A Synopsis on

Surakhsha Kavach : ML Based Cross platform Application for Covid-19 Vulnerability Detection.

Submitted in partial fulfillment of the requirements of
the degree of

Bachelor of Engineering

in

Information Technology

by

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2021-2022

CERTIFICATE

This is to certify that the project Synopsis entitled *"Surakhsha Kavach App"* Submitted by *"Jasmine Kaur (18104010),Ruchi Raicha (18104068),Srushti Patil(18104061)"* for the partial fulfillment of the requirement for award of a degree *Bachelor of Engineering* in *Information Technology*.to the University of Mumbai,is a bonafide work carried out during academic year 2021-2022

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I declare that this written submission represents my ideas in my own words and where others' ideas or words have been included, I have adequately cited and referenced the original sources. I also declare that I have adhered to all principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any idea/data/fact/source in my submission. I understand that any violation of the above will be cause for disciplinary action by the Institute and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been taken when needed.

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Abstract

SARS-CoV-2 (n-coronavirus) is a global pandemic that causes the deaths of millions of people worldwide. As there is no effective treatment available, many scientists and researchers are trying their best to fight the pandemic. This paper focused on the coronavirus pandemic situation in the global areas its related effects and future status. In this review paper we will come up with all the information regarding covid-19 cases , recoveries and vaccination status.The corona virus (covid-19)is spreading worldwide and one should take early precautions and therefore we will be focusing on predictions of percentage of covid attack in Human based on Users Input using Machine Learning Algorithms.

Introduction

The novel coronavirus known as COVID-19, it is firstly detected in the city of China that is Wuhan.people infected with the COVID-19 novel in central Wuhan city of China had contacts to seafood and the live animal markets, demonstrating the spread of animal to human. After that the increase in the number of infected persons that were not in contact with lives animals, led to the transmission of human-to-human.COVID was later announced a pandemic by WHO in light of its high spread overall. The signs and indications of seriousness with COVID19 can change from mellow to extreme. Numerous people may just have less side effects, and others may have no manifestations by any means. People who are more adult or have existing tenacious clinical issues, for instance, coronary disease, lung contamination, diabetes, outrageous strength, consistent kidney or liver disorder. This project is one of the coronavirus related theme projects. It is a machine learning based Android application for a data dashboard. The dashboard consists of two fronts: front and back. The back end consists of data gathering, data preparation, data analysis,and machine learning. The front end consists of making the android application, converting the processed information at backend to a consumable form, and deploying all these features online. The data on dashboard consists of the total number of cases ,Recoveries,graphs,and infected cases for each countries in a graphical form for detailed view.

Objectives

To Analyze the Data and describe the data/statistics of globe for predicting the current trend of COVID-19 infections in world. To predict the percentage chances of having Covid-19 according to their age,gender,pre-disease in Senior Citizen i.e Diabetes,Blood Pressure,etc.This will help user to identify the percentage of chances and can take precautions to fight against Covid-19. To build user Friendly mobile Application.

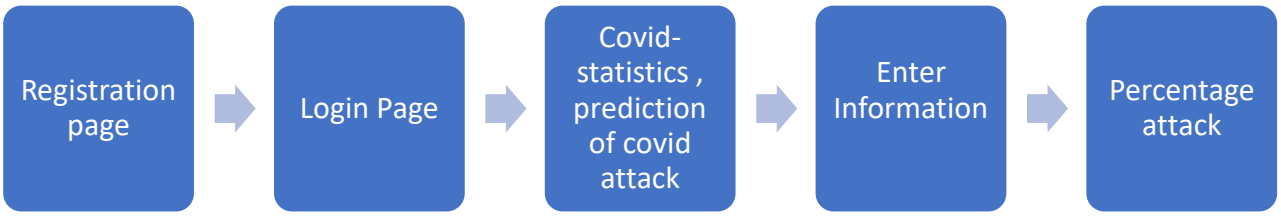
Literature Review

Sr. No.	Authors	Paper Title	Methodologies	Findings
1	Ekta Gambhir	Regression Analysis of COVID-19 using Machine Learning Algorithms	Support Vector Machine,Polynomial regression ,data acquisition,feature selection	Analysis of COVID-19
2	M.Rohini	A Comparative Approach To Predict Corona Virus Using Machine Learning	Support Vector Machine, K-NN Algorithm, Decision Tree,Random forest.	Predict Corona Virus
3	Akshay Kumar Siddhu	Review Paper for Detection of COVID-19 from Medical Images and/ or Symptoms of Patient using Machine Learning Approaches	Deep learning	Detection of COVID-19

