

Group7 Milestone 2: SQL Queries

1. Patients with Severe Cases

This creates a view of how many patients who are diagnosed with COVID-19 have severe cases. From what we know, many patients who have severe cases are more likely to be admitted to the hospital and could even die. For statistical purposes, keeping an eye on these patients would be beneficial for the public as well as the hospitals using our database.

```
SELECT
    PATIENT_ID
    COVID_SEVERITY
FROM
    PATIENTS
WHERE
    COVID_SEVERITY = "SEVERE";
```

PATIENT_ID	COVID_SEVERITY
6	SEVERE
34	SEVERE
45	SEVERE
40	SEVERE
24	SEVERE
7	SEVERE
28	SEVERE
39	SEVERE
47	SEVERE
15	SEVERE
31	SEVERE
50	SEVERE
46	SEVERE
11	SEVERE
32	SEVERE
42	SEVERE
23	SEVERE
38	SEVERE
43	SEVERE
1	SEVERE
19	SEVERE
14	SEVERE
5	SEVERE
25	SEVERE
13	SEVERE

2. Severe Cases with Health issues

This creates a view of how many patients with severe cases have more than 1 pre-existing health issue. This is essential to the predicting of who in our general population is the most vulnerable when it comes to this virus.

```
SELECT
    PATIENT_ID,
    COVID_SEVERITY,
    HEALTH_ISSUES
FROM
    PATIENTS
WHERE
    HEALTH_ISSUES >= 2;
```

PATIENT_ID	COVID_SEVERITY	HEALTH_ISSUES
1	SEVERE	2
5	SEVERE	2
6	SEVERE	2
7	SEVERE	2
11	SEVERE	2
13	SEVERE	2
14	SEVERE	3
15	SEVERE	3
19	SEVERE	3
23	SEVERE	3
24	SEVERE	2
25	SEVERE	3
28	SEVERE	3
31	SEVERE	3
32	SEVERE	3
34	SEVERE	2
38	SEVERE	2
39	SEVERE	2
40	SEVERE	2
42	SEVERE	2
43	SEVERE	2
45	SEVERE	2
46	SEVERE	2
47	SEVERE	2
50	SEVERE	2

3. States with >20,000 deaths

This creates a view of the states that are experiencing an extremely high death rate due to COVID-19 currently. Users interested in this database may use this query to focus their energy on states that are experiencing the most loss first and then move to other states.

```
SELECT
    STATE_NAME,
    DEATH_No
FROM
    STATES
WHERE
    DEATH_No > 20000;
```

STATE_NAME	DEATH_No
VT	22232
ME	26218
WY	24465
AK	26279
HI	33004
DC	26929
WV	20217
DE	24911
RI	20832
SD	21836
NM	24904
OR	29211
ID	21927
KS	20361
CO	25180
KY	26208
NV	28398
UT	31533
WA	27284
AR	28004
OK	32969
IA	34050
MS	25552
MN	33658
MD	29640
MA	22543
IN	20082
MO	21259

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MI	33587
SC	28919
WI	23463
AL	22899
LA	26690
OH	31038
PA	21793
NJ	23062
TN	26826
AZ	29172
NC	27321
GA	23295
IL	26588
NY	28680
FL	23760
TX	23837
CA	24156

4. States with >100,000 cases

This creates a view of states that are experiencing an extremely high rate of COVID-19 infections. States that experiencing high COVID-19 infections are more likely to have at-capacity hospitals and running low on essential materials. They will also probably need to be quarantined from other states to slow down the spread of the virus.

```
SELECT
    STATE_NAME,
    CASE_NO
FROM
    STATES
WHERE
    CASE_NO > 100000;
```

STATE_NAME	CASE_NO
OK	107299
IA	107335
MS	110006
MN	122812
MD	135657
MA	143660
IN	147582
MO	158955
MI	161105
SC	163990
VA	165676
WI	166186
AL	172626
LA	175781
OH	181787
PA	186754
NJ	219647
TN	228744
AZ	231149
NC	246028
GA	340558
IL	347631
NY	484281
FL	755020
TX	854006
CA	875692

5. State with greatest deaths

This creates a view where the states are listed in order of highest to lowest amounts of deaths due to COVID-19.

```
SELECT
    STATE_NAME,
    DEATH_NO
FROM
    STATES
ORDER BY
    DEATH_NO DESC;
```

STATE_NAME	DEATH_NO
IA	34050
MN	33658
MI	33587
HI	33004
OK	32969
UT	31533
OH	31038
MD	29640
OR	29211
AZ	29172
SC	28919
NY	28680
NV	28398
AR	28004
NC	27321
WA	27284
DC	26929
TN	26826
LA	26690
IL	26588
AK	26279
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KY	26208
MS	25552
CO	25180
DE	24911
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GA	23295
NJ	23062
AL	22899
MA	22543
VT	22232
ID	21927
SD	21836
PA	21793
MO	21259
RI	20832
KS	20361
WV	20217
IN	20082
NE	19423
VA	19397
MT	19000
NH	18495
ND	17488
CT	15106

6. Severity in patients

This creates a view of the type of severity (MILD) and how prevalent it is in patients diagnosed with COVID-19. This will allow the users to have a better understanding of the overall severity of this virus and the amount of medical equipment requires for severe cases (e.g. ventilators) that may be needed as numbers keep in increasing and ones that are just mild.

```
SELECT
    COVID_SEVERITY,
    count(*)
FROM
    PATIENTS
WHERE
    COVID_SEVERITY = "MILD";
```

