

# CLASTRACK



# OUR PROBLEM STATEMENT

## THE STATEMENT

Could AI/ML based technology be used to help automate attendance and other school data records.

## DESCRIPTION

Use computer vision, ML/AI to solve for digitising attendance, tracking mid day meal data and other similar bookkeeping activities leveraging basic digital devices available to the teacher. Leveraging ML/AI, NDEAR language translation block; Improvising if required leveraging the relevant NDEAR building blocks such as Saral, NDEAR Registries. Establish national/state reference dashboard to aggregate date level leveraging the NDEAR building blocks.





# TEAM DETAILS:

**Team : 405\_FOUND**

**Team ID : 26659**

**PS ID : AK1095**

**Atharva Chadha  
Akshita Rai  
Teena Sachdeva  
Karthik MVS  
Nikhita Rapolu  
Neethu Vangapalli**

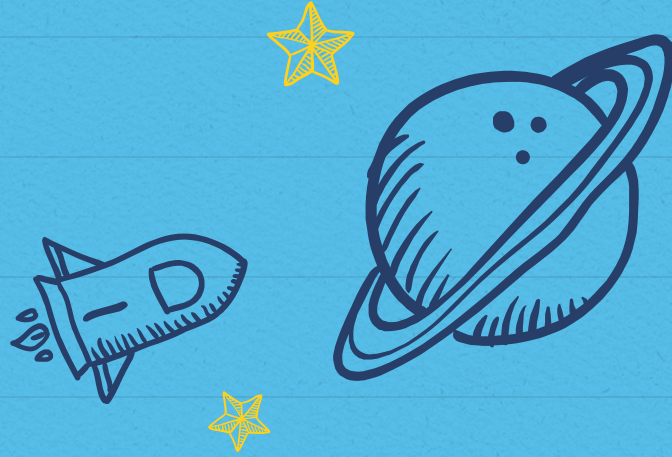
## OUR AIM

To digitally automate the attendance system while reducing manual labour and have a compiled system for all the records in the institution.

This facilitates organisations to easily manage the student records and everyday events such as  mid-day meals.



HOW DO WE ACCOMPLISH THIS?



# REAL TIME AUTOMATED ATTENDANCE AND LEARNING MANAGEMENT SYSTEM



# WHAT IS CLASSTRACK?

Database accessible at any time

Records ready for admins and teachers to access any moment of time.

Easier appending and management of data: User friendly interface that allows teachers and admins to easily create, edit and manage curriculum records and more.

## OUR PROCESS IS EASY

Scan QR code printed on ID

Display QR code to the camera to pass the first check.