Problem Definition

The overall global economy has been affected by this pandemic along with the health, safety and hygiene of individuals all over the world. People should know the overall rate of rising,death,vaccinations,recovery,etc all over the world. People should know how much age-wise percentage they can be affected by covid-19 to take precautionary measures as early as possible. In the existing system architecture, nowadays people are not much aware of the disease they are suffering from and with the flow they come up with a measure disease like Covid.

Proposed System Architecture/Working



Design and Implementation

We have imported CSV file in Jupiter notebook in order to get information through kaggle:

	Sno	Date	Time	State/UnionTerritory	ConfirmedIndianNational	ConfirmedForeignNational	Cured	Deaths	Confirmed
0	1	2020-01-30	6:00 PM	Kerala	1	0	0	0	1
1	2	2020-01-31	6:00 PM	Kerala	1	0	0	0	1
2	3	2020-02-01	6:00 PM	Kerala	2	0	0	0	2
3	4	2020-02-02	6:00 PM	Kerala	3	0	0	0	3
4	5	2020-02-03	6:00 PM	Kerala	3	0	0	0	3

Fig 1: display of first 4 rows of dataset

	date	state	cured	deaths	confirmed
0	2020-01-30	Kerala	0	0	1
1	2020-01-31	Kerala	0	0	1
2	2020-02-01	Kerala	0	0	2
3	2020-02-02	Kerala	0	0	3
4	2020-02-03	Kerala	0	0	3

Fig 2: display columns of date',’state',’cured',’deaths',’confirmed’cases of 1st 4 states

	date	state	cured	deaths	confirmed
1249	2020-04-23	Telengana	197	24	960
1250	2020-04-23	Tripura	1	0	2
1251	2020-04-23	Uttarakhand	23	0	46
1252	2020-04-23	Uttar Pradesh	187	21	1509
1253	2020-04-23	West Bengal	79	15	456

Fig 3: display of last data from dataset

	date	state	cured	deaths	confirmed
1240	2020-04-23	Maharashtra	789	269	5652
1231	2020-04-23	Gujarat	179	103	2407
1229	2020-04-23	Delhi	724	48	2248
1247	2020-04-23	Rajasthan	230	27	1890
1239	2020-04-23	Madhya Pradesh	148	81	1695

