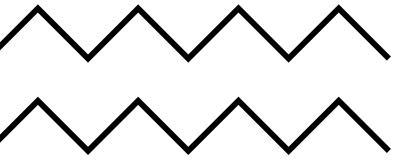


SARS COVID-19 DETECTION THROUGH AI

CS-691



**TEAM
MEMBERS**



Hanith atluri
(Tester)



Vamshi
(Product manager)





Anusha Nunna
(Developer)



Reshma Gonu
(Developer)



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Quality analyst

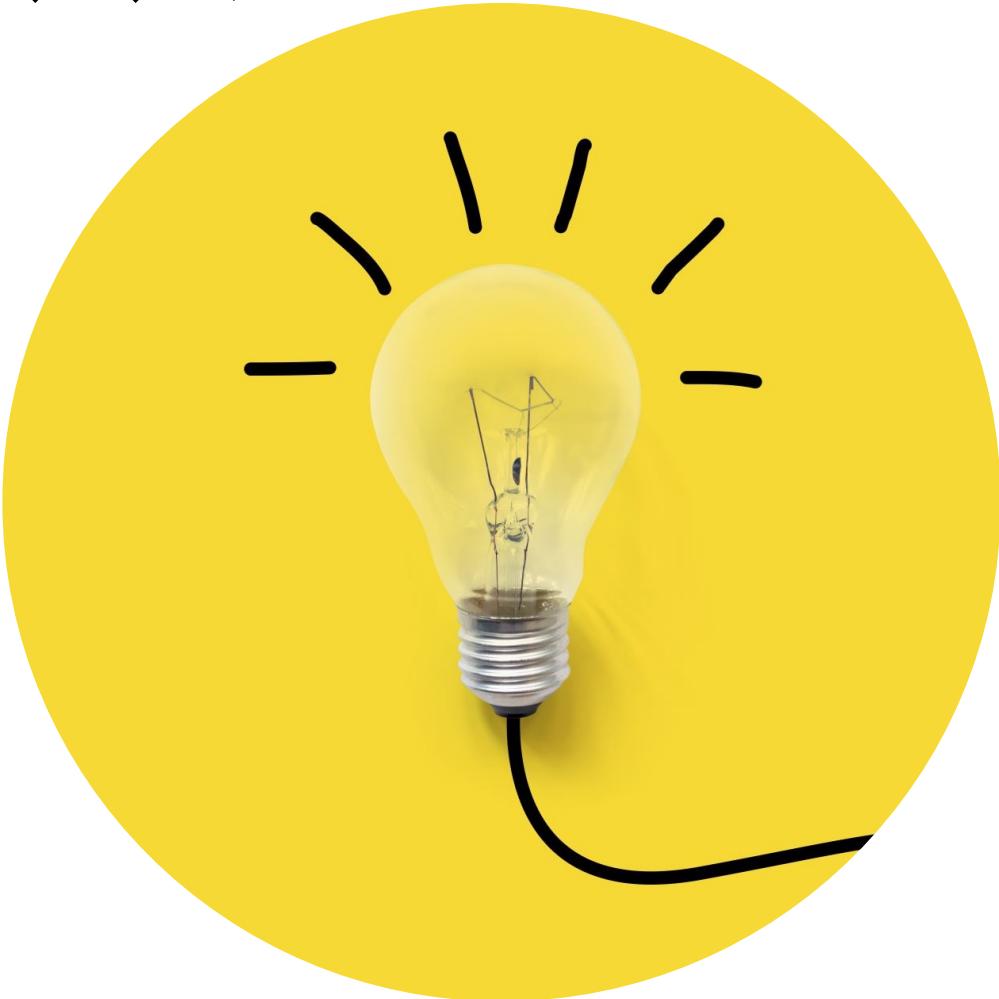


Alekhyaa
(Facilitator)



AGENDA





- **Overview of SARS-CoV-2 Detection Methods**

- Review of current SARS-CoV-2 detection methods (e.g. RT-PCR, antigen tests)
- Limitations and challenges of current methods
- Potential benefits of using AI for SARS-CoV-2 detection

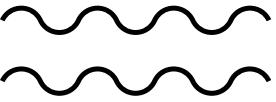
- **Discussion of AI Techniques for SARS-CoV-2 Detection**

- Overview of AI techniques being used for SARS-CoV-2 detection (e.g. machine learning, deep learning)
- Advantages and disadvantages of different AI techniques
- Examples of successful applications of AI for SARS-CoV-2 detection

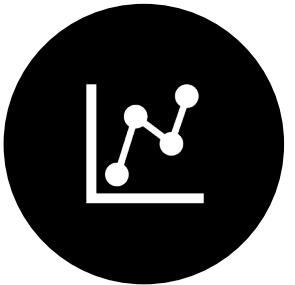
- **Data Collection and Preprocessing**

- Overview of data requirements for AI-based SARS-CoV-2 detection
- Challenges in collecting and preprocessing SARS-CoV-2 data
- Potential sources of data and strategies for overcoming data limitations





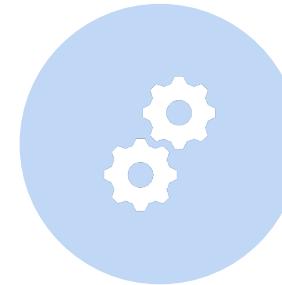
Model Development and Validation



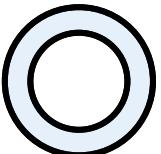
Discussion of different evaluation metrics for SARS-CoV-2 detection models

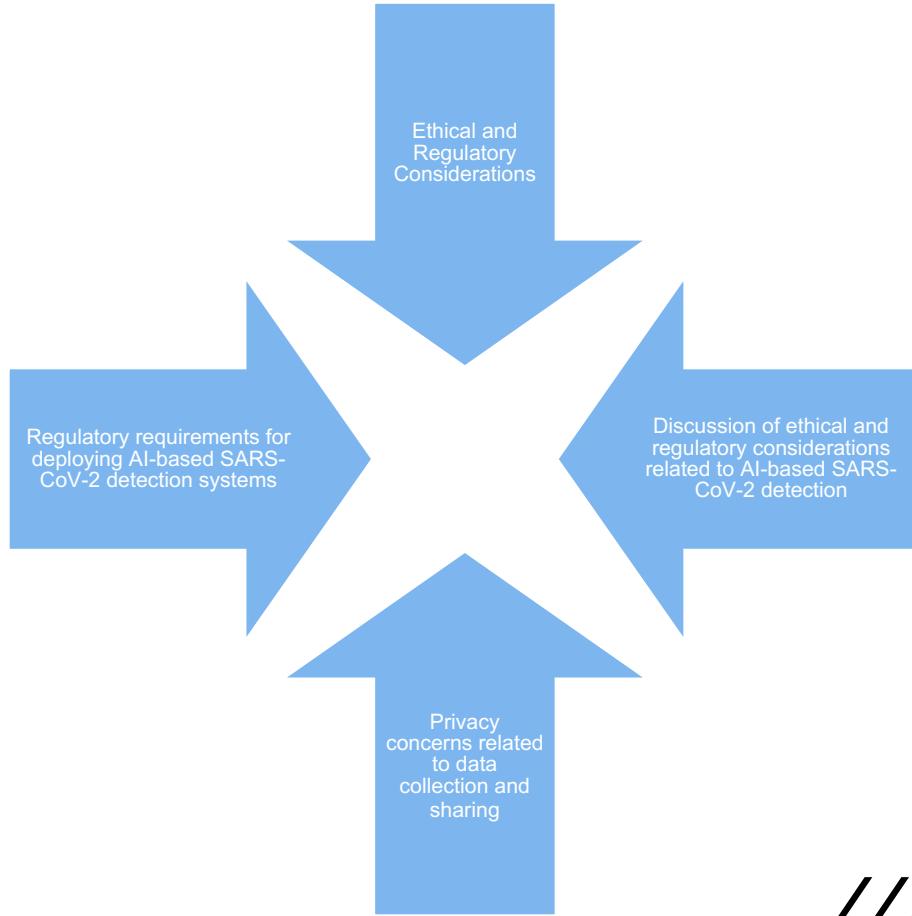
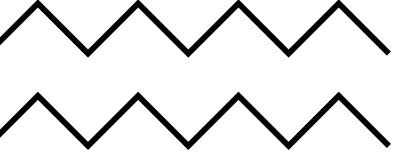


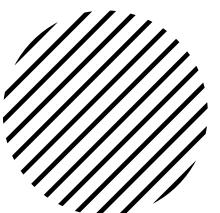
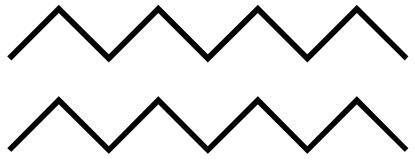
Overview of model development and validation process