# Facial Recognition

Stand in front of camera to pass the second check

## Attendance marked

Both teachers and students are confirmed to be present

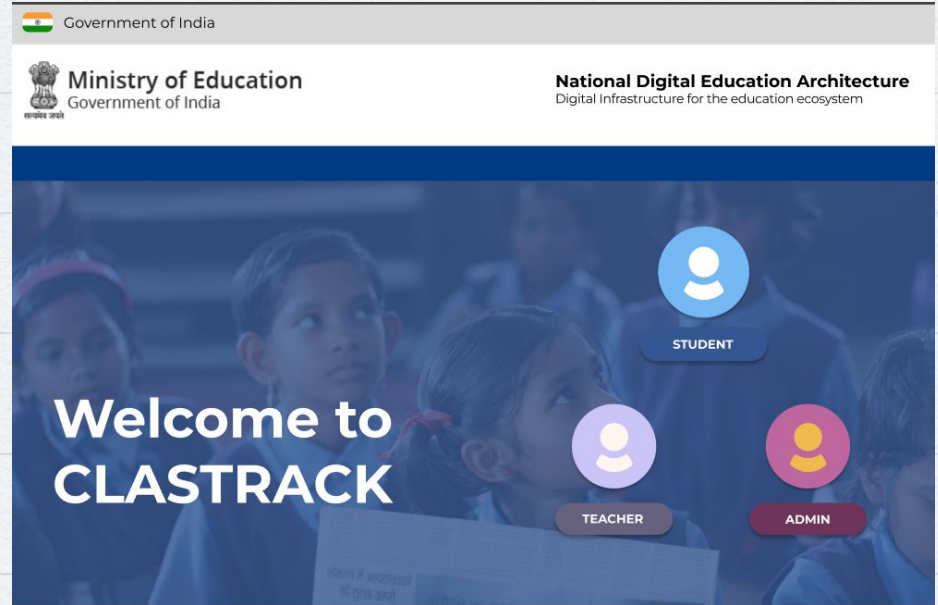


A large, stylized pencil-shaped sign is mounted on a light gray concrete wall. The sign is divided into three vertical sections: a purple section on the left, a thin beige section in the middle, and a large yellow section on the right. The words "LOVE TO" are written in the top half of the yellow section, and "LEARN" is written in the bottom half, both in a bold, black, sans-serif font. The sign is designed to look like a pencil, with a black eraser at the top and a black lead tip at the bottom right. In the background, a person wearing a blue hoodie, blue jeans, and blue sunglasses is walking on a sidewalk. The scene is outdoors, with a gravel path in the foreground and some greenery in the background.

LOVE TO  
LEARN

## Simple User Interface

Easy to understand UI that  
can be efficiently used by anyone!

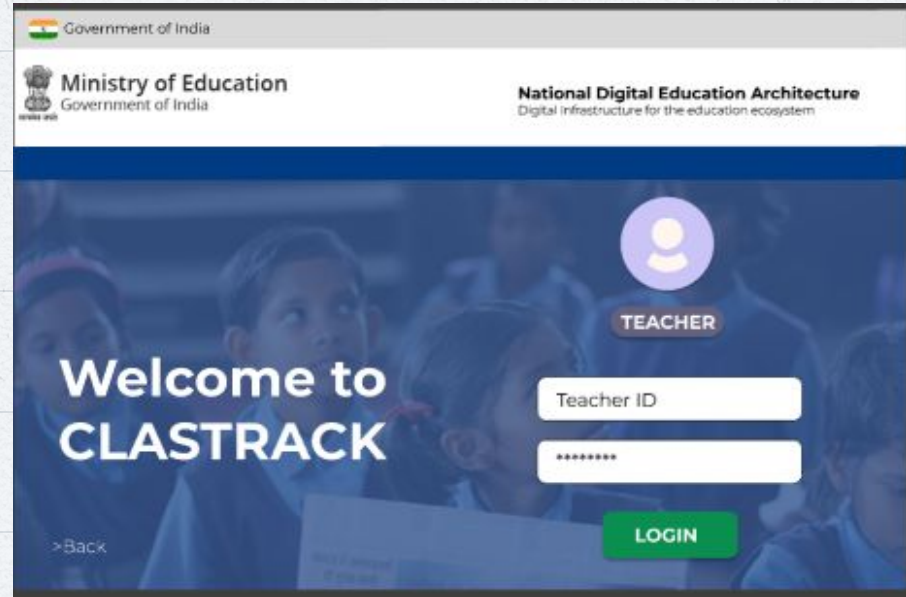





TEACHERS:

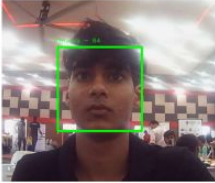
Can use webcam to scan students faces and qr codes.

Have to mark their own attendance using facial recognition.



Facial recognition helps the student to log in and then scan the QR code present on their ID card to mark their attendance.

