	eg	Egypt	1001450	995450	6000	88487396	1.79	22.9	4.77	0.19
54	es	El Salvador	21041	20721	320	6141350	0.25	16.46	5.69	8.28
55	ek	Equatorial Guinea	28051	28051	0	740743	2.51	33.31	8.19	0.0
56	er	Eritrea	117600	101000	16600	6527689	2.25	30.0	7.52	0.0
57	en	Estonia	45228	42388	2840	1265420	0.55	10.51	12.4	3.6
58	et	Ethiopia	1104300	None	104300	99465819	2.89	37.27	8.19	0.22
59	fj	Fiji	18274	18274	0	909389	0.67	19.43	6.04	6.75
60	fi	Finland	338145	303815	34330	5476922	0.4	10.72	9.83	3.1
61	fr	France	643801	640427	3374	66553766	0.43	12.38	9.16	1.09
62	gb	Gabon	267667	257667	10000	1705336	1.93	34.49	13.12	2.03
63	ga	Gambia, The	11300	10120	1180	1967709	2.16	30.86	7.15	2.12
64	gg	Georgia	69700	69700	0	4931226	0.08	12.74	10.82	2.7
65	gm	Germany	357022	348672	8350	80854408	0.17	8.47	11.42	1.24
66	gh	Ghana	238533	227533	11000	26327649	2.18	31.09	7.22	2.02
67	gr	Greece	131957	130647	1310	10775643	0.01	8.66	11.09	2.32

68	gj	Grenada	344	344	0	110694	0.48	16.03	8.08	3.13
69	gt	Guatemala	108889	107159	1730	14918999	1.82	24.89	4.77	1.97
70	gv	Guinea	245857	245717	140	11780162	2.63	35.74	9.46	0.0
71	pu	Guinea-Bissau	36125	28120	8005	1726170	1.91	33.38	14.33	0.0
72	gy	Guyana	214969	196849	18120	735222	0.02	15.59	7.32	8.06
73	ha	Haiti	27750	27560	190	10110019	1.17	22.31	7.83	2.76
74	ho	Honduras	112090	111890	200	8746673	1.68	23.14	5.17	1.16
75	hu	Hungary	93028	89608	3420	9897541	0.22	9.16	12.73	1.33
76	ic	Iceland	103000	100250	2750	331918	1.21	13.91	6.28	4.43
77	in	India	3287263	2973193	314070	1251695584	1.22	19.55	7.32	0.04
78	id	Indonesia	1904569	1811569	93000	255993674	0.92	16.72	6.37	1.16
79	ir	Iran	1648195	1531595	116600	81824270	1.2	17.99	5.94	0.07
80	iz	Iraq	438317	437367	950	37056169	2.93	31.45	3.77	1.62
81	ei	Ireland	70273	68883	1390	4892305	1.25	14.84	6.48	4.09
82	is	Israel	20770	20330	440	8049314	1.56	18.48	5.15	2.24
83	it	Italy	301340	294140	7200	61855120	0.27	8.74	10.19	4.1
84	jm	Jamaica	10991	10831	160	2950210	0.68	18.16	6.7	4.66
85	ja	Japan	377915	364485	13430	126919659	0.16	7.93	9.51	0.0
86	jo	Jordan	89342	88802	540	8117564	0.83	25.37	3.79	13.24
87	kz	Kazakhstan	2724900	2699700	25200	18157122	1.14	19.15	8.21	0.41

88	ke	Kenya	580367	569140	11227	45925301	1.93	26.4	6.89	0.22
89	kr	Kiribati	811	811	0	105711	1.15	21.46	7.12	2.87
90	kn	Korea, North	120538	120408	130	24983205	0.53	14.52	9.21	0.04
91	ks	Korea, South	99720	96920	2800	49115196	0.14	8.19	6.75	0.0
92	kv	Kosovo	10887	10887	0	1870981	None	None	None	None
93	ku	Kuwait	17818	17818	0	2788534	1.62	19.91	2.18	1.58
94	kg	Kyrgyzstan	199951	191801	8150	5664939	1.11	22.98	6.65	5.22
95	la	Laos	236800	230800	6000	6911544	1.55	24.25	7.63	1.09
96	lg	Latvia	64589	62249	2340	1986705	1.06	10.0	14.31	6.26
97	le	Lebanon	10400	10230	170	6184701	0.86	14.59	4.88	1.1
98	lt	Lesotho	30355	30355	0	1947701	0.32	25.47	14.89	7.36
99	li	Liberia	111369	96320	15049	4195666	2.47	34.41	9.69	0.0
100	ly	Libya	1759540	1759540	0	6411776	2.23	18.03	3.58	7.8
101	ls	Liechtenstein	160	160	0	37624	0.84	10.45	7.12	5.08
102	lh	Lithuania	65300	62680	2620	2884433	1.04	10.1	14.27	6.27
103	lu	Luxembourg	2586	2586	0	570252	2.13	11.37	7.24	17.16
104	mk	Macedonia	25713	25433	280	2096015	0.2	11.55	9.08	0.48
105	ma	Madagascar	587041	581540	5501	23812681	2.58	32.61	6.81	0.0
106	mi	Malawi	118484	94080	24404	17964697	3.32	41.56	8.41	0.0
107	my	Malaysia	329847	328657	1190	30513848	1.44	19.71	5.03	0.33