COVID_SEVERITY	count(*)
MILD	9

7. State with least number of cases

This creates a view of the states with the least number of cases. This will allow users to discern states with high number of cases that are in dire need to more hospital beds and medical equipment and states that just need to have stricter mandates on their quarantine rules (e.g. stay at home when sick, wear a mask).

```
SELECT
    STATES.STATE_NAME,
    CASES.CASE_NO
FROM
    STATES, CASES
WHERE
    STATES.CASE_NO = CASES.CASE_NO
ORDER BY
    CASES.CASE_NO;
```

STATE_NAME	CASE_NO
VT	1937
ME	5937
WY	9025
NH	9625
AK	10980
HI	14031
DC	16370
WV	20081
MT	22821
DE	23093
RI	27691
ND	31978
SD	33269
NM	36788
OR	39532
ID	53092
NE	58068
CT	62830
KS	70268
CO	85279
KY	87607
NV	90261
UT	94394
WA	98201
AR	99066
OK	107299
IA	107335
MS	110006

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MN	122812
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SC	163990
VA	165676
WI	166186
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LA	175781
OH	181787
PA	186754
NJ	219647
TN	228744
AZ	231149
NC	246028
GA	340558
IL	347631
NY	484281
FL	755020
TX	854006
CA	875692

8. Patient severity based on race

This creates a view the race/ethnicity of patients who are experiencing severe COVID-19 symptoms. Users can then use this query to determine if COVID-19 is disproportionately affecting these communities due to lack of resources or biologically. Users can then implement procedures and aid for these communities and prepare for higher numbers of severe cases in areas that have similar lack of resources.

```
SELECT
    PATIENT_RACE,
    COUNT(*)
FROM
    PATIENTS
WHERE
    COVID_SEVERITY = "SEVERE"
GROUP BY
    PATIENT_RACE
ORDER BY
    COUNT(*);
```

PATIENT_RACE	COUNT(*)
Laotian	1
Cree	1
Panamanian	1
Delaware	1
Sioux	1
Hmong	1
Pueblo	1
White	1
Alaska Native	1
Lumbee	1
Chickasaw	1
Comanche	1
Choctaw	1
Polynesian	1
Japanese	1
Peruvian	1
Honduran	1
Thai	2
Potawatomi	2
Tohono O'Odham	2
South American	2

9. Severity correlating to death

This creates a view of the level of severity and how many people with that level have died from COVID-19. It is pretty obvious that severe cases will have the most deaths but it is important to track the numbers of severe cases that do eventually lead to death and those that do not.

```
SELECT
    COVID_SEVERITY,
    DEATH_NO
FROM
    COVID_SEVERITY
ORDER BY
    DEATH_NO DESC;
```

COVID_SEVERITY	DEATH_NO
Severe	168754
Medium	57890
Mild	4732

10. Patients in states

This creates a view of the states that most of the patients in the database live in. This allows users to better understand where their patient data is coming from if they are using this data for further studies.

```
SELECT
    STATE_NAME,
    COUNT(*)
FROM
    PATIENTS
GROUP BY
    STATE_NAME
ORDER BY
    COUNT(*) DESC;
```

STATE_NAME	COUNT(*)
CA	6
NY	4
TX	4
WA	3
GA	2
IN	2
LA	2
MA	2
MN	2
MO	2
OR	2
VA	2
AL	1
DE	1
FL	1
IA	1
ID	1
IL	1
KY	1
MD	1
MI	1
MS	1
MT	1
NC	1
NE	1
OH	1
TN	1

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UT	1
WI	1

11. Gender and severity

This creates a view of the gender that has the most number of severe cases and the count

```
SELECT
    PATIENT_SEX,
    COVID_SEVERITY,
    COUNT(*)
FROM
    PATIENTS
WHERE
    COVID_SEVERITY = "SEVERE"
GROUP BY
    PATIENT_SEX
ORDER BY
    COUNT(*) DESC;
```

PATIENT_SEX	COVID_SEVERITY	COUNT(*)
Male	SEVERE	13
Female	SEVERE	12

Milestone 2 Group7: Stored Procedure

What Hospital?

This stored procedure allows the user to create a patient ID and input the patients state. This then creates a view of all the hospitals in the patient's area, with the hospital with the lowest number of cases first. Sending new COVID-19 patients to overwhelmed hospitals can lead to low quality care, overworked health care workers and a disastrous public health situation.

```
CREATE DEFINER= `root`@`localhost`
```

```
PROCEDURE
```

```
    'GetHospital'(IN PATIENT_ID INT, IN STATE_NAME VARCHAR(45) )
```

```
    BEGIN
```

```
    INSERT INTO
```

```
        PATIENTS (PATIENT_ID, STATE_NAME)
```

```
        VALUE (PATIENT_ID, STATE_NAME);
```

```
    SELECT DISTINCT
```

```
        H.HOSPITAL_NAME,
```

```
        H.STATE_NAME,
```

```
        H.CASE_NO
```

```
    FROM
```

```
        PATIENTS AS P JOIN HOSPITALS AS H
```

```
    ON
```

```
        P.STATE_NAME = H.STATE_NAME
```

```
    WHERE
```

```
        P.STATE_NAME = STATE_NAME
```

```
    ORDER BY
```

```
        H.CASE_NO ASC;
```

```
    END
```

TEST:

Call GetHospital(236,"AZ");

Output:

HOSPITAL_NAME	STATE_NAME	CASE_NO
ZACHARY - AMG SPECIALTY HOSPITAL	AZ	2356
YUMA REHABILITATION HOSPITAL	AZ	3126
YAVAPAI REGIONAL MEDICAL CENTER - EAST	AZ	3168
YOAKUM COMMUNITY HOSPITAL	AZ	3387