MINORITY SERVING-
CYBERINFRASTRUCTURE
CONSORTIUM

TEAM HARP!

MS-CC HACKATHON

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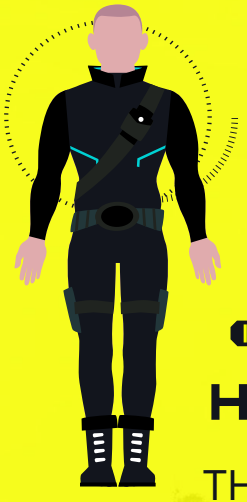
TEAM MEMBERS

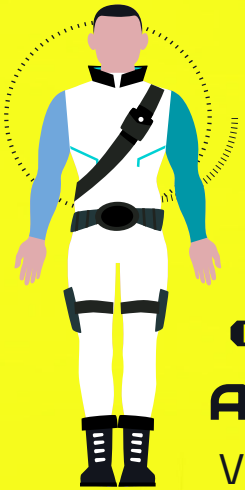
1



HENRY

THE EAGLE

2



AAYUSH

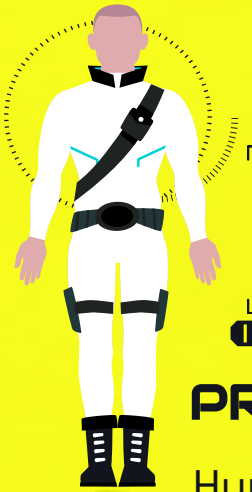
VOID

3

REJIN

SHERLOCK

4



PRATYUSH

Hummingbird

03

TEAM GOAL

Our goal is to implement effective interventions, including masks, vaccines, and social distancing, to maintain a Critical Care Rate of at least 25% in Texarkana, TX. By leveraging data and innovative strategies, we aim to protect our community's health, prevent overwhelming our healthcare system, and ensure access to critical care services when needed.

Whoa!

Did you know that there has been a very significant difference, statistically, between the sample period before and after the introduction of a Mitigation factor

Introduction

In the following charts, let's study the statistics before any mitigations.

But as a streamlined reference, the following are factors considered:

- SOCIAL DISTANCING
- MASKS
- VACCINES

But for our presentation, we would be introducing **MASKS**

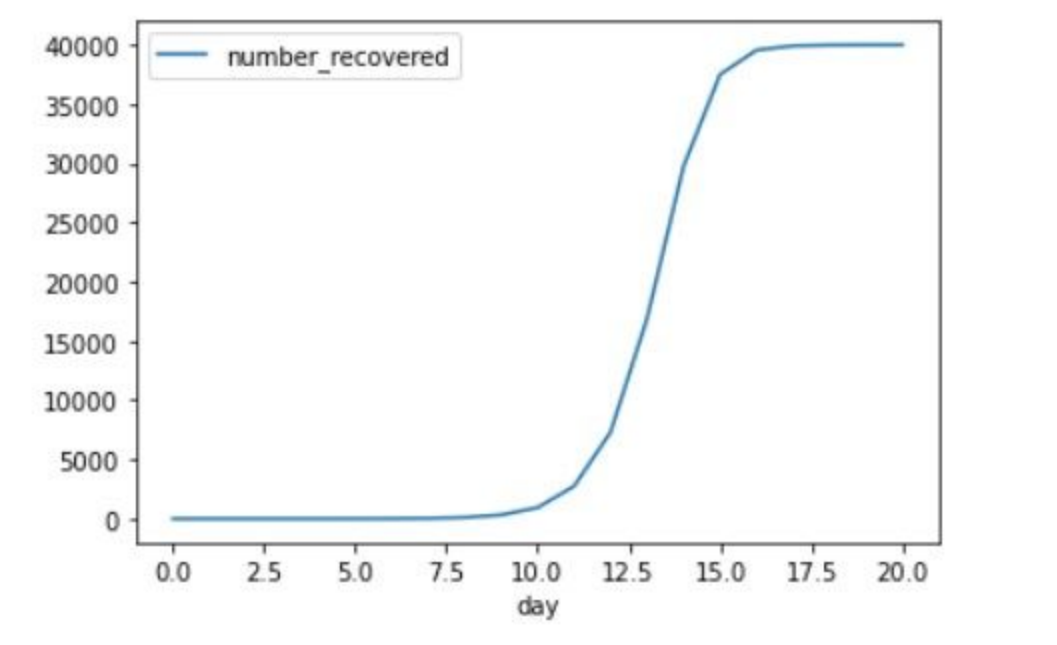
The following slides give us a line graph and tabular representation of these premodels.