108	mv	Maldives	298	298	0	393253	0.08	15.75	3.89	12.68
109	ml	Mali	1240192	1220190	20002	16955536	2.98	44.99	12.89	2.26
110	mt	Malta	316	316	0	413965	0.31	10.18	9.09	1.98
111	rm	Marshall Islands	181	181	0	72191	1.66	25.6	4.21	4.83
112	mr	Mauritania	1030700	1030700	0	3596702	2.23	31.34	8.2	0.83
113	mp	Mauritius	2040	2030	10	1339827	0.64	13.29	6.91	0.0
114	mx	Mexico	1964375	1943945	20430	121736809	1.18	18.78	5.26	1.68
115	fm	Micronesia, Federated States of	702	702	0	105216	0.46	20.54	4.23	20.93
116	md	Moldova	33851	32891	960	3546847	1.03	12.0	12.59	9.67
117	mn	Monaco	2	2	0	30535	0.12	6.65	9.24	3.83
118	mg	Mongolia	1564116	1553556	10560	2992908	1.31	20.25	6.35	0.84
119	mj	Montenegro	13812	13452	360	647073	0.42	10.42	9.43	None
120	mo	Morocco	446550	446300	250	33322699	1.0	18.2	4.81	3.36
121	mz	Mozambique	799380	786380	13000	25303113	2.45	38.58	12.1	1.98
122	wa	Namibia	824292	823290	1002	2212307	0.59	19.8	13.91	0.0
123	nr	Nauru	21	21	0	9540	0.55	24.95	5.87	13.63
124	np	Nepal	147181	143351	3830	31551305	1.79	20.64	6.56	3.86
125	nl	Netherlands	41543	33893	7650	16947904	0.41	10.83	8.66	1.95
126	nz	New Zealand	267710	267710	None	4438393	0.82	13.33	7.36	2.21
128	ng	Niger	None	1266700	300	18045729	3.25	45.45	12.42	0.56
129	ni	Nigeria	923768	910768	13000	181562056	2.45	37.64	12.9	0.22
130	no	Norway	323802	304282	19520	5207689	1.13	12.14	8.12	7.25
131	mu	Oman	309500	309500	0	3286936	2.07	24.44	3.36	0.43
132	pk	Pakistan	796095	770875	25220	199085847	1.46	22.58	6.49	1.54
133	ps	Palau	459	459	0	21265	0.38	11.05	7.99	0.71
134	pm	Panama	75420	74340	1080	3657024	1.32	18.32	4.81	0.28
135	pp	Papua New Guinea	462840	452860	9980	6672429	1.78	24.38	6.53	0.0
136	pa	Paraguay	406752	397302	9450	6783272	1.16	16.37	4.68	0.07
137	pe	Peru	1285216	1279996	5220	30444999	0.97	18.28	6.01	2.53
138	rp	Philippines	300000	298170	1830	100998376	1.61	24.27	6.11	2.09
139	pl	Poland	312685	304255	8430	38562189	0.09	9.74	10.19	0.46
140	po	Portugal	92090	91470	620	10825309	0.09	9.27	11.02	2.67
141	qa	Qatar	11586	11586	0	2194817	3.07	9.84	1.53	22.39
142	ro	Romania	238391	229891	8500	21666350	0.3	9.14	11.9	0.24
143	rs	Russia	17098242	16377742	720500	142423773	0.04	11.6	13.69	1.69
144	rw	Rwanda	26338	24668	1670	12661733	2.56	33.75	8.96	0.85
145	sc	Saint Kitts and Nevis	261	261	0	51936	0.76	13.5	7.09	1.21
146	st	Saint Lucia	616	606	10	163922	0.34	13.7	7.42	2.93