Considerations for model deployment and scalability





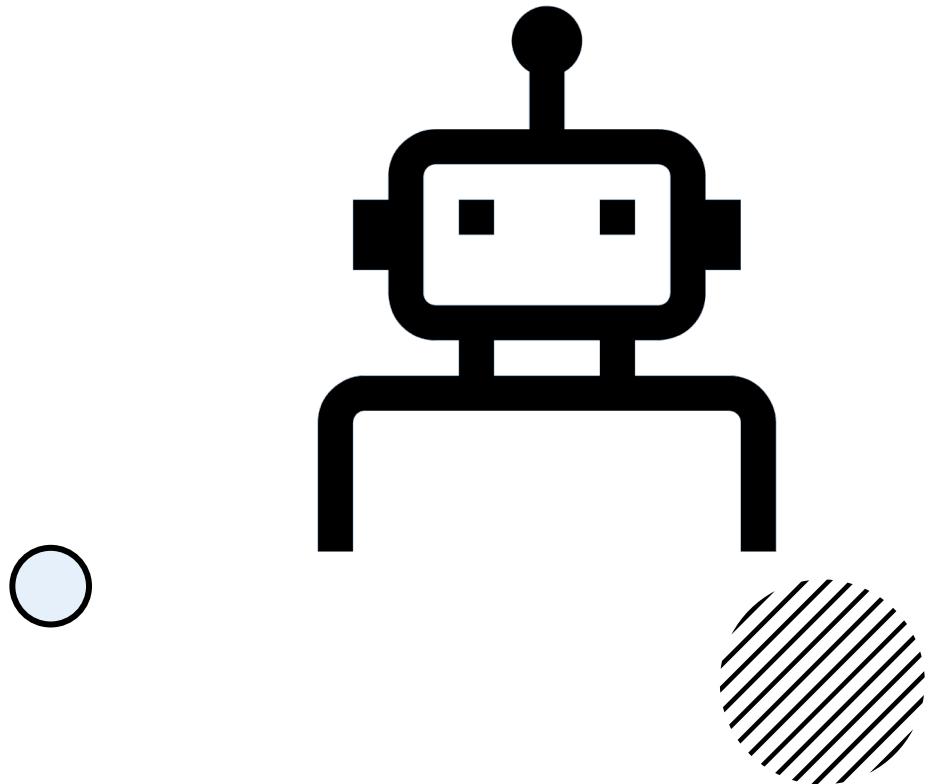
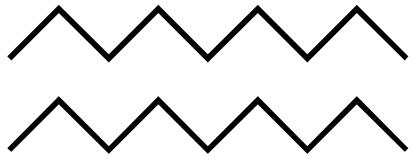


Next Steps and Future Directions

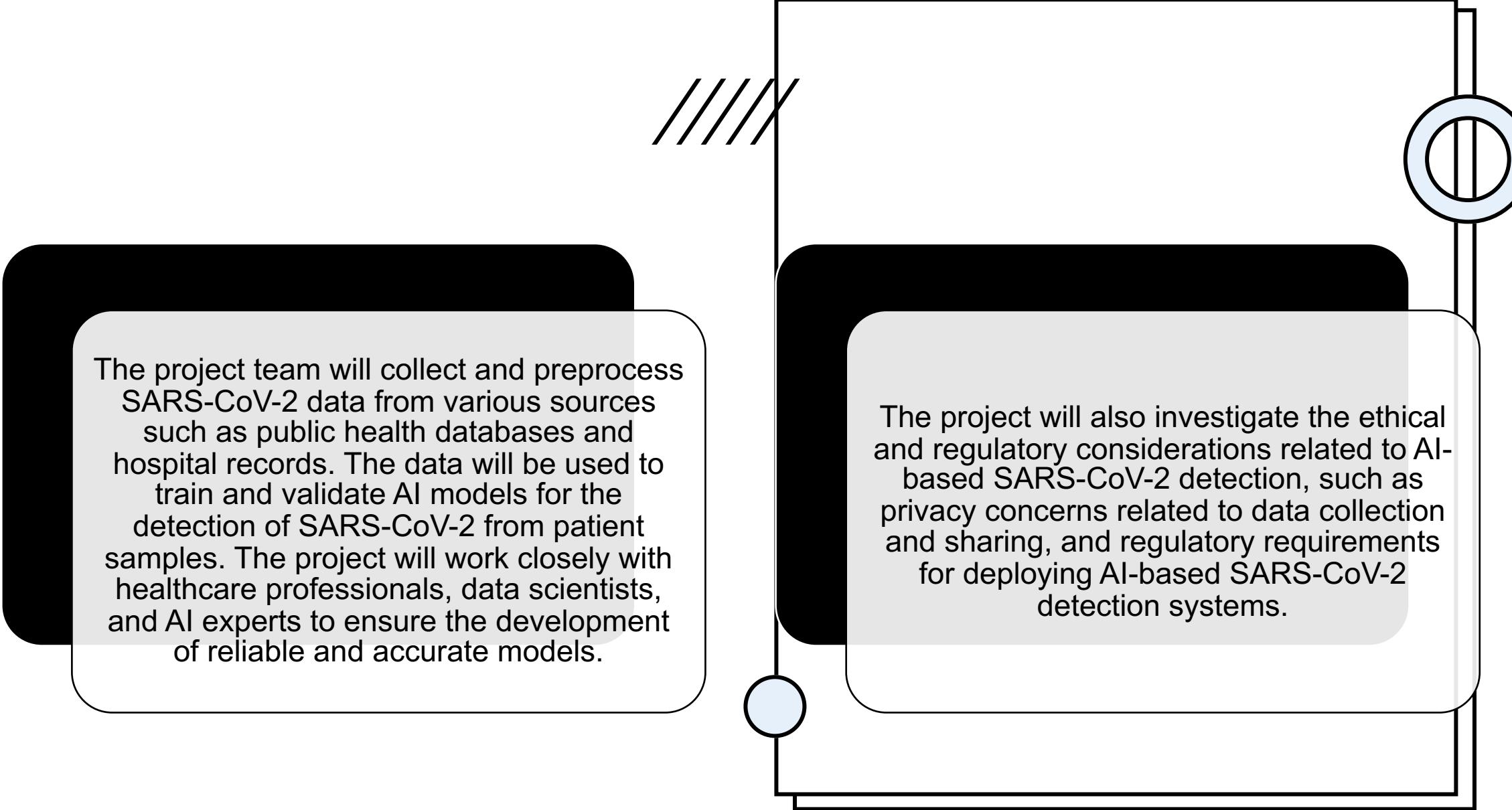
- Summary of key takeaways from the meeting
- Discussion of next steps for advancing AI-based SARS-CoV-2 detection
- Ideas for future research and collaboration

PROJECT DESCRIPTION





- The SARS-CoV-2 Detection through AI project aims to develop and validate artificial intelligence (AI) models for the detection of SARS-CoV-2 virus in patient samples. The project will explore different AI techniques such as machine learning and deep learning to develop models that can detect the virus accurately and efficiently.



The project team will collect and preprocess SARS-CoV-2 data from various sources such as public health databases and hospital records. The data will be used to train and validate AI models for the detection of SARS-CoV-2 from patient samples. The project will work closely with healthcare professionals, data scientists, and AI experts to ensure the development of reliable and accurate models.

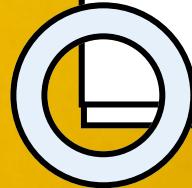
The project will also investigate the ethical and regulatory considerations related to AI-based SARS-CoV-2 detection, such as privacy concerns related to data collection and sharing, and regulatory requirements for deploying AI-based SARS-CoV-2 detection systems.

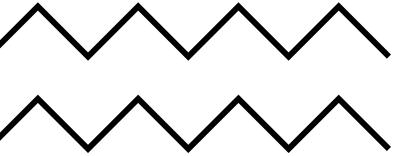
The outcomes of this project will include the development of AI-based SARS-CoV-2 detection models that can be used in healthcare settings for early and accurate detection of the virus. The project will generate new insights into the potential of AI for SARS-CoV-2 detection and the ethical and regulatory considerations related to AI-based healthcare applications.

This project has the potential to significantly contribute to the global effort to control the COVID-19 pandemic by improving the accuracy and speed of SARS-CoV-2 detection, and could pave the way for the development of future AI-based healthcare applications.



P E R S O N A S

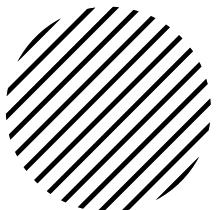
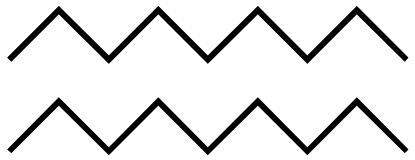




Anderson is a man and he is 26 years old. he went to the hospital to get checked out since he wasn't feeling very well, and the doctors wanted to see whether he was showing any signs of convulsions.

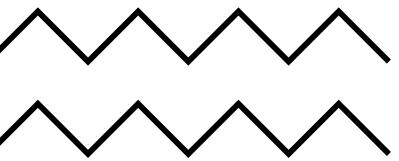
The CT scan was carried out, and the findings were gathered. Yet, none of the doctors are available to talk about the papers and provide their feedback. he is able to input the report into the program and obtain the findings by making use of the SARS Covid-19 Detection with AI technology.





Alex is a man in his thirtieth year of life. Since he wasn't feeling well, he decided to get checked out at the hospital, where physicians looked for symptoms of convulsions.