The following data and graphs are when none of the people were masked, which increased infection rate significantly.

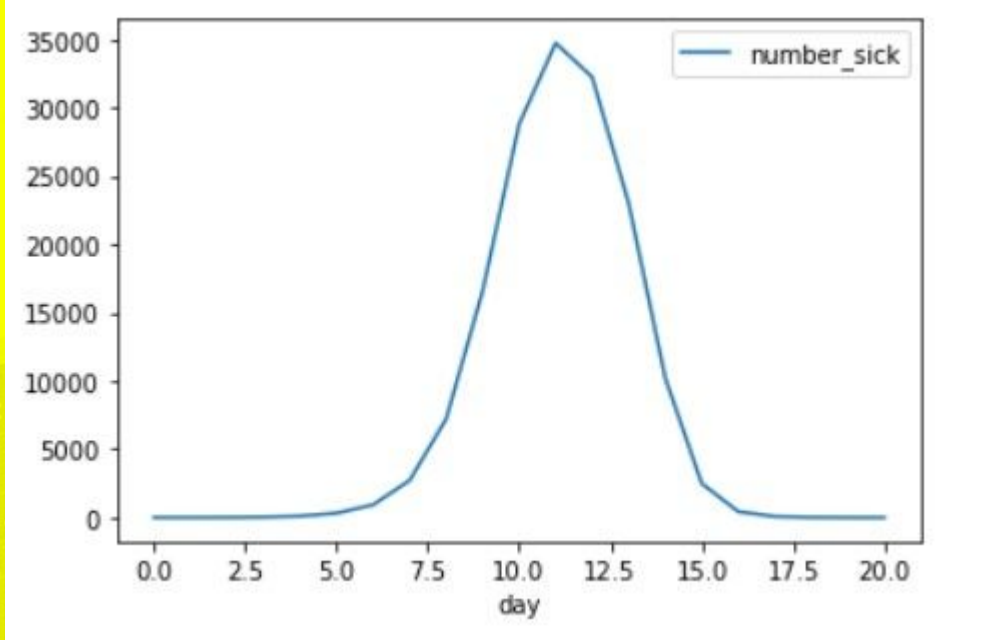
No Mitigation Statistics

	day	number_sick	number_recovered
0	0	1	0
1	1	3	0
2	2	8	0
3	3	34	0
4	4	103	0
5	5	321	3
6	6	931	8
7	7	2718	34
8	8	7210	103
9	9	16581	324
10	10	28802	939
11	11	34729	2752
12	12	32230	7313
13	13	22995	16905
14	14	10221	29741
15	15	2495	37481
16	16	434	39543
17	17	77	39900
18	18	15	39962
19	19	1	39976
20	20	0	39977