147	vc	Saint Vincent and the Grenadines	389	389	0	102627	0.28	13.57	7.18	9.17
148	ws	Samoa	2831	2821	10	197773	0.58	20.87	5.32	9.78
149	sm	San Marino	61	61	0	33020	0.82	8.63	8.45	8.03
150	tp	Sao Tome and Principe	964	964	0	194006	1.84	34.23	7.24	8.63
151	sa	Saudi Arabia	2149690	2149690	0	27752316	1.46	18.51	3.33	0.55
152	sg	Senegal	196722	192530	4192	13975834	2.45	34.52	8.46	1.59
153	ri	Serbia	77474	77474	0	7176794	0.46	9.08	13.66	0.0
154	se	Seychelles	455	455	0	92430	0.83	14.19	6.89	1.0
155	sl	Sierra Leone	71740	71620	120	5879098	2.35	37.03	10.81	2.77
156	sn	Singapore	697	687	10	5674472	1.89	8.27	3.43	14.05
157	lo	Slovakia	49035	48105	930	5445027	0.02	9.91	9.74	0.04
158	si	Slovenia	20273	20151	122	1983412	0.26	8.42	11.37	0.37
159	bp	Solomon Islands	28896	27986	910	622469	2.02	25.77	3.85	1.75
160	so	Somalia	637657	627337	10320	10616380	1.83	40.45	13.62	8.49
161	sf	South Africa	1219090	1214470	4620	53675563	1.33	20.75	9.91	2.42
162	od	South Sudan	644329	None	None	12042910	4.02	36.91	8.18	11.47
163	sp	Spain	505370	498980	6390	48146134	0.89	9.64	9.04	8.31
164	ce	Sri Lanka	65610	64630	980	22053488	0.84	15.85	6.11	1.35
165	su	Sudan	1861484	None	None	36108853	1.72	29.19	7.66	4.29
166	ns	Suriname	163820	156000	7820	579633	1.08	16.34	6.13	0.56
167	wz	Swaziland	17364	17204	160	1435613	1.11	24.67	13.56	0.0
168	sw	Sweden	450295	410335	39960	9801616	0.8	11.99	9.4	5.42
169	sz	Switzerland	41277	39997	1280	8121830	0.71	10.5	8.13	4.74
170	sy	Syria	185180	183630	1550	17064854	0.16	22.17	4.0	19.79
171	ti	Tajikistan	144100	141510	2590	8191958	1.71	24.38	6.18	1.15
172	tz	Tanzania	947300	885800	61500	51045882	2.79	36.39	8.0	0.54
173	th	Thailand	513120	510890	2230	67976405	0.34	11.19	7.8	0.0
174	tt	Timor-Leste	14874	14874	0	1231116	2.42	34.16	6.1	3.86
175	to	Togo	56785	54385	2400	7552318	2.69	34.13	7.26	0.0
176	tn	Tonga	747	717	30	106501	0.03	23.0	4.85	17.84
177	td	Trinidad and Tobago	5128	5128	0	1222363	0.13	13.46	8.56	6.25
178	ts	Tunisia	163610	155360	8250	11037225	0.89	16.64	5.98	1.73
179	tu	Turkey	783562	769632	13930	79414269	1.26	16.33	5.88	2.16
180	tx	Turkmenistan	488100	469930	18170	5231422	1.14	19.4	6.13	1.84
181	tv	Tuvalu	26	26	0	10869	0.82	23.74	8.74	6.81
182	ug	Uganda	241038	197100	43938	37101745	3.24	43.79	10.69	0.74
183	up	Ukraine	603550	579330	24220	44429471	0.6	10.72	14.46	2.25