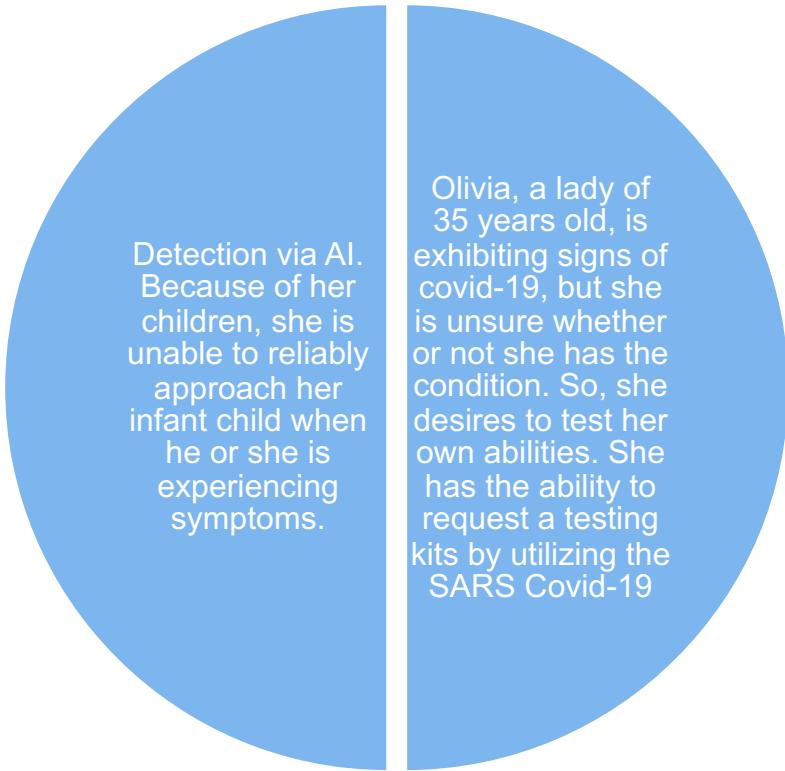
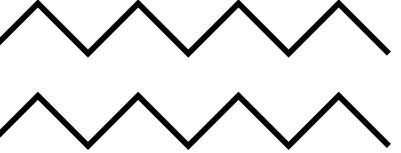
It was determined that a CT scan was necessary, therefore one was performed. Not a single doctor can be reached for comment on the publications. he can use the SARS Covid-19 Detection utilizing AI technology to enter the report and acquire the results.

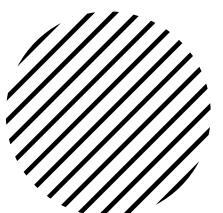
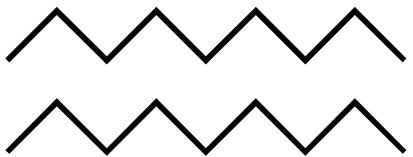


Because to the effects of covid-19, he is unable to leave the house. She is able to discuss his condition with a chatbot that utilizes SARS Covid-19 Detection using AI, and receive recommendations from medical professionals.

jackson is a woman and she is 42 years old. Because he is infected with Covid-19, it is important for him to take care of his health by consulting with physicians and obtaining some treatments.







David is currently in the 18th year of his existence as a man. He went to the hospital to get weighed out because he hadn't been feeling very well, and the doctors there looked for signs of convulsions in him.

He is confined to the house and unable to go anywhere else because of the side effects of covid-19. he is able to discuss her husband's illness with a chatbot that employs SARS Covid-19 Detection utilizing AI, and in return, she will obtain advice from trained medical specialists.

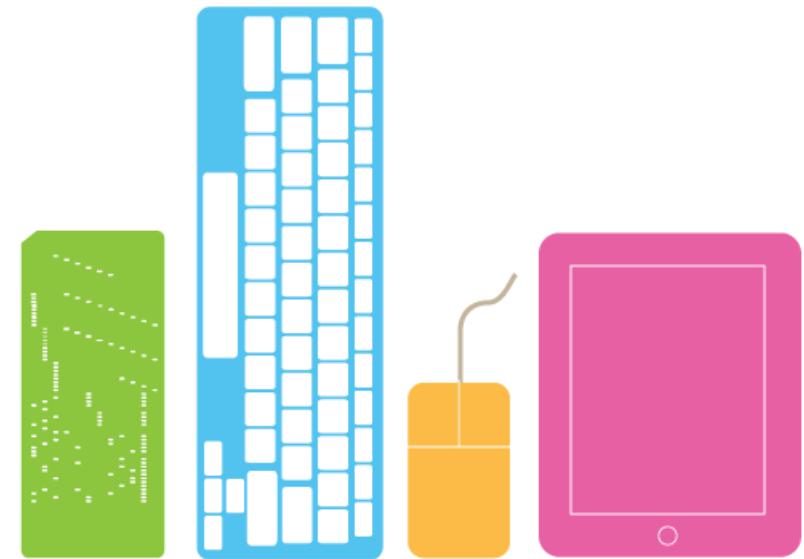
MVP(Minimum Viable Product)

- MVP stands for Minimum Viable Product, which refers to the most basic version of a product that can be launched to test its viability in the market. In the context of COVID detection using AI, an MVP could include the following components:
- Data collection: Collecting large datasets of COVID-19 positive and negative cases, along with relevant clinical and demographic information.
- Data preprocessing: Cleaning, processing, and standardizing the collected data for use in machine learning models.
- Feature selection: Identifying the most important features (such as symptoms, test results, and demographic data) that can be used to distinguish between COVID-19 positive and negative cases.



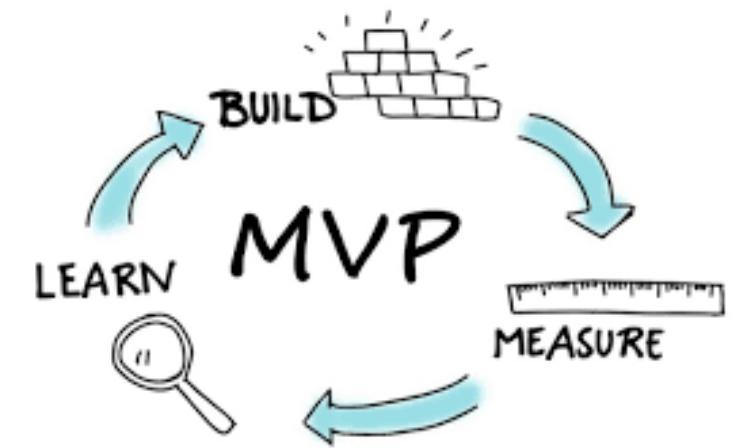
MVP(Minimum Viable Product)

- Model selection: Choosing appropriate machine learning algorithms (such as logistic regression, decision trees, or neural networks) that can accurately classify COVID-19 cases based on the selected features.
- Model training: Using the collected and preprocessed data to train the chosen machine learning model.
- Model evaluation: Testing the performance of the trained model on a separate validation dataset to assess its accuracy, sensitivity, specificity, and other relevant metrics.
- User interface: Creating a user-friendly interface for users to interact with the model, submit their data, and receive a prediction of their COVID-19 status. This MVP can serve as a starting point for developing more sophisticated AI-based COVID detection systems, which can be scaled up and refined based on user feedback and new data.



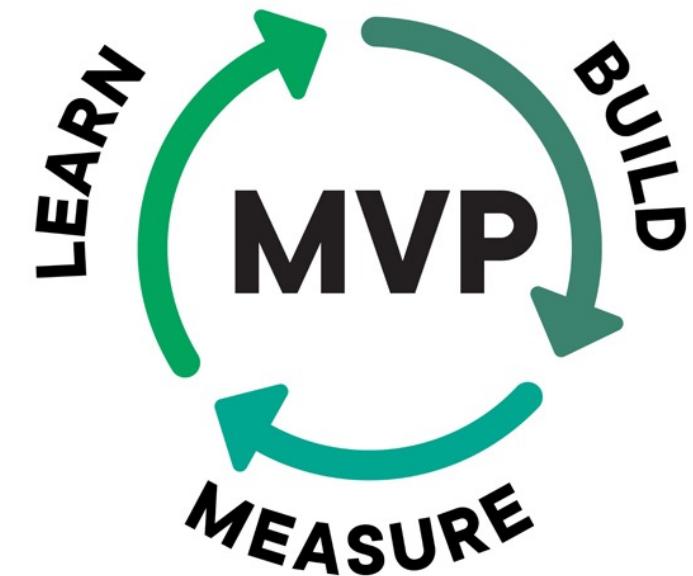
MVP(Minimum Viable Product)

- 1) Registration (sign up and log in)
- 2) Unique account
- 3) Home page
- 4) Services
- 5) Precautions
- 6) Appointment with doctor