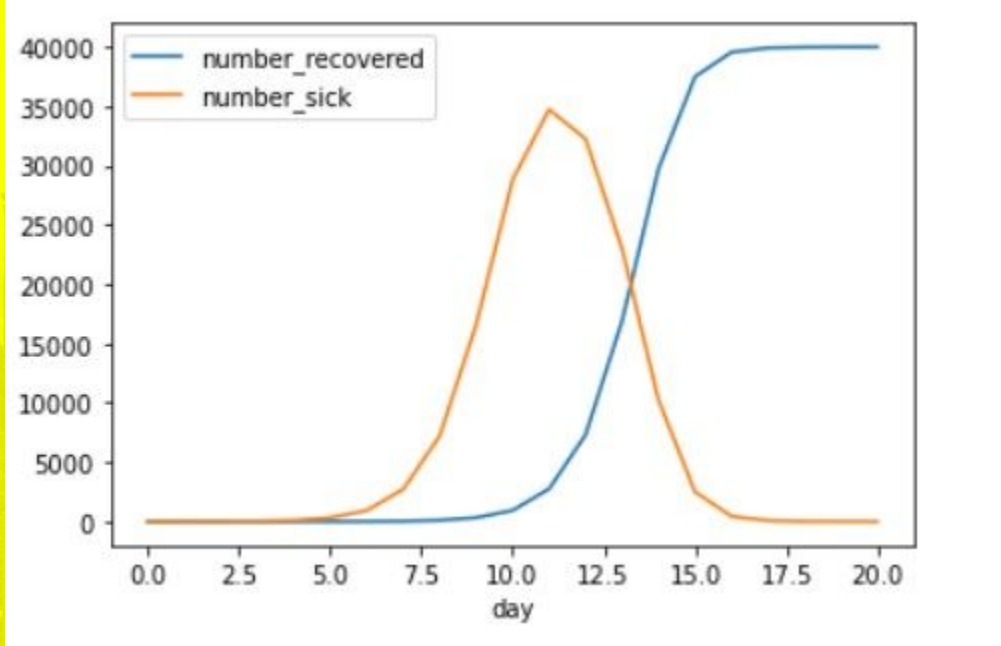
No Mitigation Statistics



No Mitigation Statistics

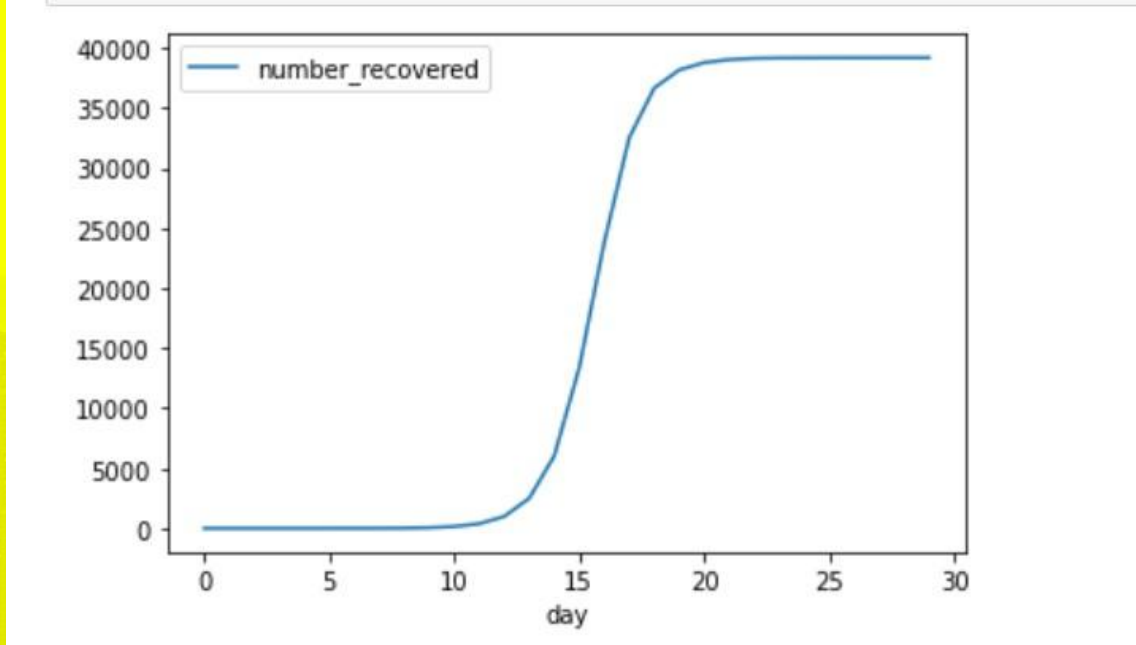


No Mitigation Statistics



The following data and graphs are when 20% of the people were masked, which increased the recovery time but decreased the infection rate

