# SAMHAR-COVID-19 Hackathon

## Diagnosing and Staging COVID-19 using AI-based Medical Imaging (CT Scans and X-Rays)

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# PROBLEM STATEMENT

**Diagnosing and Staging COVID-19 using AI-based Medical Imaging (CT Scans and X-Rays)**

Radiologists have watched the coronavirus disease 2019 (COVID-19) pandemic unfold. Radiology literature suggests a pivotal role for CT/X-RAY as CT/X-Ray findings in COVID-19 patient has pneumonia, and hence medical imaging has a high sensitivity for the diagnosis of COVID-19. The objective of this statement is to figure out the usage of AI in medical imaging modalities for fast and accurate diagnosis of COVID-19

# UNDERSTANDING THE PROBLEM

COVID-19 Test Statistics in India
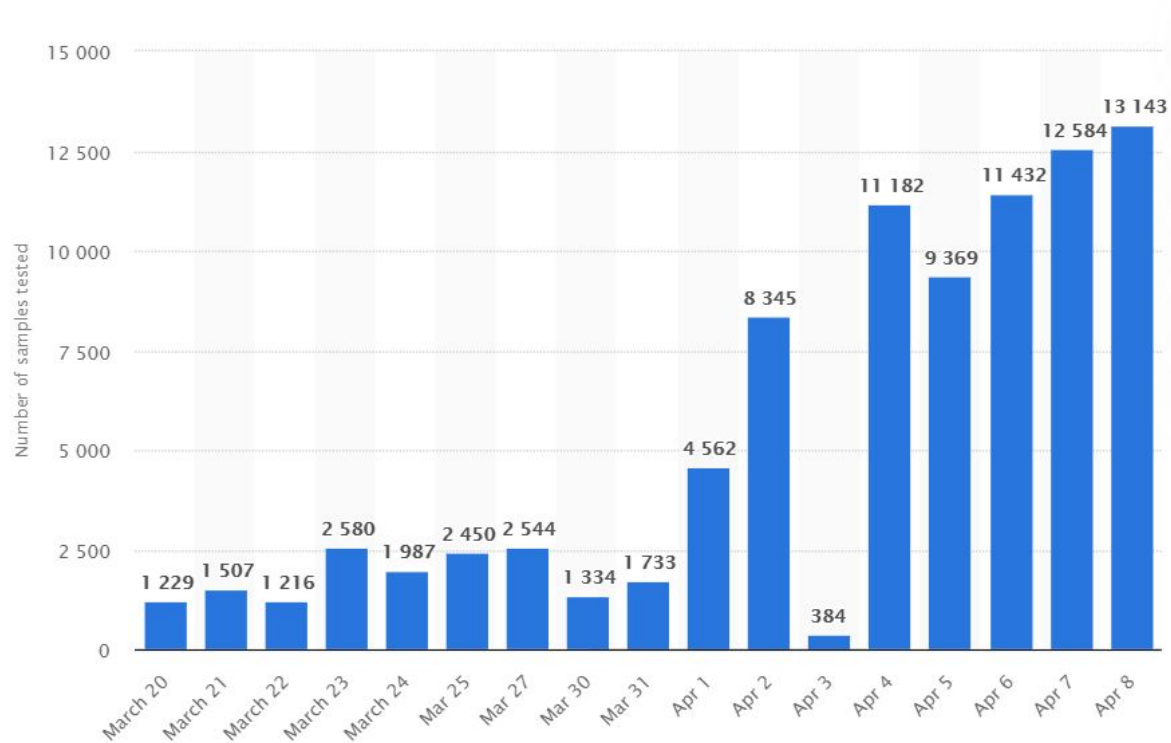


- The diagnosis of COVID-19 is currently performed by a reverse-transcription polymerase chain reaction (RT-PCR) test on blood samples of patients.

- The gold standard test for COVID-19 makes a progressive increase in the number of tests taken as shown in the image, but the increase rate can be further improved by a faster diagnosis using CT scans/X-Rays.
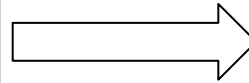
# OBJECTIVE

- To deliver faster, cheaper and reliable diagnosis using X-Ray and CT scan images.
- To classify the staging of disease in patients.