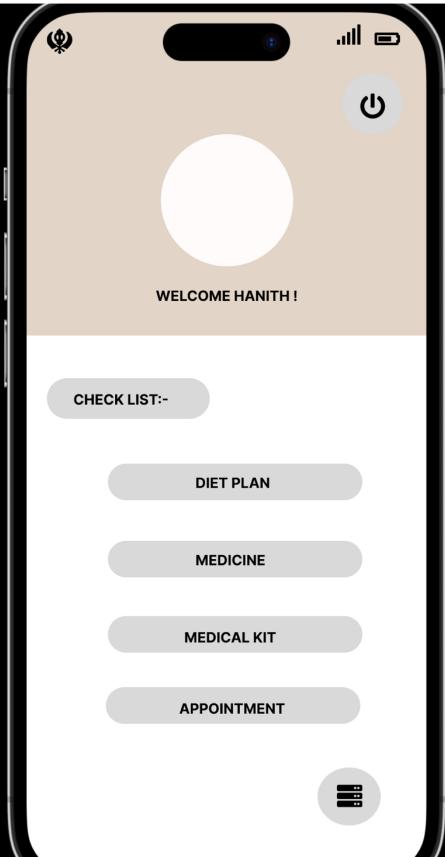
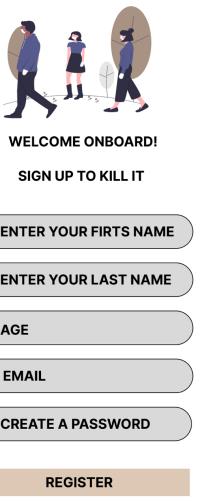
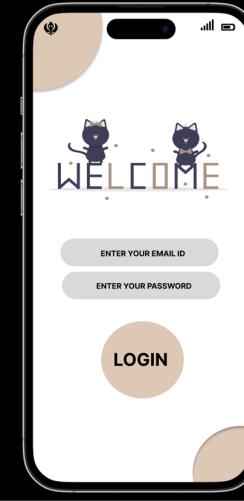
MVP(Minimum Viable Product)

- 7) Scheduled confirmation
- 8) Tool kits
- 9) Medicines
- 10) Health tracking
- 11) Diet
- 12) Medical alarm



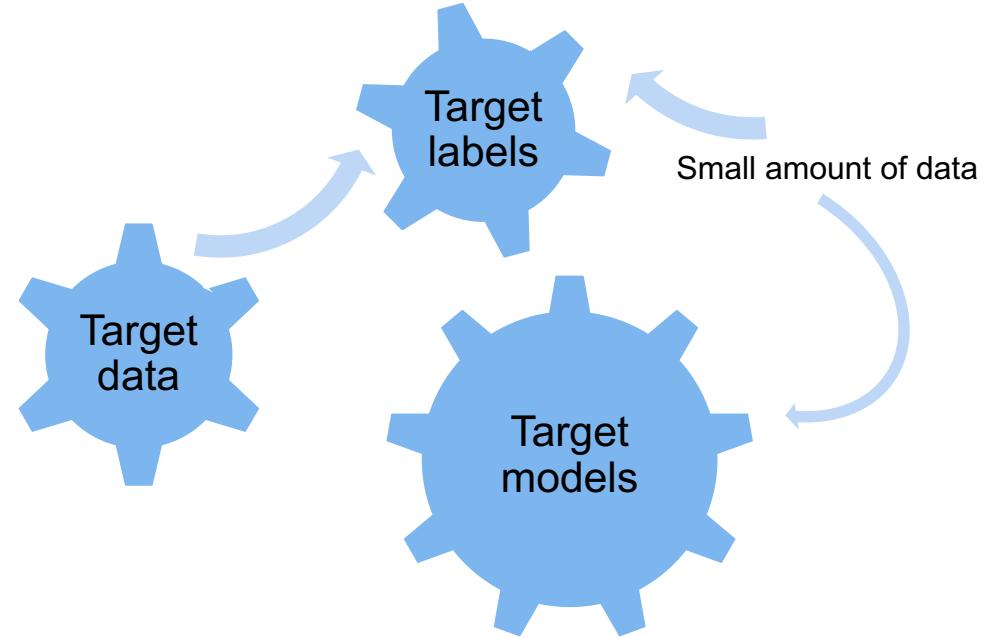
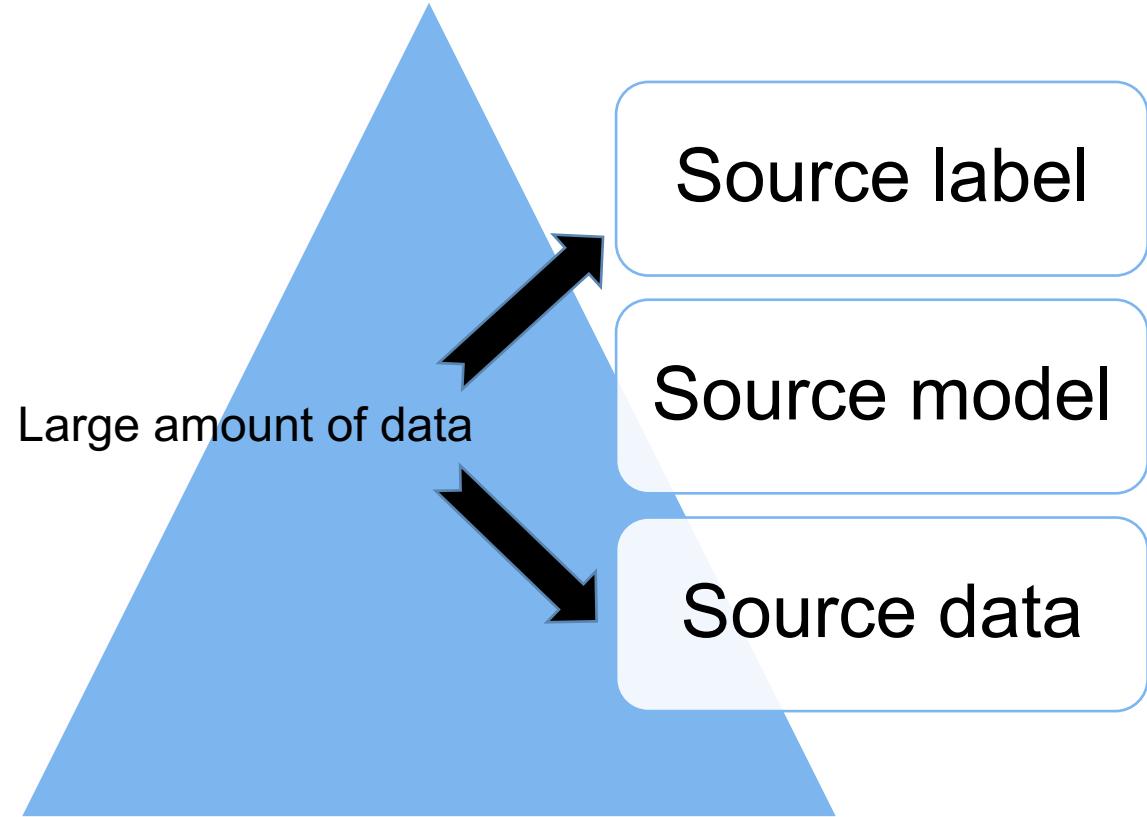
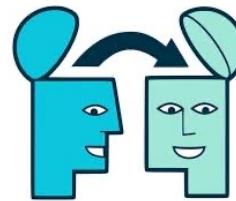