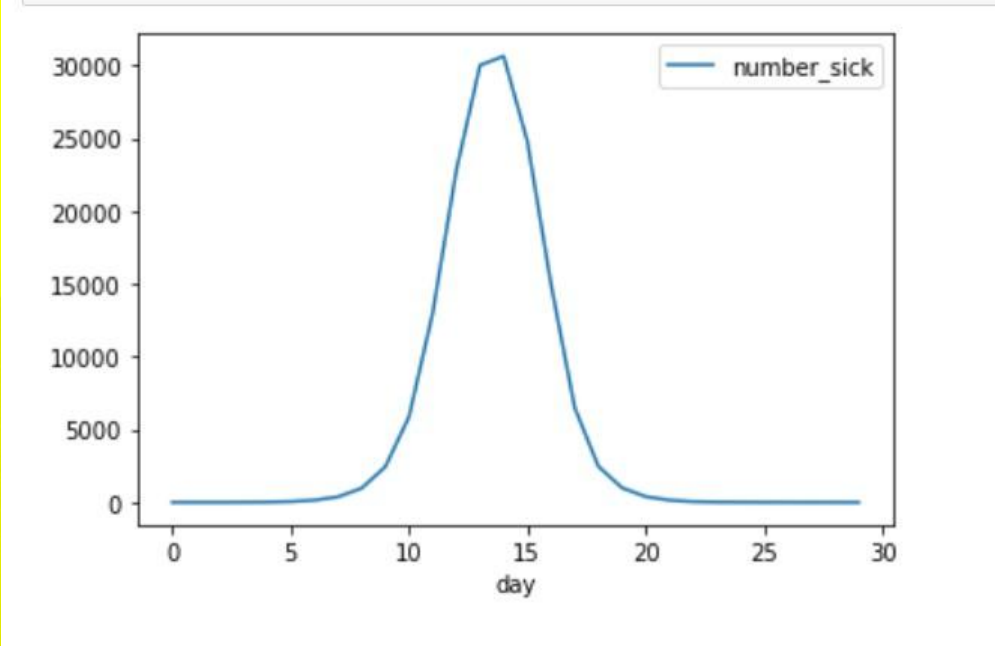
After Mitigation Statistics



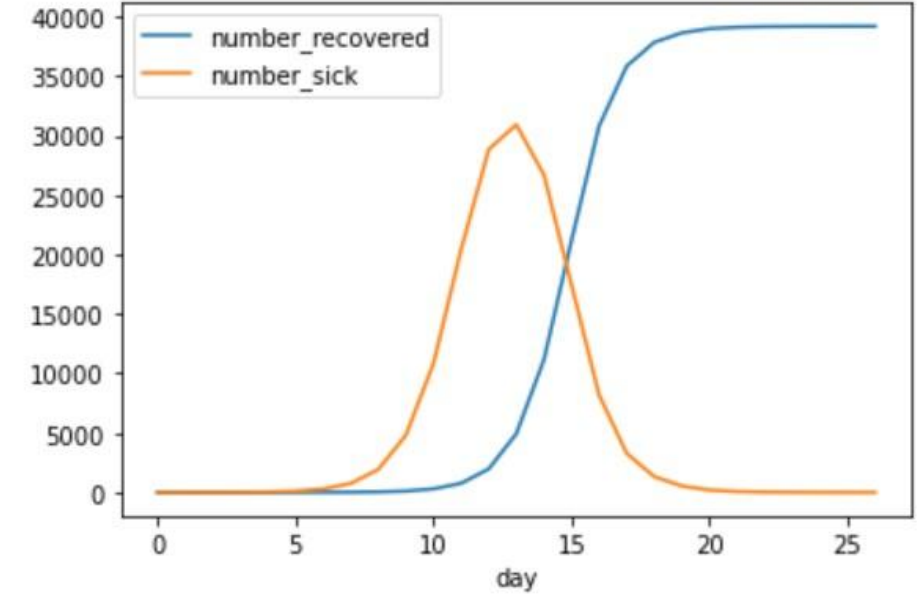
After Mitigation Statistics

	day	number_sick	number_recovered
0	0	1	0
1	1	1	0
2	2	4	0
3	3	14	0
4	4	40	0
5	5	106	1
6	6	287	4
7	7	744	14
8	8	1932	40
9	9	4816	107
10	10	10852	291
11	11	20425	758
12	12	28837	1972
13	13	30918	4923
14	14	26702	11143
15	15	17454	21183
16	16	8183	30809