# PROPOSED SOLUTION

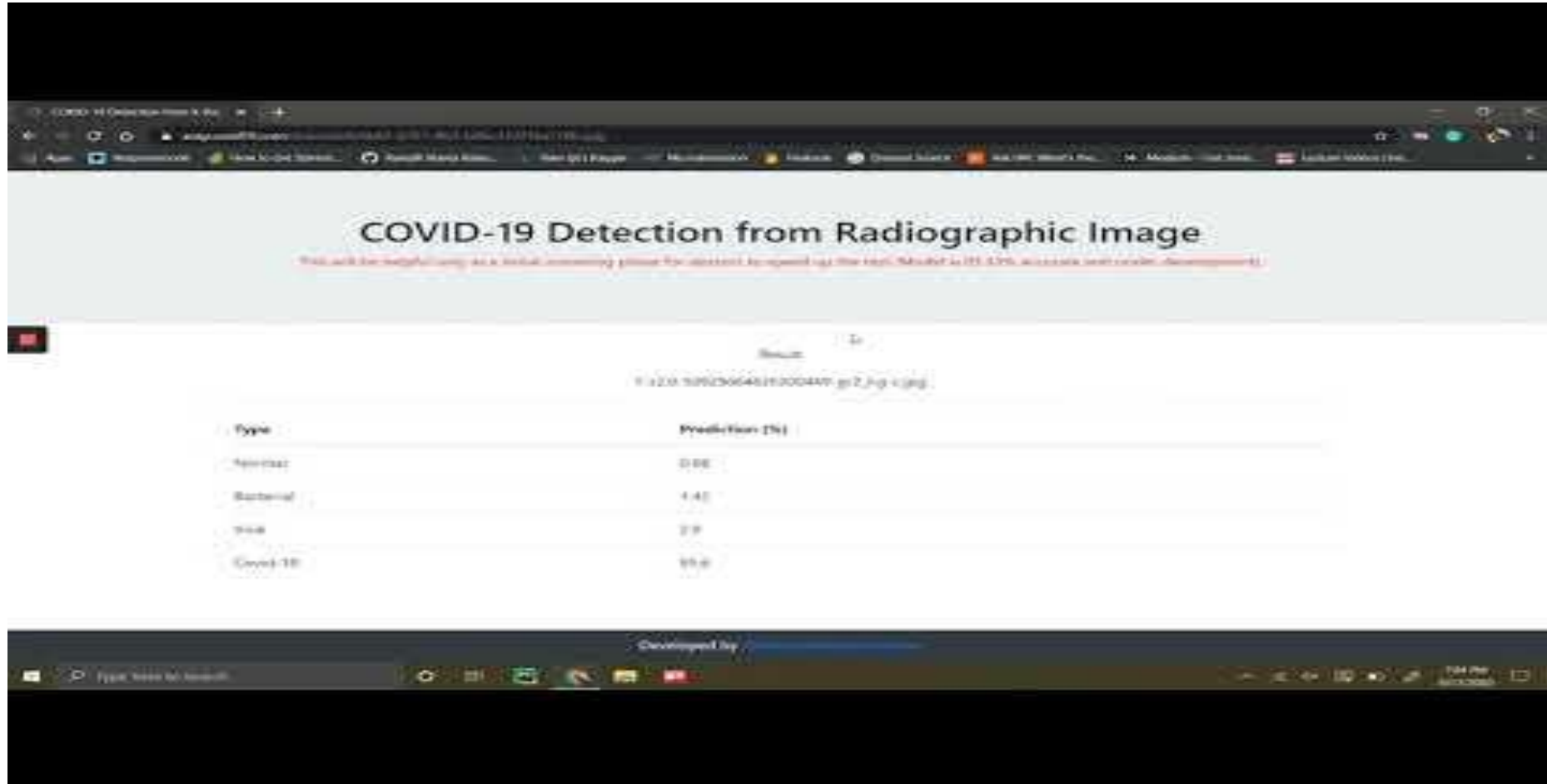**Diagnosing and Staging COVID-19 using AI-based Medical Imaging (CT Scans and X-Rays)**
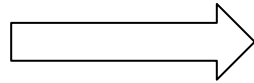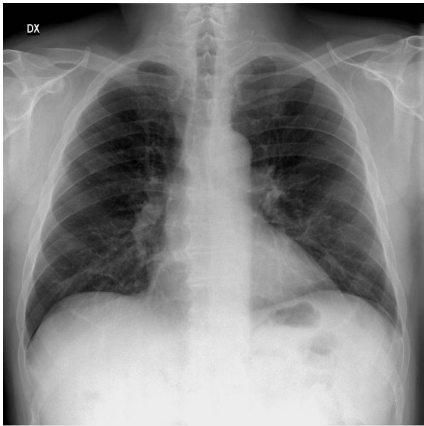


| Type | Prediction (%) |
| --- | --- |
| Normal | 0.66 |
| Bacterial | 0.0 |
| Viral | 0.02 |
| Covid-19 | 99.32 |

# PROPOSED SOLUTION



https://xraycovid19.com/

# REQUIREMENTS

- CT scan and X-Ray image dataset to improve the model performance

- Stage wise covid-19 annotated dataset to classify.

- GPU to train the model

- Mentor for medical reasoning and ML model fabrication