prototype

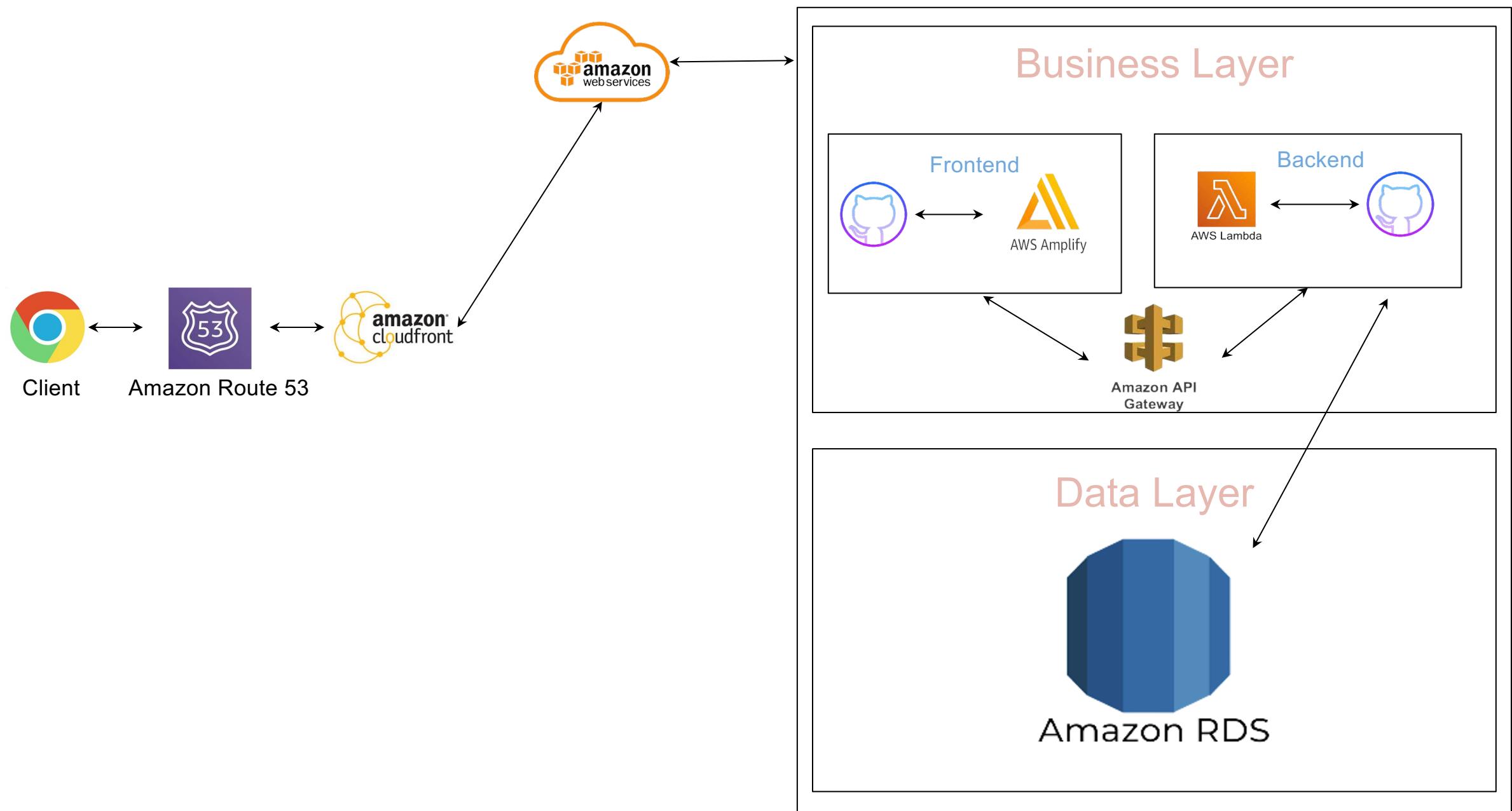


interface

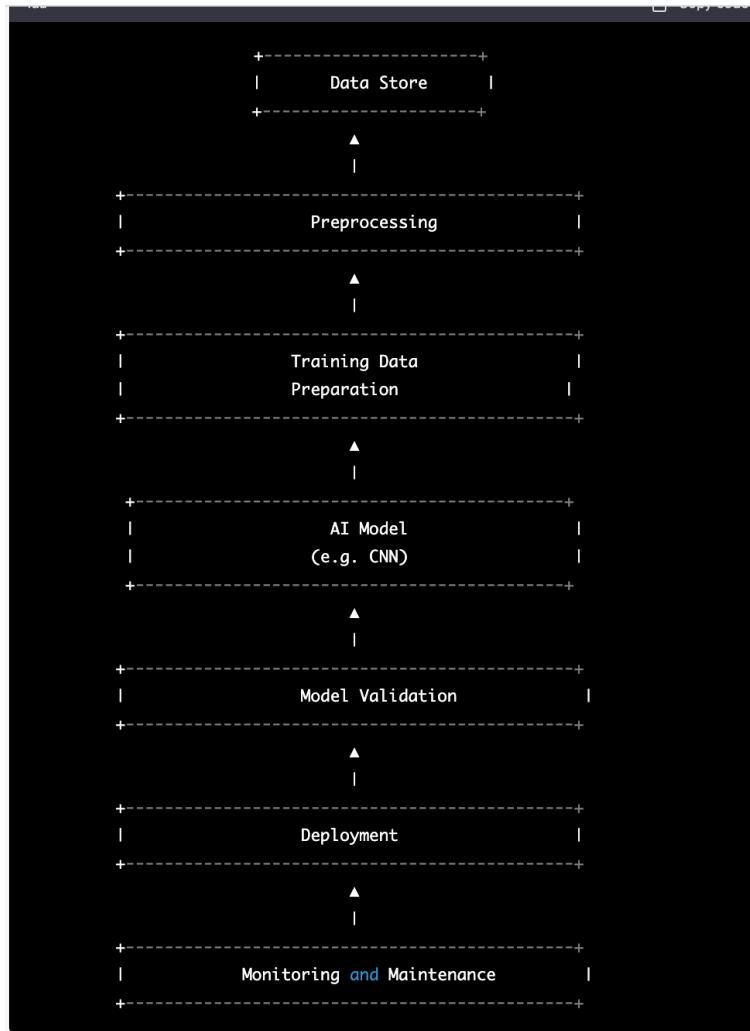
ALGORITHMS



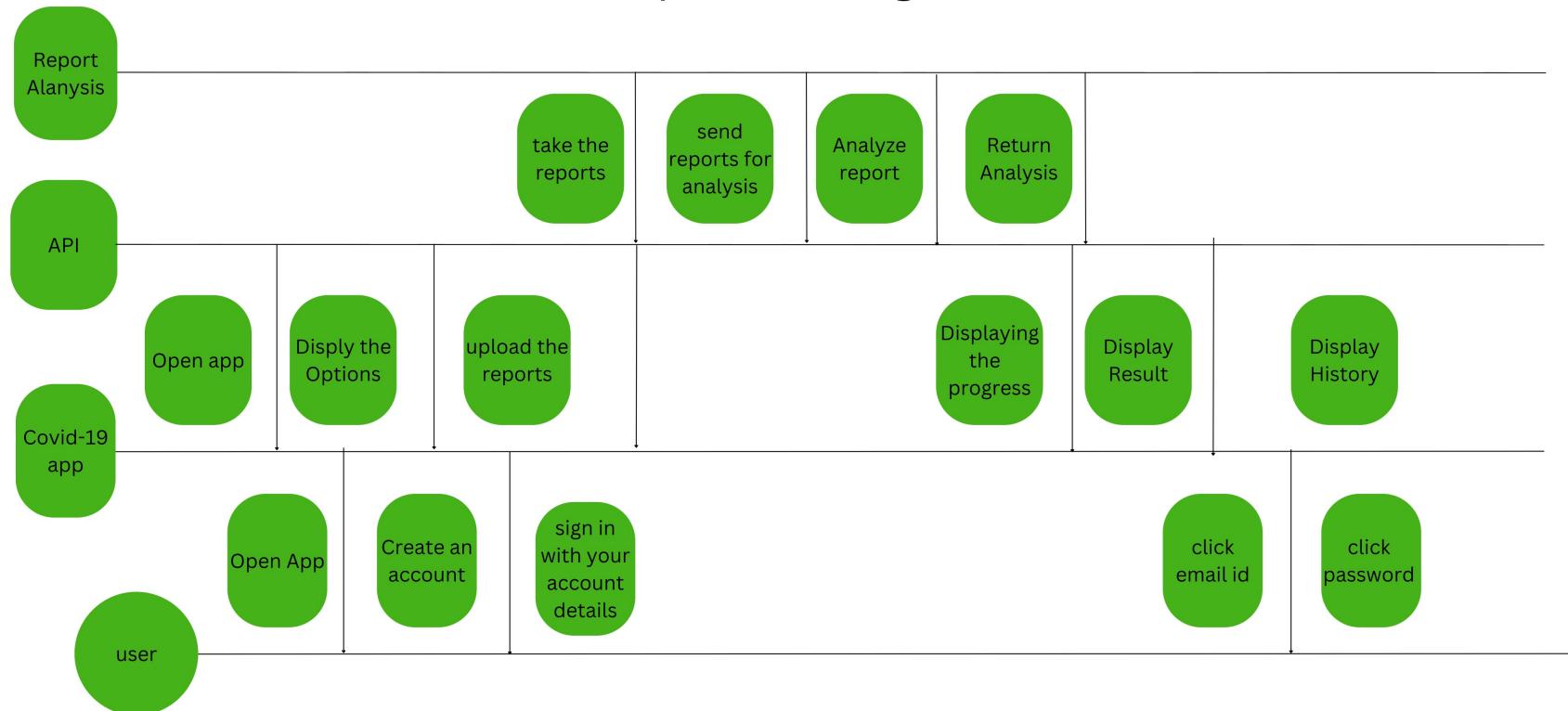
Conceptual Architecture Diagram



Flow chart



Sequence Diagram



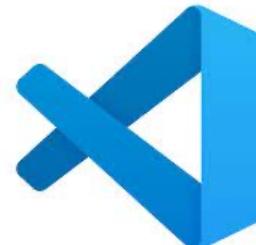
Sequence diagram



aws  Jira



 slack





USER STORIES AND ACCEPTANCE CRITERIA

User Stories & Acceptance Criteria

User Story ID	Summary	Status
SCIDTA-146	<p>As a User, I want to submit my test reports in the portal for evaluation from expert doctors so that I can get my current health status and inputs from doctor</p> <p>Scenario : Patient wants to upload their Test reports for assessment. Given I logged as Patient When I open the interface and browse upload documents page then I can an option for uploading the documents for various assessments and see the page to upload the test reports documents.</p>	Done
SCIDTA-148	<p>As a User, I want to request a kit in the portal that could be delivered to home. so that I can have assessment by myself and get inputs from experts by uploading them</p> <p>Scenario : user wants a testing kit to test by himself/herself Given I logged as User When I open the portal and go to testing kits page Then see all kind of testing kits available and I request required kit accordingly.</p>	Done
SCIDTA-154	<p>As a Trained medical specialist, I want to download the user reports from the portal and evaluate them so that I can provide inputs to the user</p> <p>Scenario : Medical specialist wants to download test reports Given I am in a role of logged-in Medical specialist When I open the web-page and go to test reports page Then I can find out all the test reports uploaded by users which are waiting for evaluation</p>	Done
SCIDTA-147	<p>As a Trained medical specialist, I want to upload users test results in the portal so that the user would be aware of his test results and act accordingly.</p> <p>Scenario : Trained medical specialist wants to upload test reports Given I'm in a role of Trained medical specialist When I open the web application and browse to upload results page then see all the pending reports tab and click on it and upload test results in portal.</p>	Done