 Government of India



**Student Name: Atharva Chadha**  
Student Id : 20-02A-25  
QR code scanned successfully  
☒ Attendance Marked

NEXT STUDENT

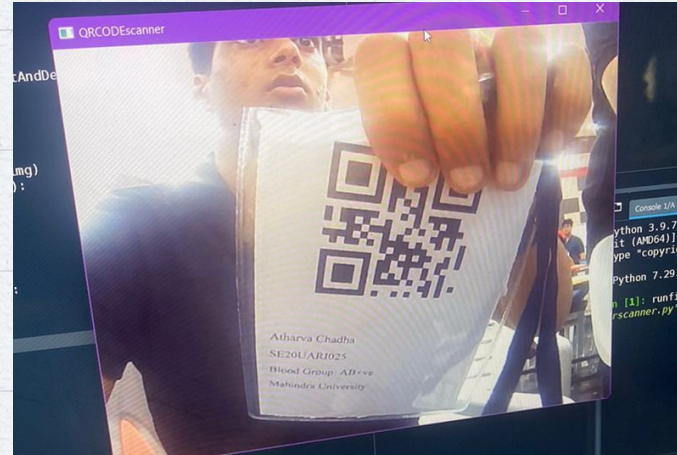
END ATTENDANCE



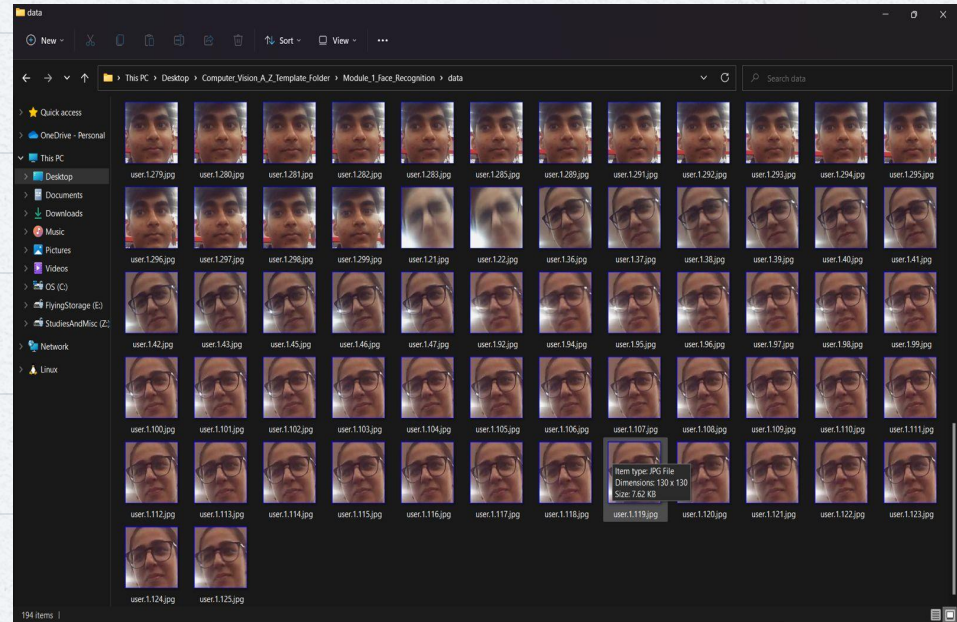


# ACCESS CARDS:

QR code implanted  
on ID card, for  
smoother  
attendance system.



Facial IDs and QR codes are checked against the custom made database that contains a record of facial features and other details of every student. Like nose, mouth and eyes. Each image has different user id to differentiate each student and minimizing cheating through double checking, qr and real-time face recognition.





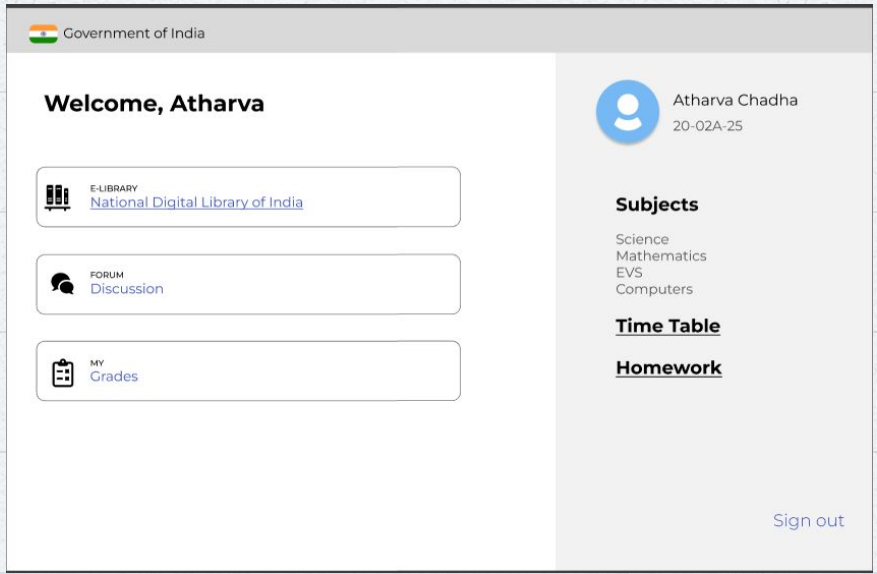
# STUDENTS:

Can access their academic information from the web by simply logging in.

Can track classes, time table, attendance and grades through the portal.

Can access **NDLI (National Digital Library of India)** through the portal.

Can directly interact with teachers through Discussion forum.