17	17	3273	35841
18	18	1315	37845
19	19	538	38637
20	20	192	38992
21	21	72	39114
22	22	28	39160
23	23	13	39175
24	24	4	39184
25	25	2	39186
26	26	0	39188

After Mitigation Statistics



After Mitigation Statistics

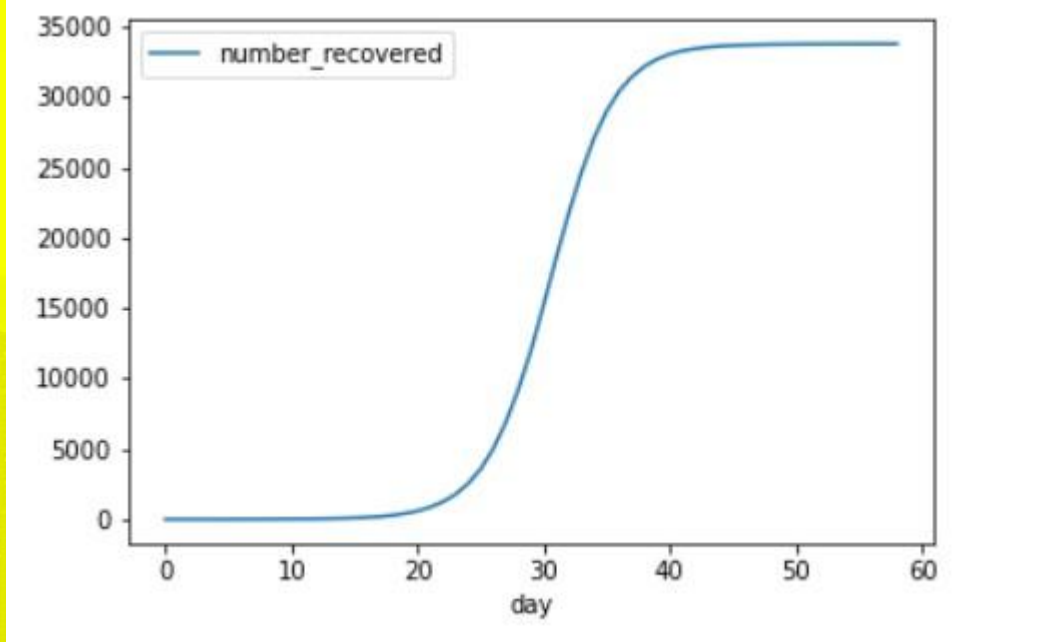


The following data and graphs are when 100% of the people were masked, which increased the recovery time but decreased the infection rate.

