Osnove podatkovnih baz

1. domača naloga

1. del - SQL

a)

```
SELECT *
FROM country WHERE continent = 'Europe'
;;
```

b)

```
SELECT name
FROM country
WHERE population > 10000000 AND lifeexpectancy < 70
;;
```

c)

```
SELECT name
FROM city
WHERE name LIKE 'R%' AND name NOT LIKE '%o%'
;;
```

d)

```
SELECT name
FROM country
WHERE name = (SELECT name
        FROM city
        WHERE id = capital
);;
```

e)

```
SELECT name
FROM country
WHERE code IN (
         SELECT countrycode
         FROM countrylanguage
         GROUP BY countrycode
         HAVING COUNT (language) >= 10 AND COUNT (language) <= 15
)
GROUP BY code
ORDER BY name
;;
```

f)

```
SELECT name
FROM city
WHERE countrycode IN (
        SELECT code
        FROM country
        WHERE continent = 'Asia'
) AND population > ALL (
        SELECT population
        FROM country
        WHERE region = 'Nordic Countries'
);;
```

g)

```
SELECT COUNT(co.code)
FROM country as co, countrylanguage as cl
WHERE cl.countrycode = co.code AND cl.isofficial AND cl.language != ALL (
        SELECT Language
        FROM countrylanguage
        WHERE countrycode != cl.countrycode
);;
```

KRAJŠAVE ATRIBUTOV RELACIJ ZA REL. RAČUN

COUNTRY (C)

CODE	CC
NAME	CN
CONTINENT	CCO
REGION	CR
SURFACEAREA	CA
INDEPYEAR	CIY
POPULATION	CPOP
LIFEEXPECT.	CLE
GNP	CGNP
GNPOLD	CGNPO
LOCALNAME	CLN
GOVERNM.FO.	CGF
HEADOF STATE	CHS
CAPITAL	CCAP
CODE2	CC2

CITY (CI)

ID	CID
NAME	CIN
COUNTRYCODE	CCC
DISTRICT	CD
POPULATION	CIPOP

COUNTRYLANGUAGE (L)

COUNTRYCODE	LCC
LANGUAGE	L
ISOFFICIAL	LIO
PERCENTAGE	LP

2. a) RA: $\Pi_{co.name}(\sigma_{ci.population > 1\,000\,000 \wedge co.GNP > 10\,000}(ci \bowtie co))$

RR: $\{\langle CN \rangle \mid \langle CGNP, CCAP \rangle \in country \wedge \exists \langle cciD, CICC, CIPOP \rangle (CCAP = CCID \wedge CGNP > 10\,000 \wedge CIPOP > 10\,000\,000)\}$

b) RA: $\Pi_{co.name}(country) - \Pi_{co.iname}(\sigma_{isofficial=false}(country \bowtie code = countrycode(countrylanguage)))$

RR: $\{\langle CN \rangle \mid \langle CN, CC \rangle \in country \wedge \neg \exists \langle LCC, L, LIO \rangle \in countrylanguage (cc = LCC \wedge LIO = false)\}$

c) RA: $\Pi_{co.name}(country) - \Pi_{co.name}(country \bowtie (country \bowtie code = countrycode(\sigma_{isofficial=true \wedge language != 'Spanish'}(countrylanguage))))$.

RR: $\{\langle CH\rangle \mid \langle CH, CC\rangle \in country \wedge \neg \exists \langle LCC, LIO\rangle \in countrylanguage$
$(CC = CCC \wedge LIO = true \wedge L != 'Spanish')\}$

d) RA: $\Pi_{CO.name}(\delta_{asia.population}(\delta_{continent='Europe'}(country)) \times$
$\rho_{APOP}(asia.population)(\Im_{min\ population}(\delta_{continent='Asia'}(country))))$

RR: $\{\langle CH\rangle \mid \langle CH, CCO, CPOP\rangle \in country \wedge \exists \langle CHA, CCOA, CPOPA\rangle \in country$
$(CCO = 'Europe' \wedge CCOA = 'Asia' \wedge CPOP > CPOPA)\}$

e) RA: $\Pi_{CO.name}(\delta_{CO.name = CI.name}(country \bowtie_{CO.capital = CI.id} city))$

RR: $\{\langle CH\rangle \mid \langle CH, CC\rangle \in country \wedge \exists \langle CIH, CICC\rangle \in city$
$(CC = CICC \wedge CH = CIH)\}$

f) RA: $\Pi_{CO.name}(\delta_{CO.population > SP.population}(\rho_{SPPOP}(SP.population)$
$(\Im_{max\ population}(\delta_{CO.population}(\delta_{CO.language='Spanish'}(country \bowtie_{code = countrycode} countrylanguage)))))$

↳

$\Pi_{CO.name}(\delta_{CO.population > SP.population}(\rho_{SPOP}(SP.population)(\Im_{max\ population}(\delta_{CO.population}$
$(\delta_{CO.language='Spanish'}(country \bowtie_{code = countrycode} countrylanguage)))))$

RR: $\{\langle CH\rangle \mid \langle CH, CPOP\rangle \in country \wedge \forall(\langle CH2, CC2, CPOP2\rangle \in country \wedge$
$\exists \langle LCC, L\rangle \in countrylanguage(CC2 = LCC \wedge L = 'Spanish') \wedge CPOP2 < CPOP)\}$