# BOOKKEEPING ACTIVITIES



Government of India

## Class II-A

Total strength : 50

Import database

Switch classes

[<Back](#)

## Books and Uniform Records

Student Name	Roll No	Books	Uniform
Arun Pujari	1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
BhanuKiran	2	<input type="checkbox"/>	<input type="checkbox"/>
Bhargava	3	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Eshwar Reddy	4	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Suresh Joseph	5	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Neha Barill	6	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Ram Kumar	7	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Harsh Gupta	8	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Om Prakash	9	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Prafulla Yadav	10	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Yagulu Medury	11	<input type="checkbox"/>	<input checked="" type="checkbox"/>

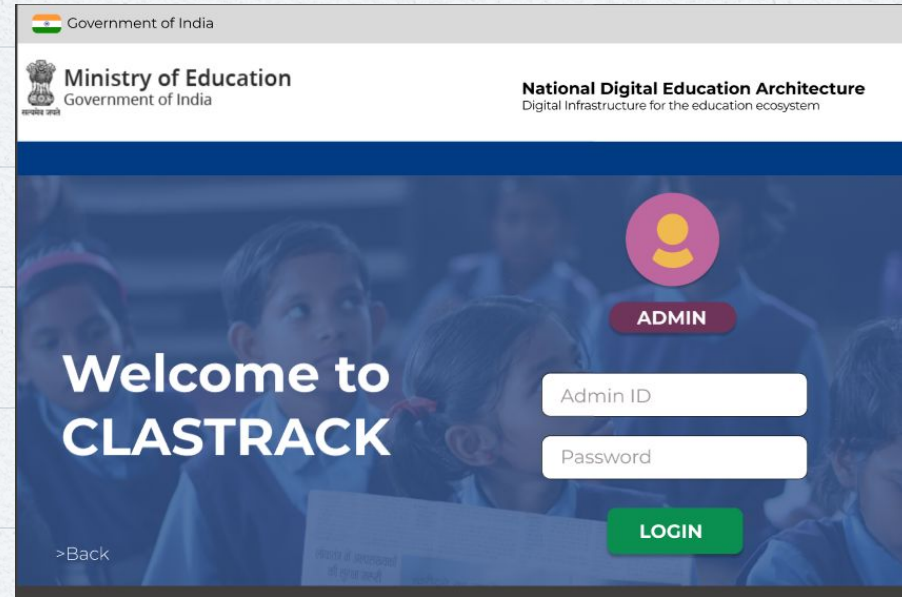


# ADMIN:

Priority access to append data and send to the government.

Can create, edit and manage student and teacher records.

If there are any technical issues, admin is contacted.



# PRECAUTIONS AND DEBUGGING:

Libraries to be installed:

- 1) OpenCV + CV2
- 2) Numpy
- 3) Pandas
- 4) Dlib
- 5) Face\_recognition\_module
- 6) Sys
- 7) Pylib
- 8) Pyzbar
- 9) Conda
- 10) OS
- 11) Time
- 12) Cascade

Exit

- 15) QRCode
- 16) PIL
- 17) Image
- 18) Webbrowser

Environments to be installed:

- 1) Jupyter
- 2) Pip
- 3) Conda
- 4) Spyder
- 5) wget





# PRECAUTIONS AND DEBUGGING:

Causes for errors/crash:

- 1) GPU overload
- 2) Huge database
- 3) Environment wheel issues
- 4) Skipped/uninstalled modules
- 5) Installation errors
- 6) Module errors
- 7) Assertion errors

## Preventions:

Careful installation of libraries and upgrade and update of modules, pip, python.

Incase, something goes wrong, debug entire library for false installations or reinstall all modules/libraries and reset/change the environment