184	ae	United Arab Emirates	83600	83600	0	5779760	2.58	15.43	1.97	12.36
185	uk	United Kingdom	243610	241930	1680	64088222	0.54	12.17	9.35	2.54
186	us	United States	9826675	9161966	664709	321368864	0.78	12.49	8.15	3.86
187	uy	Uruguay	176215	175015	1200	3341893	0.27	13.07	9.45	0.9
188	uz	Uzbekistan	447400	425400	22000	29199942	0.93	17.0	5.3	2.37
189	nh	Vanuatu	12189	12189	0	272264	1.95	25.04	4.09	1.47
190	vt	Holy See (Vatican City)	0	0	0	842	0.0	None	None	None
191	ve	Venezuela	912050	882050	30000	29275460	1.39	19.16	5.31	0.0
192	vm	Vietnam	331210	310070	21140	94348835	0.97	15.96	5.93	0.3
193	ym	Yemen	527968	527968	0	26737317	2.47	29.98	6.28	1.0
194	za	Zambia	752618	743398	9220	15066266	2.88	42.13	12.67	0.68
195	zi	Zimbabwe	390757	386847	3910	14229541	2.21	32.26	10.13	0.0
196	tw	Taiwan	35980	32260	3720	23415126	0.23	8.47	7.11	0.89
197	ee	European Union	4324782	None	None	513949445	0.25	10.2	10.2	2.5
198	at	Ashmore and Cartier Islands	5	5	0	None	None	None	None	None
199	kt	Christmas Island	135	135	0	1530	1.11	None	None	None
200	ck	Cocos (Keeling) Islands	14	14	0	596	0.0	None	None	None
201	cr	Coral Sea Islands	3	3	0	None	None	None	None	None
202	hm	Heard Island and McDonald Islands	412	412	0	None	None	None	None	None
203	nf	Norfolk Island	36	36	0	2210	0.01	None	None	None
204	hk	Hong Kong	1108	1073	35	7141106	0.38	9.23	7.07	1.68
205	mc	Macau	28	28	0	592731	0.8	8.88	4.22	3.37
206	fo	Faroe Islands	1393	1393	0	50196	0.51	13.77	8.71	0.0
207	gl	Greenland	2166086	2166086	None	57733	0.0	14.48	8.49	5.98
208	ip	Clipperton Island	6	6	0	None	None	None	None	None
209	fp	French Polynesia	4167	3827	340	282703	0.94	15.22	5.02	0.84
210	fs	French Southern and Antarctic Lands	None	None	None	None	None	None	None	None
211	nc	New Caledonia	18575	18275	300	271615	1.38	15.33	5.52	4.01
212	tb	Saint Barthélemy	None	None	None	7237	None	None	None	None
213	rn	Saint Martin	54	54	None	31754	None	None	None	None
214	sb	Saint Pierre and Miquelon	242	242	0	5657	1.08	7.42	9.72	8.49
215	wf	Wallis and Futuna	142	142	0	15613	0.33	13.45	5.06	5.06
216	aa	Aruba	180	180	0	112162	1.33	12.56	8.18	8.92
217	cc	Curacao	444	444	0	148406	0.43	13.8	8.2	1.4
218	sk	Sint Maarten	34	34	0	39689	1.51	13.0	4.51	6.63

219	cw	Cook Islands	236	236	0	9838	2.95	14.33	8.03	None
220	ne	Niue	260	260	0	1190	0.03	None	None	None
221	tl	Tokelau	12	12	0	1337	0.01	None	None	None
222	bv	Bouvet Island	49	49	0	None	None	None	None	None
223	jn	Jan Mayen	377	377	0	None	None	None	None	None
224	sv	Svalbard	62045	62045	0	1872	0.03	None	None	None
225	ax	Akrotiri	123	None	None	15700	None	None	None	None
226	av	Anguilla	91	91	0	16418	2.03	12.67	4.57	12.18
227	bd	Bermuda	54	54	0	70196	0.5	11.33	8.23	1.88
228	io	British Indian Ocean Territory	54400	60	54340	None	None	None	None	None
229	vi	British Virgin Islands	151	151	0	33454	2.32	10.91	4.99	17.28
230	cj	Cayman Islands	264	264	0	56092	2.1	12.11	5.53	14.4
231	dx	Dhekelia	130	None	None	15700	None	None	None	None
232	fk	Falkland Islands (Islas Malvinas)	12173	12173	0	3361	0.01	10.9	4.9	None
233	gi	Gibraltar	6	6	0	29258	0.24	14.08	8.37	3.28
234	gk	Guernsey	78	78	0	66080	0.34	9.84	8.78	2.32
235	je	Jersey	116	116	0	97294	0.8	11.91	7.68	3.76
236	im	Isle of Man	572	572	0	87545	0.76	11.1	10.06	6.56
237	mh	Montserrat	102	102	0	5241	0.5	11.26	6.3	0.0
238	pc	Pitcairn Islands	47	47	0	48	0.0	None	None	None
239	sh	Saint Helena, Ascension, and Tristan da Cunha	308	122	0	7795	0.24	9.88	7.44	0.0
240	sx	South Georgia and South Sandwich Islands	3903	3903	0	None	None	None	None	None
241	tk	Turks and Caicos Islands	948	948	0	50280	2.3	16.13	3.1	9.94
242	aq	American Samoa	199	199	0	54343	0.3	22.89	4.75	21.13
243	gq	Guam	544	544	0	161785	0.54	16.82	5.12	6.34
244	bq	Navassa Island	5	5	0	None	None	None	None	None
245	cq	Northern Mariana Islands	464	464	0	52344	2.18	18.32	3.71	7.16
246	rq	Puerto Rico	13791	8870	4921	3598357	0.6	10.86	8.67	8.15
247	vq	Virgin Islands	1910	346	1564	103574	0.59	10.31	8.54	7.67
248	wq	Wake Island	6	6	0	None	None	None	None	None
249	um	United States Pacific Island Wildlife Refuges	None	None	None	None	None	None	None	None
250	ay	Antarctica	None	280000	None	0	None	None	None	None
251	gz	Gaza Strip	360	360	0	1869055	2.81	31.11	3.04	0.0
252	pf	Paracel Islands	7	7	0	None	None	None	None	None
253	pg	Spratly Islands	5	5	0	None	None	None	None	None