User Stories Completed & Acceptance Criteria

User Story ID	Summary	Status
SCIDTA-12	<p>As a User, I want to discuss my/other health condition via chatbot so that I can inputs to be followed (either from medical experts or AI Model)</p> <p>Scenario : User wants to discuss their / other's health condition and expect inputs in return. Given I logged as User When I open the interface and navigate to chatbot tool then I can shoot all my queries/ problems and see inputs or recommendations in return (either from AI model or Experts)</p>	To-do
SCIDTA-150	<p>As a User, I want to register my self into the portal so that I can get upload documents , initiate discussion in chat bot, request kits etc..</p> <p>Scenario : User wants to register them self in the portal to use portal and its features. Given I logged as User When I open interface in need to register my self in the portal then I can access all the features available in the portal And utilize them whatever is needed</p>	To-do
SCIDTA-151	<p>As a User, I want to have one more step for authentication factor like OTP , DUO , Authenticator so that I can secure my account from others</p> <p>Scenario : User wants to have an additional step for authentication after login for securing his account. Given I logged as User When I open the interface and logged into the portal then I need to have one more step of authentication So that I can secure my accounts from unauthorized logins</p>	To-do

Test Cases

Test Id	User story Id	Test Case	Current state	Test Data	steps to follow	Expected Result
TS-15	SCIDTA-146	browse uploads page	User logged into the portal	user details(Login details)	login->uploads section	users should get a new page where they can upload theirs test documents
TS-16	SCIDTA-146	select documents to upload	User logged into the portal	user details(Login details)	login->uploads section -> add documents	by clicking on add documents user should able to select the document he wanted to upload
TS-17	SCIDTA-146	Upload document (submit)	User logged into the portal	Document , user details (login details)	login->uploads section -> upload-document	By clicking on submit user should able to submit his documents
TS-18	SCIDTA-148	browse testing kits page	User logged into the portal	user details(Login details)	login-> testing kits	users should get a new page where they can get list of available kits details
TS-19	SCIDTA-148	check kits availablity	User logged into the portal	user details(Login details) , testing kit details	login-> testing kits -> check availability	User should get the availability status of the selected kit/s

Test Id	User story Id	Test Case	Current state	Test Data	Steps to follow	Expected Result
TS-20	SCIDTA-148	Request Kit	User logged into the portal	user details(Login details) , testing kit details	login-> testing kits -> request kit	user should get the kit that they have selected to deliver
TS-21	SCIDTA-154	browse uploaded test results	Trained medical specialist logged into the portal	specialist login details	login -> uploads	Medical expert should get a page which shows all the documents that are uploaded and yet to evaluate
TS-22	SCIDTA-154	download test result/s	Trained medical specialist logged into the portal	specialist login details , document/s details	login -> uploads -> select document	Medical expert should be able to download the document/s
TS-23	SCIDTA-12	initiating chat bot - users/experts	User / Trained medical specialist logged into the portal	user / specialist login details	login-> chatbot	User / Trained medical specialist should get a chatbot interface where they can chat with other

Test Id	User story Id	Test Case	Current state	Test Data	steps to follow	Expected Result
TS-24	SCIDTA-12	initiate conversation - user	User logged into the portal	user details(Login details) , message	login -> chatbot -> start conversation	user should able to discuss his problem and get response in return from. Model / expert
TS-25	SCIDTA-12	initiate conversation - medical expert	Trained medical specialist logged into the portal	user / specialist login details , message	login -> chatbot -> start conversation	Medical expert should able the get the messages sent by user and revert back them with necessary information
TS-26	SCIDTA-147	browse and select documents to upload results	Trained medical specialist logged into the portal	specialist login details , document/s details	login -> uploads -> select document	Medical expert should get a new page and select all the uploads that he wanted to reply
TS-27	SCIDTA-147	Publish Test Feedback	Trained medical specialist logged into the portal	specialist login details , document/s details, Feedback	login -> uploads -> select document-> oublish	Medical expert should able to provide his feedback to uploaded documents

Test Id	User story Id	Test Case	Current state	Test Data	steps to follow	Expected Result
TS-28	SCIDTA-150	Register as user	User logged into the portal	user details(Login details)	Sign up	user should able to get a page which allows him to register himself in the portal
TS-29	SCIDTA-150	Browse signup page	User logged into the portal	User details	Sign up	User should get a page where they need to fill their personal information and register
TS-30	SCIDTA-151	Add Authentication factor	User logged into the portal	user details(Login details) , auth code	login -> verify	User should be navigated to a new page which ask him for auth code
TS-31	SCIDTA-151	Verify Authentication	User logged into the portal	user details(Login details) , auth code	login -> verify_code	User will enter his security code and proceed further

Stories Completed

Projects / SARS Covid-19 detect... / Add epic / SC1DTA-148

🔒 0 1 ⌘ ...

As a user, I can request Testing kits

Attach Add a child issue Link issue ▾

Done ✓ Done

Pinned fields X

Projects / SARS Covid-19 detect... / Add epic / SC1DTA-149

🔒 0 1 ⌘ ...

As a user, I can start a discussion in chat bot

Attach Add a child issue Link issue ▾

Done ✓ Done

Pinned fields X

Add epic / SC1DTA-154

camera 0 1 ⌘ ... >

As a Trained medical specialist, I want to download the user reports from the portal and evaluate them

Attach Add a child issue Link issue ▾

To Do ▾

Pinned fields X

Click on the x next to a field label to start pinning.

Stories Completed

Projects / SARS Covid-19 detect... / Add epic / SC1DTA-146

As a user, I wanted to upload my test documents in the portal

Attach

Add a child issue

Link issue

Done

✓ Done

0 1

Pinned fields

Projects / SARS Covid-19 detect... / Add epic / SC1DTA-147

As a medical expert, I want to provide my feedback on uploaded documents

Attach

Add a child issue

Link issue

Done

✓ Done

0 1

Pinned fields

X

Stories Not Completed

Projects / SARS Covid-19 detect... / SC1DTA-12

- As a user I want to login with an extra security like Authentication factor. so that I can secure my account.

 Attach  Add a child issue  Link issue  ...

Description



To Do 

Details Assignee, Labels, Start date, Due date,...

Projects / SARS Covid-19 detect... / SC1DTA-12

- As a user I want to communicate more with Chat bot to discuss more details about health condition.

 Attach  Add a child issue  Link issue  ...

Description



To Do 

Details Assignee, Labels, Start date, Due date,...

Stories Not Completed

Projects / SARS Covid-19 detect... / SC1DTA-12

- As a user I want to provide feedback for doctors. So that it will help others to gather information about doctors.

 Attach  Add a child issue  Link issue 



1



...

To Do

Details Assignee, Labels, Start date, Due date,...

Projects / SARS Covid-19 detect... / SC1DTA-12

- In order to order the COVID-19 tool kit, I want to register as a user.

 Attach  Add a child issue  Link issue 



1



...

To Do

Details Assignee, Labels, Start date, Due date,...

Product Backlog

Projects / SARS Covid-19 detect... / SC1DTA-9

Product Backlog (min 50 user stories)

Attach Add a child issue Link issue

Description

Add a description...

Child issues

Order by ... +

0% Done

	SC1DTA-78	As a user, I want to be able to create an account, so that I can access the COVID-19 detection service.	-	A	TO DO ▾
	SC1DTA-79	As a user, I want to be able to login to my account, so that I can access my test results.	-	A	TO DO ▾
	SC1DTA-80	As a user, I want to be able to reset my password, in case I forget it	-	A	TO DO ▾
	SC1DTA-81	As a user, I want to be able to upload my COVID-19 test results, so that they can be analyzed.	-	A	TO DO ▾
	SC1DTA-82	As a user, I want to be able to view my test results, so that I can see if I have COVID-19.	-	A	TO DO ▾
	SC1DTA-83	As a user, I want to be able to download my test results as a PDF, so that I can share them with others.	-	A	TO DO ▾
	SC1DTA-84	As a user, I want to be able to schedule an appointment with a doctor, if my test results are positive.	-	A	TO DO ▾
	SC1DTA-85	As a user, I want to be able to view my appointment details, such as the time and location.	-	A	TO DO ▾

KV

Add a comment...

Pro tip: press **M** to comment

Sprint Backlog

Projects / SARS Covid-19 detect... / SC1DTA-10

Sprint 2 Backlog (min 9 user stories)

Attach Add a child issue Link issue ▾

Description

As a user I want to log in with an extra security like MFA. So that I can secure my account.

Child issues

Order by ▾ ... +

8% Done

 SC1DTA-77	As a user I want to log in with an extra security like MFA. So that I can secure my account.	- A DONE ✓
 SC1DTA-128	Implement user registration functionality in the website.	- A TO DO ✗
 SC1DTA-129	Implement user login functionality in the website.	- A TO DO ✗
 SC1DTA-130	Create a form for users to upload their COVID test data in the website.	- A TO DO ✗
 SC1DTA-131	Implement a chatbot feature to provide information on COVID-19 in the website.	- A TO DO ✗
 SC1DTA-132	Implement a chatbot feature to answer common questions related to COVID-19 in the website.	- A TO DO ✗
 SC1DTA-134	Implement an API endpoint for the AI model to analyze user test data.	- A TO DO ✗
 SC1DTA-135	Implement an appointment scheduling feature in the website.	- A TO DO ✗
 SC1DTA-136	Implement a feature to allow doctors to download patient test.	- A TO DO ✗

A close-up photograph of a blue electronic calculator, a bar chart on a dark surface, and a spiral-bound notebook with light blue pages. The calculator's numeric keypad and function keys are visible. The bar chart has several colored bars (orange, yellow, green) of varying heights. The spiral notebook is partially open, showing its lined pages.