# DATABASES:

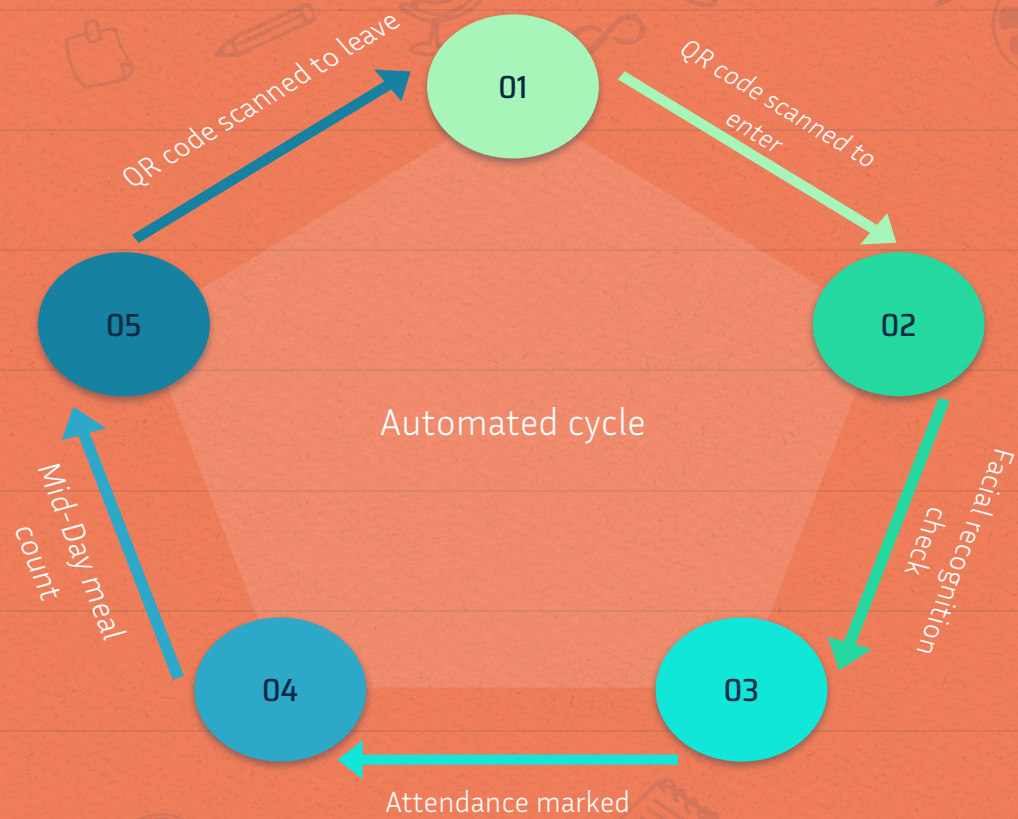
A	B	C	D	E	F	G	H	I	J	K	L
S.No	Name	Class	Roll No	Age	Gender	Admission Number	English	Hindi	Maths	EVS	Overall Grade
1	Arun Pujari	II A	1	7	M	3052	78	38	41	78	B
2	Bhanu Kiran	II A	3	7	M	3053	71	64	58	49	A
3	Prafulla Kala	II A	14	7	F	3056	57	61	52	77	C
4	Om Prakash	II A	15	7	M	3058	62	79	45	65	D
5	Rajesh Tavva	II A	11	7	M	3059	37	63	56	40	A
6	Ritesh Deshmukh	II A	10	7	M	3062	69	78	58	76	B
7	Shivani Singh	II A	43	7	F	3063	32	81	44	71	A
8	Harsha Reddy	II A	12	7	M	3064	38	62	44	46	C
9	Hanuman Ali	II A	13	7	M	3066	51	80	49	57	A
10	Rajkumar Rao	II A	44	7	M	3067	69	76	55	86	B
11	Genelia D'zuza	II A	9	7	F	3069	88	72	62	72	B
12	Jahnvi Rajyaguru	II A	8	7	F	3070	41	51	68	45	B
13	Bradd Pitt	II A	4	7	M	3071	54	63	66	85	A
14	Yash Kulkarni	II A	45	7	M	3073	43	66	45	73	B
15	Hemang Reshwal	II A	16	7	M	3074	34	51	49	55	C
16	Emon Kalyon Roy	II A	7	7	M	3076	46	79	61	68	A
17	Girish Babu	II A	17	7	M	3077	69	80	50	54	A
18	Pranav Ajinkya	II A	18	7	M	3078	47	78	67	75	B
19	Khushang Zaveri	II A	20	7	M	3079	41	53	62	79	C
20	Prerna Shankar	II A	19	7	F	3080	54	65	54	54	C
21	Taranjit Kaur	II A	46	7	F	3081	38	88	59	78	B
22	Vasu Kumar Basu	II A	48	7	M	3082	33	59	40	80	A