254	we	West Bank	5860	5640	220	2785366	1.95	22.99	3.5	0.0
255	wi	Western Sahara	266000	266000	0	570866	2.82	30.24	8.34	None
256	xq	Arctic Ocean	None	None	None	None	None	None	None	None
257	zh	Atlantic Ocean	None	None	None	None	None	None	None	None
258	xo	Indian Ocean	None	None	None	None	None	None	None	None
259	zn	Pacific Ocean	None	None	None	None	None	None	None	None
260	oo	Southern Ocean	None	None	None	None	None	None	None	None
261	xx	World	None	None	None	7256490011	1.08	18.6	7.8	None

What is the maximum and minimum of population and population growth in all the countries?

```
In [23]: %%sql
SELECT MIN(population) AS min_pop,
       MAX(population) AS max_pop,
       MIN(population_growth) AS min_pop_growth,
       MAX(population_growth) AS max_pop_growth
FROM facts;
```

Done.

```
Out[23]: min_pop    max_pop    min_pop_growth    max_pop_growth
         0    7256490011         0.0         4.02
```

```
In [4]: %%sql
SELECT *
FROM facts
WHERE population == (SELECT MIN(population)
                     FROM facts
                     );
```

Done.

```
Out[4]: id code  name  area  area_land  area_water  population  population_growth  birth_rate  death_rate  migration_rate
250    ay  Antarctica  None    280000      None         0           None           None           None           None
```

```
In [5]: %%sql
SELECT *
FROM facts
WHERE population == (SELECT MAX(population)
                     FROM facts
                     );
```

Done.

```
Out[5]: id code  name  area  area_land  area_water  population  population_growth  birth_rate  death_rate  migration_rate
261    xx  World  None    None        None    7256490011         1.08         18.6         7.8         None
```

Finding the outliers

As we saw in our explanation above, the row "World" is the total of the whole database (261 countries). It does appear as the "country" with the max population (7.2 billions) in our query and messes up our analysis. We need to write another query, leaving "World" out of it. Antitartica also appears with 0 population. There are outliers.

```
In [6]: %%sql
SELECT MIN(population) AS min_pop,
       MAX(population) AS max_pop,
       MIN(population_growth) AS min_pop_growth,
       MAX(population_growth) AS max_pop_growth
FROM facts

WHERE name <> 'World'; #this line remove world from our analysis
```

Done.

```
Out[6]: min_pop    max_pop    min_pop_growth    max_pop_growth
        0    1367485388            0.0            4.02
```

Taking "World" out of the equation, we can see that there is a country with 1.4 billion people.

Finding Densely Populated Countries

To finish, we'll build on the query above to find countries that are densely populated. We'll identify countries that have:

Above average values for population. Below average values for area.

```
In [28]: %%sql
SELECT AVG(population) AS avg_population, AVG(area) AS avg_area
FROM facts
WHERE name <> 'World';
```

Done.

```
Out[28]: avg_population    avg_area
        32242666.56846473    555093.546184739
```

```
In [27]: %%sql
SELECT name, population, area
FROM facts
WHERE population > (SELECT AVG(population)
                   FROM facts)
AND area < (SELECT AVG(area)
           FROM facts)
ORDER BY 2 DESC;
```

Done.

```
Out[27]: name    population    area
        Bangladesh    168957745    148460
        Japan    126919659    377915
        Philippines    100998376    300000
        Vietnam    94348835    331210
        Germany    80854408    357022
        Thailand    67976405    513120
        United Kingdom    64088222    243610
```

In the end, we decided to see the countries where the population density ratio is the more important. To do this, we have made a query that shows the countries with a population that is superior to the average of the column population. In order to detect the "small" countries, we have queried the area to be inferior to the average of the area column.

As we can now see Bangladesh is the most populated country for a small area. It is then followed by Japan and the Philippines.