Fig 4: display of max-confirmed cases

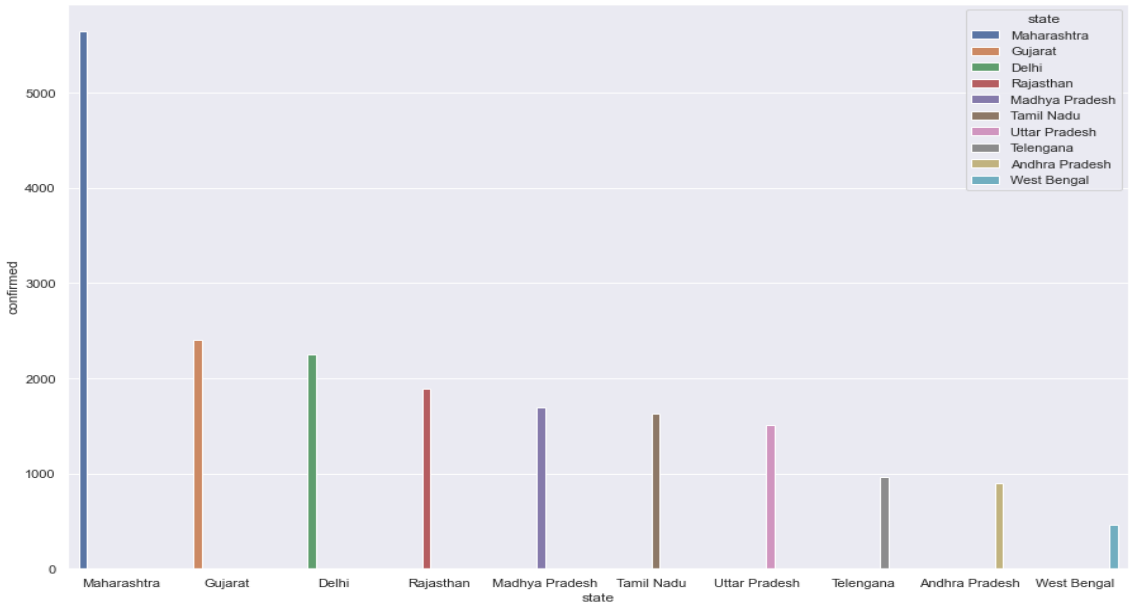


Fig 5:Graph of confirmed cases with states

	date	state	cured	deaths	confirmed
1240	2020-04-23	Maharashtra	789	269	5652
1229	2020-04-23	Delhi	724	48	2248
1248	2020-04-23	Tamil Nadu	662	18	1629
1237	2020-04-23	Kerala	324	3	438
1247	2020-04-23	Rajasthan	230	27	1890