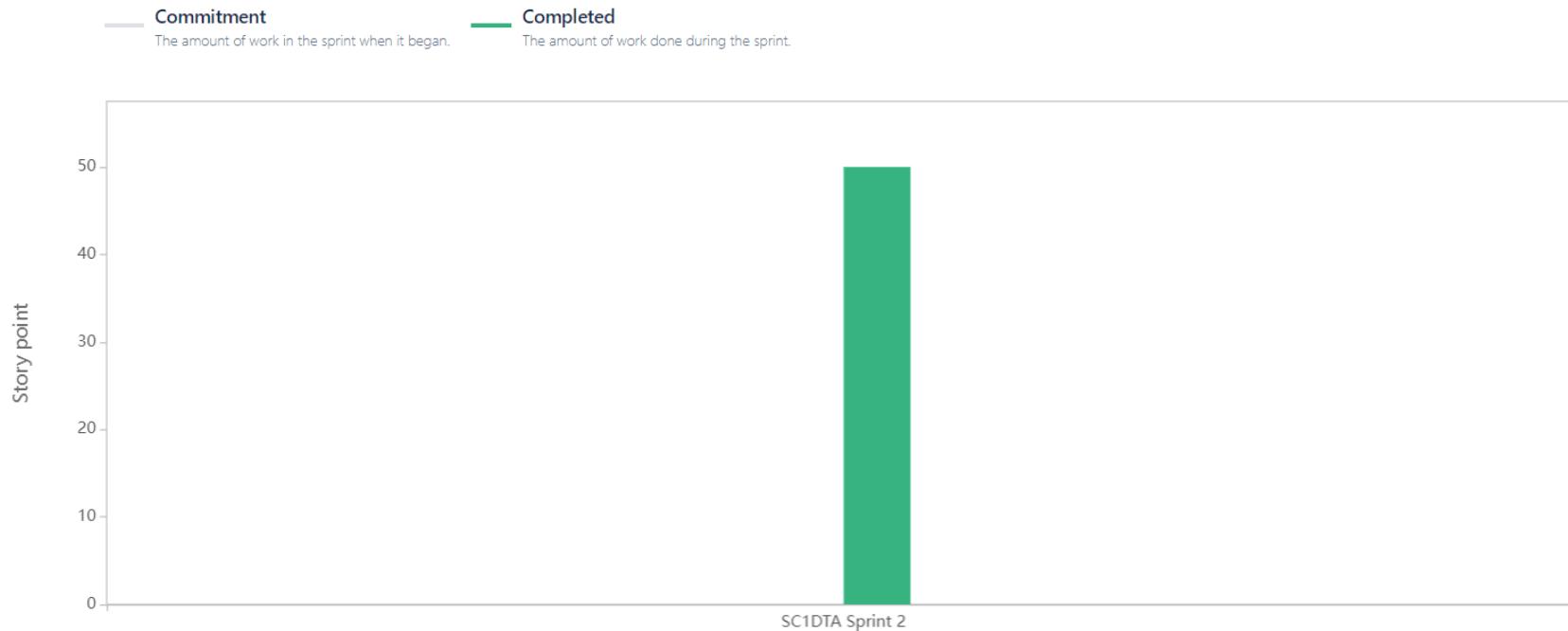
Metrics

Team Velocity Report

Projects / SARS Covid-19 detection through AI / Reports

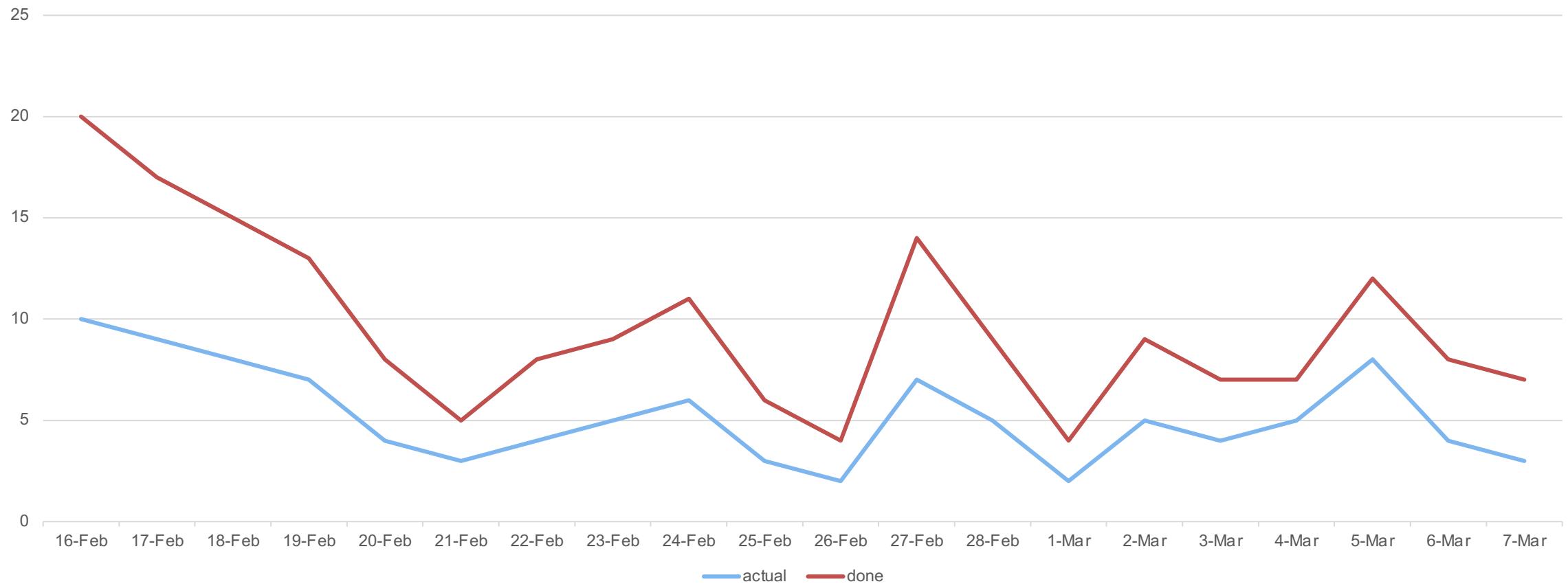
Velocity report

[» How to read this report](#)



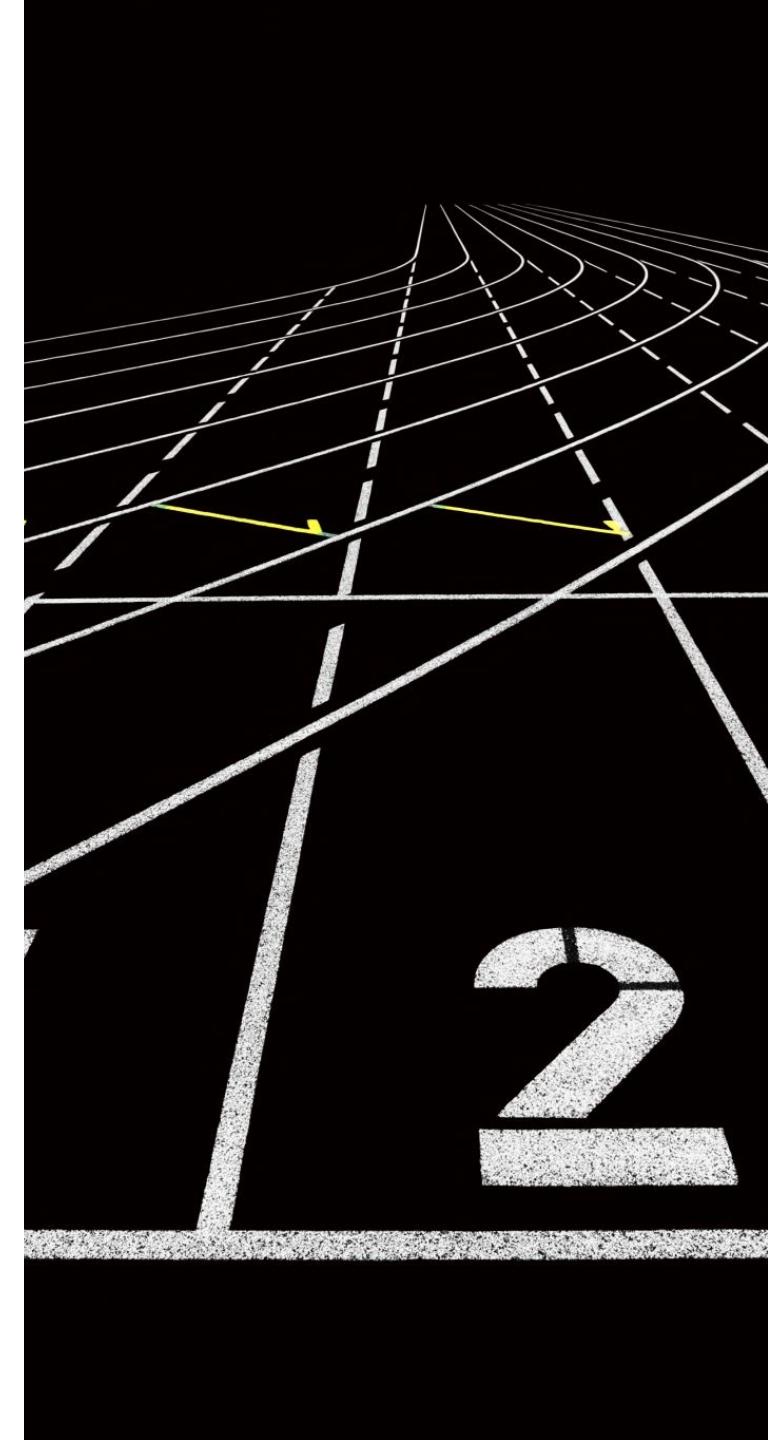
Burndown chart

Sprint_02(Team_04)



