DBMS
TUTORIAL 7

Implement Relational Algebra Expressions for all the queries on case study 1

Implement Relational Algebra Expressions for all the queries on Covid Pandemic Country-wise Database System

1) Display the population of each country

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1. $\Pi_{cname, population}(country)$

```
46 • select cname,population from Country;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

cname	population
USA	900000
Russia	600000
UK	400000
Australia	400000

2) Show the highest number of confirmed corona virus cases in the world.

2. $\Pi_{country.activecases} - \Pi_{country.activecases}(\sigma_{country.activecases < c.activecases}(country \times \rho_c(country)))$

(or)

2. $\sigma_{rownum()<=1}(\tau_{activecases\ DESC}(country))$

```
48 •  select max(activeCases) from Country;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

max(activeCases)
20000

3) Display the top 5 countries affected with corona virus.

$$3.\ \sigma_{rownum()<=5}\left(\tau_{activecases\ DESC}(country)\right)$$

```
49 •  select *from Country order by activeCases desc limit 5;
50
```

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

cid	Cname	activeCases	deaths	population	recovered
1	USA	20000	7000	900000	15000
7	Russia	18000	9000	600000	20000
44	UK	15000	6000	400000	17000
61	Australia	13000	10000	400000	11000
93	Afganisthan	12000	15000	300000	7000
NULL	NULL	NULL	NULL	NULL	NULL

4) Display the countries with death toll above 1000

$$4.\ \sigma_{deaths>1000}(country)$$

```
50 • select *from Country where deaths>1000;
```

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

cid	Cname	activeCases	deaths	population	recovered
1	USA	20000	7000	900000	15000
7	Russia	18000	9000	600000	20000
44	UK	15000	6000	400000	17000
61	Australia	13000	10000	400000	11000
91	India	10000	5000	700000	12000
93	Afganisthan	12000	15000	300000	7000
NULL	NULL	NULL	NULL	NULL	NULL

5) Display the record of all corona virus affected countries which starts with ‘United’

5. $\sigma_{Cname\ LIKE\ 'United\%'}(Country)$

```
51 • select *from country where Cname like "U%";
```

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

cid	Cname	activeCases	deaths	population	recovered
1	USA	20000	7000	900000	15000
44	UK	15000	6000	400000	17000
NULL	NULL	NULL	NULL	NULL	NULL

6) Display the country with highest recovery rate.

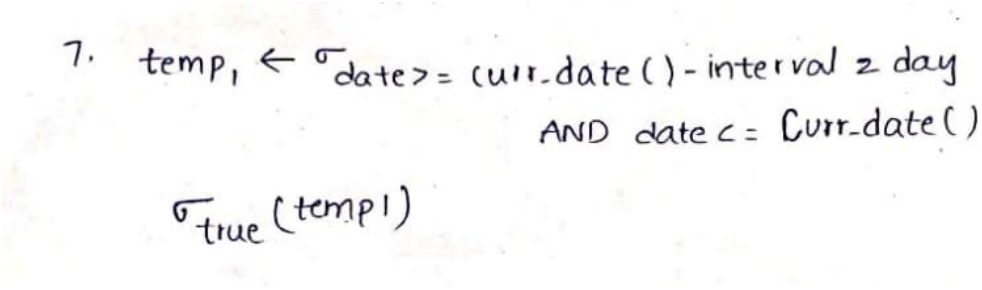
6. $\sigma_{rownum()<=1}(\tau_{recovered\ DESC}(country))$

```
52 •  select *from country order by recovered desc limit 0,1;
```

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content: | Fetch rows:

cid	Cname	activeCases	deaths	population	recovered
7	Russia	18000	9000	600000	20000
NULL	NULL	NULL	NULL	NULL	NULL

7) Discover the new cases in last 2 days




```
53 •  select *from citizen where date >= current_date() - interval 2 day and date <= curdate();
```

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

SSN	name	cname	status	date
3	smith	UK	positive	2020-10-4
5	David	Russia	positive	2020-10-3
NULL	NULL	NULL	NULL	NULL