Fig 6:Display of max cured cases

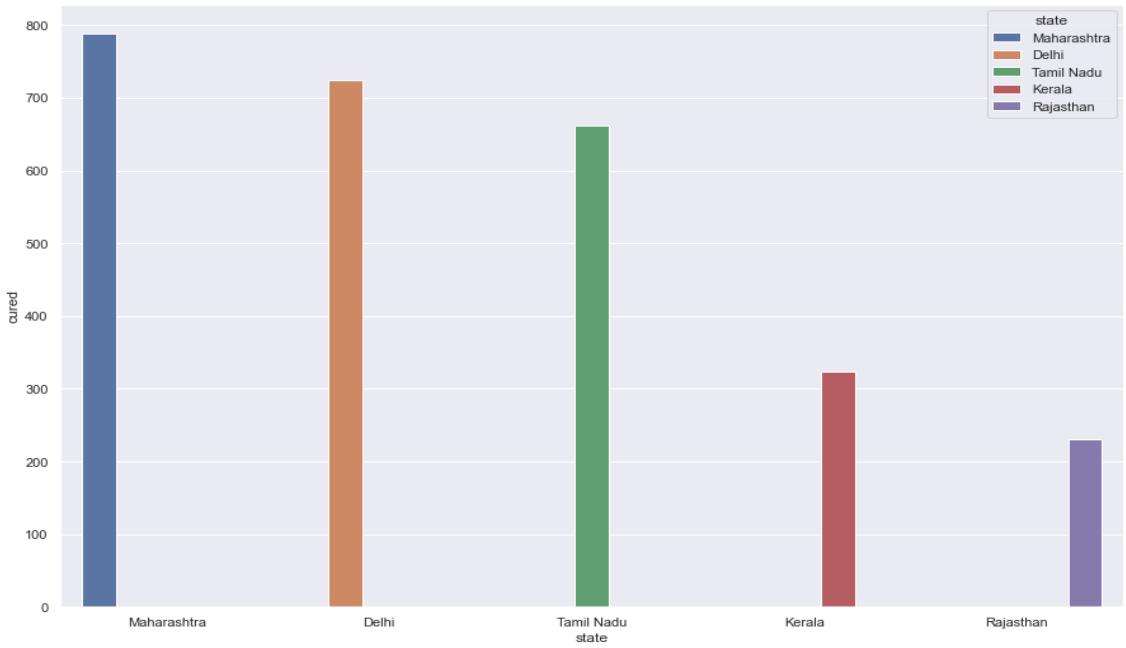


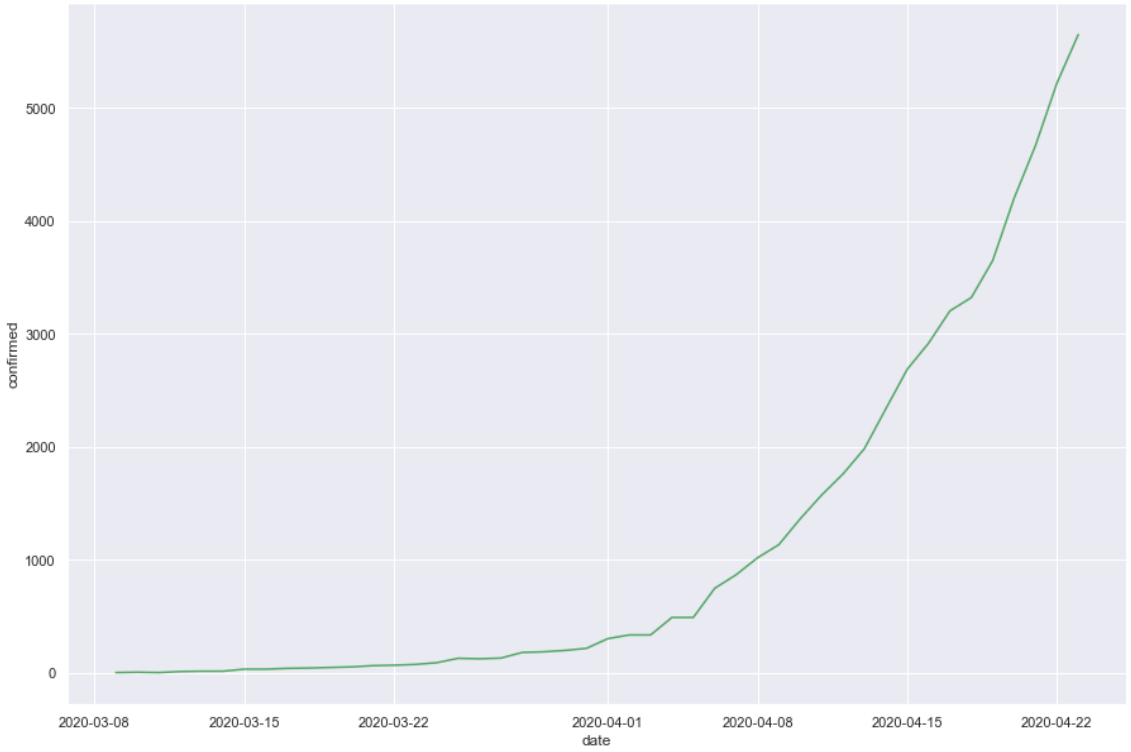
Fig 7: graph of cured cases with state.

	date	state	cured	deaths	confirmed
76	2020-03-09	Maharashtra	0	0	2
91	2020-03-10	Maharashtra	0	0	5
97	2020-03-11	Maharashtra	0	0	2
120	2020-03-12	Maharashtra	0	0	11
133	2020-03-13	Maharashtra	0	0	14

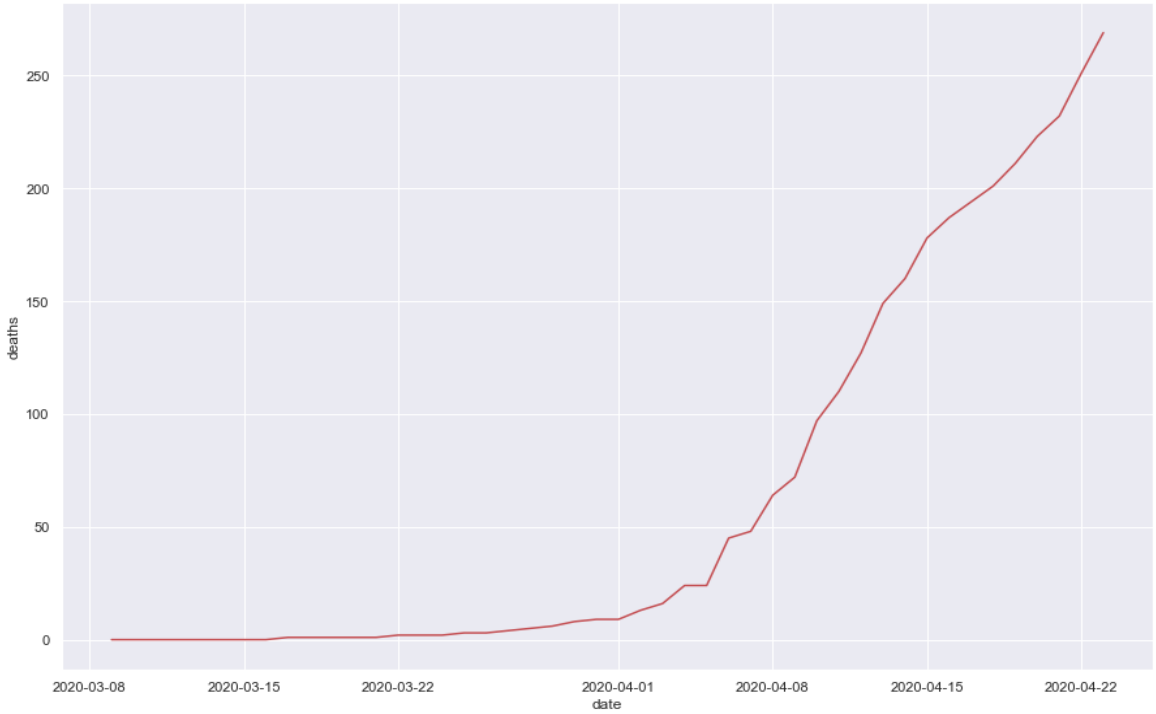
State wise analysis of Data:Maharashtra.