Completed/Committed Ratio

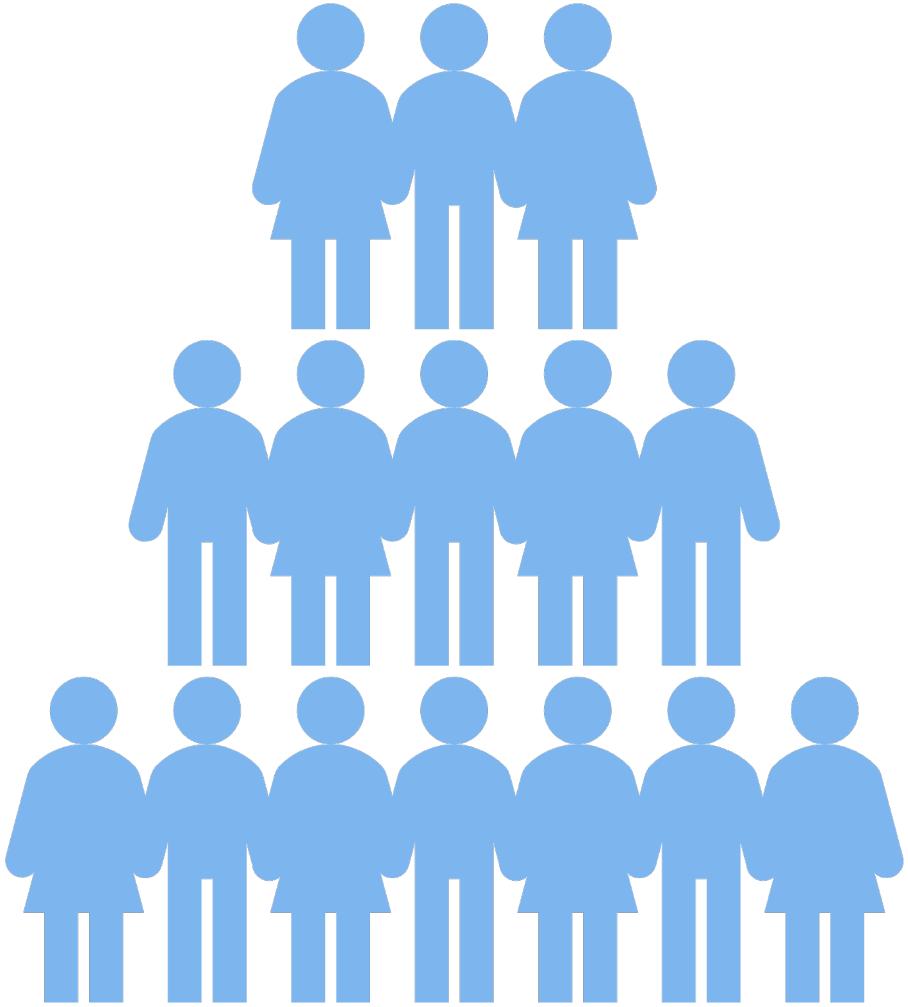
- The story completion ratio is the percentage of the total no. of stories delivered in a sprint against the committed ones.
- So, in this team we commits 24 user stories in a sprint and delivers 23, the story completion ratio will be 95%.
- Story Completion Ratio = $(\text{Total No. of Stories Delivered} / \text{Total no. of Stories Committed}) * 100$



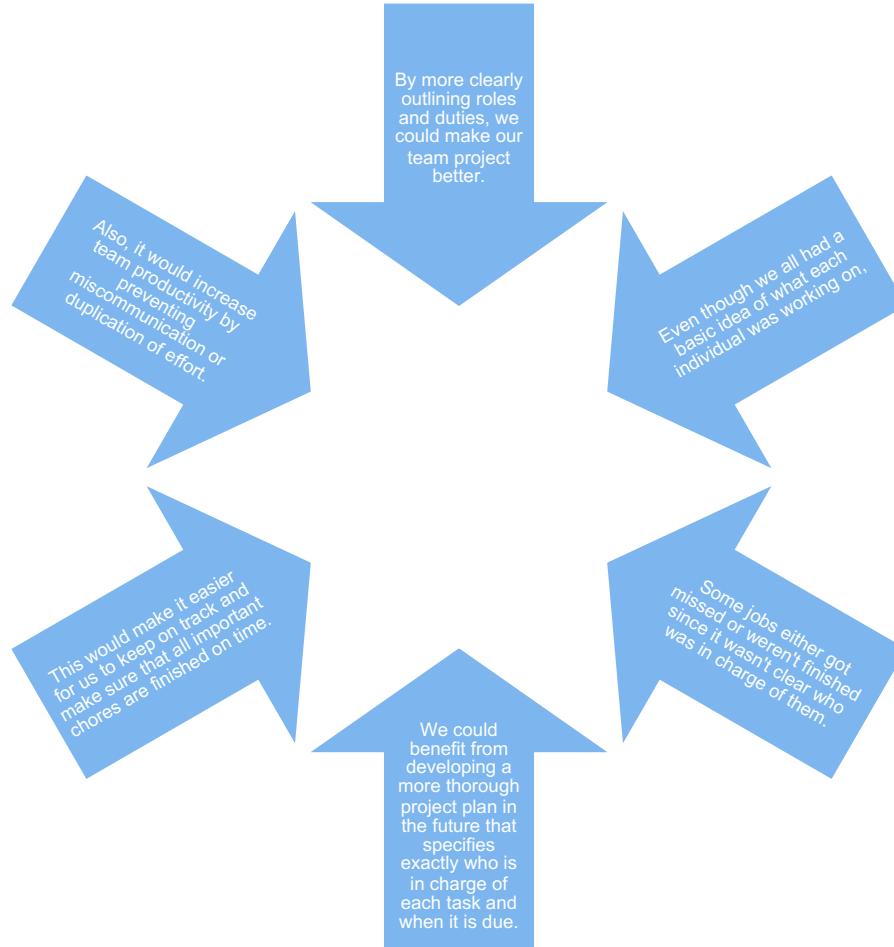


What Went Well

- Our team project went well overall, and one aspect of that was our efficient communication.
- We made a point of keeping each other updated on our development.
- We often met as a team to go over any problems or difficulties that might have arisen. As a result,
- We were able to foresee possible issues early on and take action to remedy them before they turned into significant obstacles.
- This made it possible for us to stay on schedule and deliver our finished product on time.



What can be improved



Action We Take To Improve

- To make sure that everyone is aware of their duties and responsibilities and is at ease with them,
- The team could review and discuss this strategy. In addition,
- We may arrange frequent team meetings to go over the status and identify any tasks that need to be finished.
- We could change deadlines or reassign tasks as needed to keep the project on schedule.
- By doing these things, we could increase the productivity and communication within our team and make sure that all important activities are finished quickly and efficiently.



Sprint-3



Sprint 3-Backlog

Projects / SARS Covid-19 detection through AI

Backlog

... Insights

Project Item	Category	Status	Team Member
SC1DTA-54 Project Description	SPRINT 3	TO DO	A
SC1DTA-55 Team working agreement	SPRINT 3	TO DO	RG
SC1DTA-56 Personas (at least 3)	SPRINT 3	TO DO	V
SC1DTA-57 MVP	SPRINT 3	TO DO	V
SC1DTA-58 Technologies	SPRINT 3	TO DO	RG
SC1DTA-59 Algorithms	SPRINT 3	TO DO	KV
SC1DTA-60 Diagrams	SPRINT 3	TO DO	A
SC1DTA-61 Sprint 2 Recap	SPRINT 3	TO DO	KV
SC1DTA-62 Product Backlog	SPRINT 3	TO DO	AR
SC1DTA-63 All the Users Stories or Tasks (Technical Stories)	SPRINT 3	TO DO	KV
SC1DTA-64 Sprint 3 Backlog	SPRINT 3	TO DO	KV
SC1DTA-65 Stories or Tasks committed for this Sprint (Stories and Acceptance Criteria)	SPRINT 3	TO DO	AR

Improvements made by professor feedback

- 1. personas
- 2. wiki page
- 3. cross checking every single aspect
- 4. taking care in quality of presentation

-
3. (A) (B) (C)
4. (A) (B) (C)
5. (A) (B) (C)
6. (A) (B) (C)
7. (A) (B) (C)
8. (A) (B) (C)
9. (A) (B) (C)
10. (A) (B) (C)
11. (A) (B) (C)
12. (A) (B) (C)
13. (A) (B) (C)
14. (A) (B) (C)
15. (A) (B) (C)
16. (A) (B) (C)
17. (A) (B) (C)
18. (A) (B) (C)
19. (A) (B) (C)
20. (A) (B) (C)
21. (A) (B) (C)
22. (A) (B) (C)
23. (A) (B) (C)