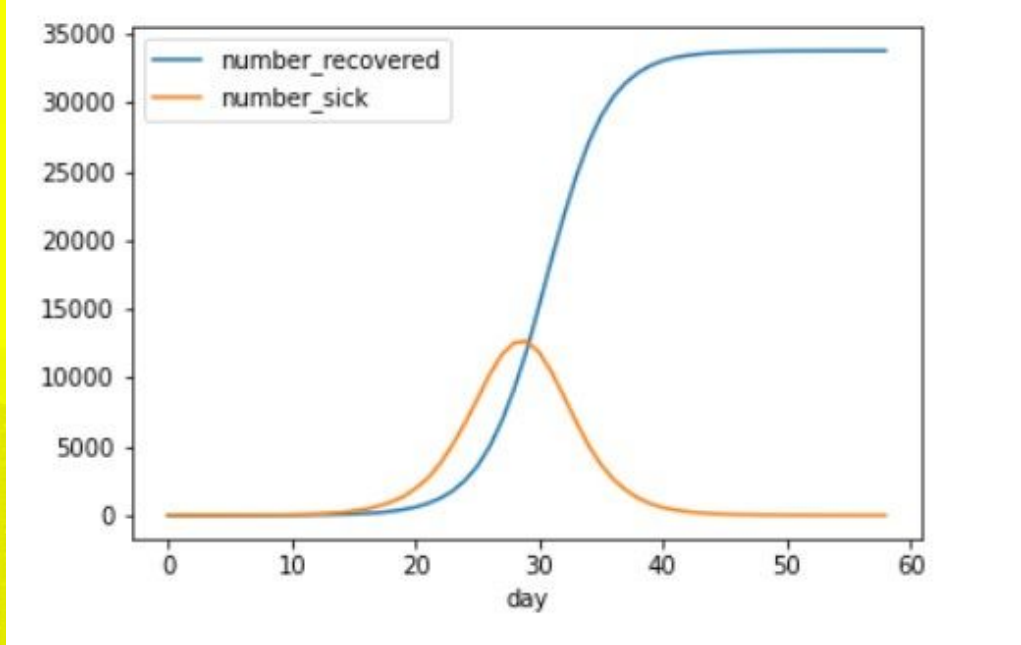
After Mitigation Statistics

	day	number_sick	number_recovered
0	0	1	0
1	1	2	0
2	2	5	0
3	3	9	0
4	4	12	0
5	5	15	2
6	6	19	5
7	7	19	9
8	8	26	12
9	9	30	17
10	10	46	24
11	11	67	28
12	12	101	38
13	13	144	47
14	14	211	70
15	15	322	95
16	16	453	139
17	17	672	191
18	18	960	281
19	19	1348	417
20	20	1946	592
21	21	2704	863
22	22	3767	1241
23	23	5132	1765
24	24	6711	2538
25	25	8450	3567
26	26	10253	5008
27	27	11707	6897
28	28	12554	9249
29	29	12659	12017
30	30	11858	15261
31	31	10423	18604
32	32	8649	21803
33	33	6788	24676
34	34	5074	27119
35	35	3685	29027
36	36	2617	30452
37	37	1837	31464
38	38	1255	32193
39	39	849	32712
40	40	568	33069
41	41	382	33301
42	42	267	33448
43	43	174	33561
44	44	117	33637
45	45	83	33683
46	46	60	33715
47	47	46	33735
48	48	30	33754
49	49	22	33766
50	50	16	33775
51	51	11	33781
52	52	8	33784
53	53	5	33788
54	54	3	33791
55	55	2	33792
56	56	2	33792
57	57	1	33793
58	58	0	33794