	date	state	cured	deaths	confirmed
76	2020-03-09	Maharashtra	0	0	2
91	2020-03-10	Maharashtra	0	0	5
97	2020-03-11	Maharashtra	0	0	2
120	2020-03-12	Maharashtra	0	0	11
133	2020-03-13	Maharashtra	0	0	14

	date	state	cured	deaths	confirmed
1109	2020-04-19	Maharashtra	365	211	3651
1142	2020-04-20	Maharashtra	507	223	4203
1175	2020-04-21	Maharashtra	572	232	4669
1208	2020-04-22	Maharashtra	722	251	5221
1240	2020-04-23	Maharashtra	789	269	5652



Graph of confirmed cases.



Graph of deaths cases.

	Date	State	TotalSamples	Negative	Positive
0	2020-04-17	Andaman and Nicobar Islands	1403.0	1210	12.0
1	2020-04-24	Andaman and Nicobar Islands	2679.0	NaN	27.0
2	2020-04-27	Andaman and Nicobar Islands	2848.0	NaN	33.0
3	2020-05-01	Andaman and Nicobar Islands	3754.0	NaN	33.0
4	2020-05-16	Andaman and Nicobar Islands	6677.0	NaN	33.0

```
from sklearn.model_selection import train_test_split
```

```
maha['date']=maha['date'].map(dt.datetime.toordinal)
```

```
<ipython-input-73-595f711d6bae>:1: SettingWithCopyWarning:
A value is trying to be set on a copy of a slice from a DataFrame.
Try using .loc[row_indexer,col_indexer] = value instead

See the caveats in the documentation: https://pandas.pydata.org/panda
rsus-a-copy
  maha['date']=maha['date'].map(dt.datetime.toordinal)
```

```
maha.head()
```

	date	state	cured	deaths	confirmed
76	737493	Maharashtra	0	0	2
91	737494	Maharashtra	0	0	5
97	737495	Maharashtra	0	0	2
120	737496	Maharashtra	0	0	11
133	737497	Maharashtra	0	0	14

In [76]:
```
x= maha['date']
y= maha['confirmed']
```

In [77]:
```
x_train,x_test,y_train,y_test = train_test_split(x,y,test_size=0.3)
```

In [78]:
```
from sklearn.ensemble import RandomForestRegressor
```

In [80]:
```
rf=RandomForestRegressor()
```

In [81]:
```
rf.fit(np.array(x_train).reshape(-1,1),np.array(y_train).reshape(-1,1))
```

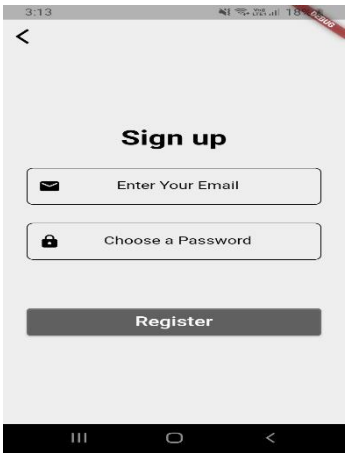
```
<ipython-input-81-ccb1599f9545>:1: DataConversionWarning: A column-vector y was passe
nge the shape of y to (n_samples,), for example using ravel().
  rf.fit(np.array(x_train).reshape(-1,1),np.array(y_train).reshape(-1,1))
```