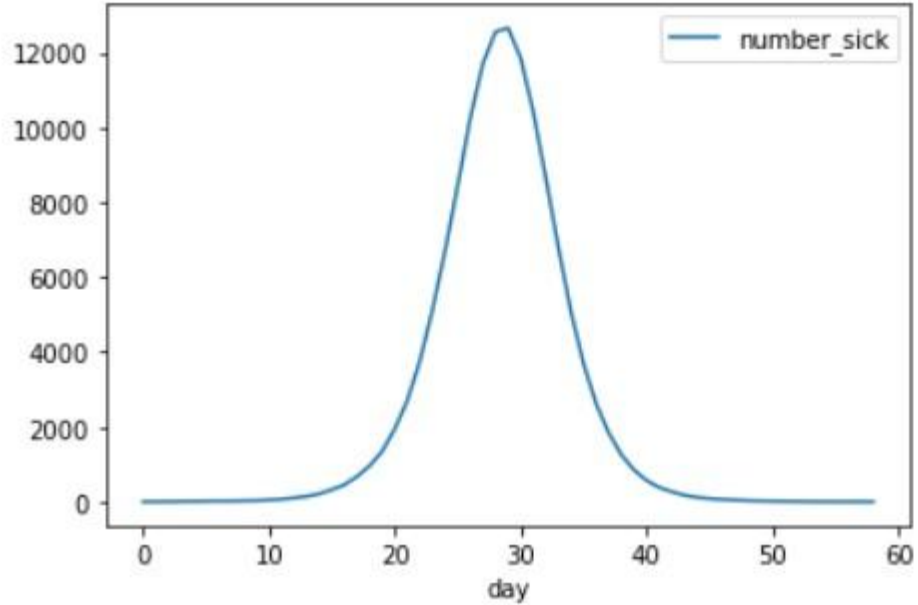
After Mitigation Statistics



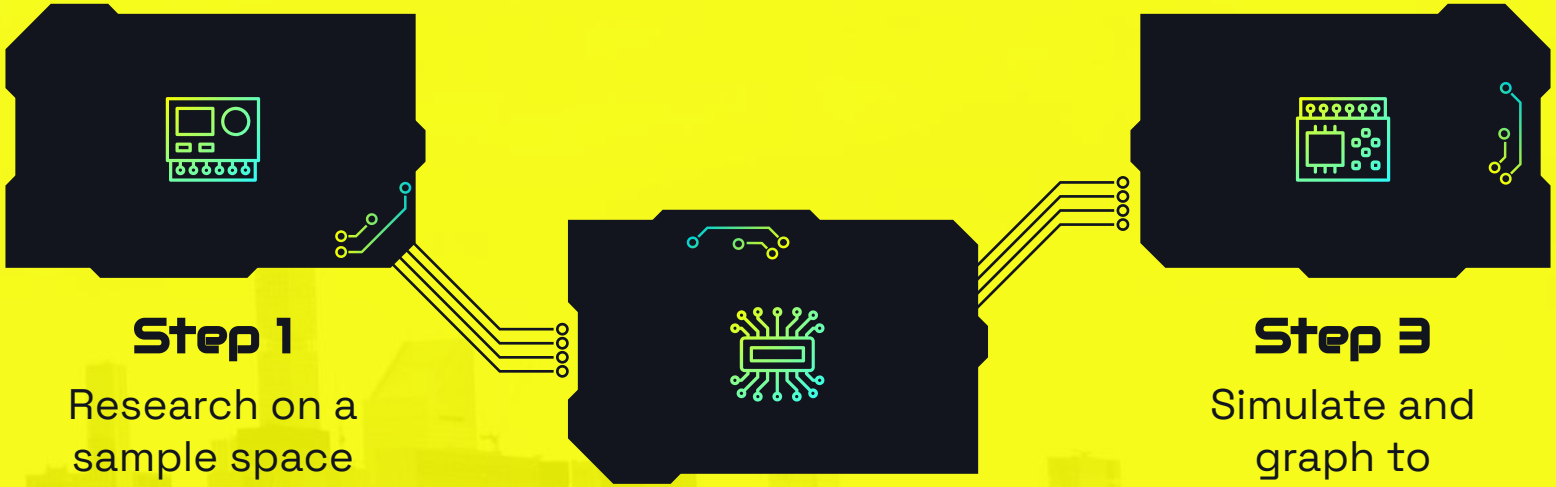
After Mitigation Statistics



After Mitigation Statistics



WHAT DID WE DO ?



Step 1

Research on a sample space

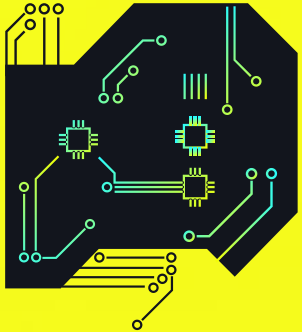
Step 2

Introduce mitigation

Step 3

Simulate and graph to compare

RESULTS AND CONCLUSION



Even though recovery time is comparatively more, the infection rate significantly dropped in correlation with number of people masked up.

Ref: https://onlinelibrary.wiley.com/doi/full/10.1002/mds3.10163
https://www.cdc.gov/mmwr/volumes/70/wr/mm7007e1.htm?s_cid=mm7007e1_w
https://www.cdc.gov/mmwr/volumes/70/wr/mm7007e1.htm?s_cid=mm7007e1_w