Out[81]:
```
RandomForestRegressor()
```

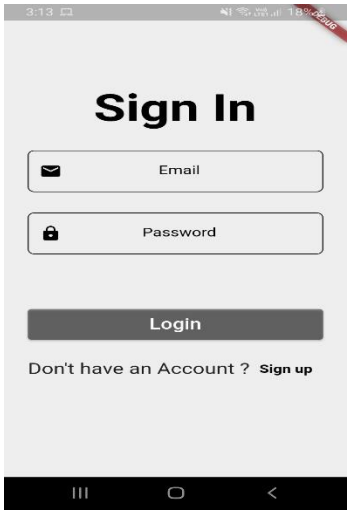
In [82]:
```
rf.predict([[737498]])
```

Out[82]:
```
array([15.35])
```

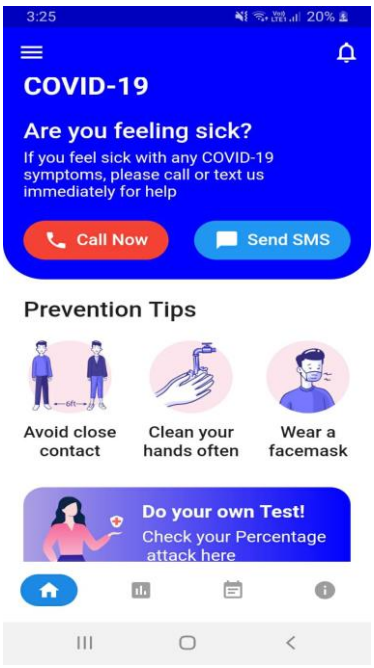
We have now split train and test data and applied random forest regressor.



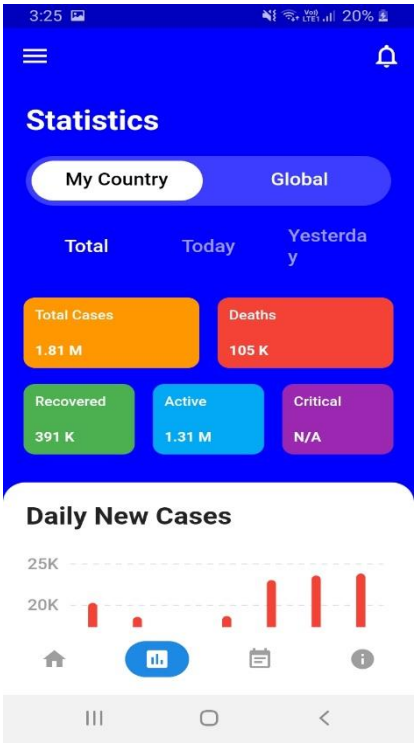
Sign Up page



Sign In page



COVID-Dashboard



Statistics Dashboard

Summary

The work presented in this report is related to Covid-19.

- Our project is related to covid-19.. we have done data analysis of confirmed cases, recoveries, deaths of various states using graphs and also Prediction of cases by applying ml algorithms... We also have another feature in our project.. That if someone puts their age pre-disease.. It will give how much u have chances of attack.. This will help people to take precautions earlier and save their life.

References

1. L. J. Muhammad, Ebrahem A. Algehyne, Sani Sharif Usman, Abdulkadir Ahmad, Chinmay Chakraborty, I. A. Mohammed, “Supervised Machine Learning Models for Prediction of COVID19 Infection using Epidemiology Dataset” Computer Science, 2020
2. Rajan Gupta, Gaurav Pandey, Poonam Chaudhary, Saibal K. Pal, Machine Learning Models for Government to Predict COVID-19
3. G.Monika, Dr. M.Bharathi Devi, Using Machine Learning Approach to Predict Covid-19 Progress, International Journal for Modern Trends in Science and Technology, 6(8S): 58-62, 2020.

1 Publication

- Paper entitled **"Surakhsha Kavach : ML Based Cross platform Application for Covid-19 Vulnerability Detection."** will be presenting at **"ICCIC 2021: International Conference on Cognitive & Intelligent Computing"** by **"Ruchi Raicha" , "Jasmine Kaur", "Srushti Patil".**

- Paper entitled **"Surakhsha Kavach : ML Based Cross platform Application for Covid-19 Vulnerability Detection."** will be presenting at **"ADSC-2022: International Conference on Advances in Data Science and Computing Technologies (ADSC-2022)" by "Ruchi Raicha" , "Jasmine Kaur", "Srushti Patil".**