A	B	C	D	E	F	G	H	I	J	K	L
S.No	Name	Class	Roll No	Age	Gender	Admission Number	English	Hindi	Maths	EVS	Overall Grade
1	Arun Pujari	II A	1	7	M	3052	78	38	41	78	B
2	Bhanu Kiran	II A	3	7	M	3053	71	64	58	49	A
3	Prafulla Kala	II A	14	7	F	3056	57	61	52	77	C
4	Om Prakash	II A	15	7	M	3058	62	79	45	65	D
5	Rajesh Tavva	II A	11	7	M	3059	37	63	56	40	A
6	Ritesh Deshmukh	II A	10	7	M	3062	69	78	58	76	B
7	Shivani Singh	II A	43	7	F	3063	32	81	44	71	A
8	Harsha Reddy	II A	12	7	M	3064	38	62	44	46	C
9	Hanuman Ali	II A	13	7	M	3066	51	80	49	57	A
10	Rajkumar Rao	II A	44	7	M	3067	69	76	55	86	B
11	Genelia D'zuza	II A	9	7	F	3069	88	72	62	72	B
12	Jahnvi Rajyaguru	II A	8	7	F	3070	41	51	68	45	B
13	Bradd Pitt	II A	4	7	M	3071	54	63	66	85	A
14	Yash Kulkarni	II A	45	7	M	3073	43	66	45	73	B
15	Hemang Reshwal	II A	16	7	M	3074	34	51	49	55	C
16	Emon Kalyon Roy	II A	7	7	M	3076	46	79	61	68	A
17	Girish Babu	II A	17	7	M	3077	69	80	50	54	A
18	Pranav Ajinkya	II A	18	7	M	3078	47	78	67	75	B
19	Khushang Zaveri	II A	20	7	M	3079	41	53	62	79	C
20	Perna Shankar	II A	19	7	F	3080	54	65	54	54	C
21	Taranjit Kaur	II A	46	7	F	3081	38	88	59	78	B
22	Vasu Kumar Basu	II A	48	7	M	3082	33	59	40	80	A

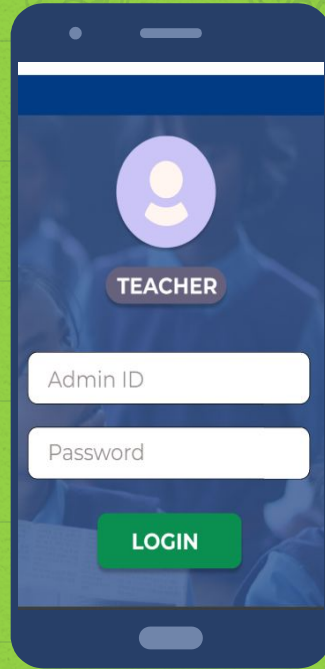


# MIDDAY MEAL AND CLASSES ATTENDANCE MONITORING:

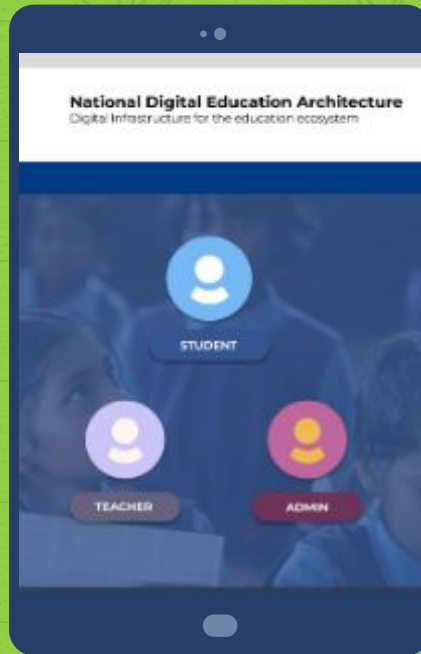
S.No	Name	Class	Roll No	Attendance								
				15/08/22			16/08/22			17/08/22		
				Class	MDM	Time	Class	MDM	Time	Class	MDM	Time
1	Arun Pujari	II A	1	P	P	8:45	P	P	8:19	P	P	8:45
2	Bhanu Kiran	II A	3	P	P	8:49	P	P	8:43	P	P	8:49
3	Prafulla Kala	II A	14	P	P	7:55	P	P	8:29	P	P	7:55
4	Om Prakash	II A	15	P	P	8:20	P	P	8:18	P	P	8:20
5	Rajesh Tavva	II A	11	P	P	8:32	P	P	8:30	P	P	8:32
6	Ritesh Deshmukh	II A	10	P	P	8:58	P	P	8:12	P	P	8:58
7	Shivani Singh	II A	43	P	P	8:57	P	P	8:19	P	P	8:57
8	Harsha Reddy	II A	12	P	P	8:30	P	P	8:17	P	P	8:30
9	Hanuman Ali	II A	13	P	P	8:00	P	P	8:37	P	P	8:00
10	Rajkumar Rao	II A	44	P	P	8:25	P	P	8:50	A	A	
11	Genelia D'zuza	II A	9	A	A	9:20	P	P	8:20	A	A	9:20
12	Jahnvi Rajyaguru	II A	8	P	P	8:42	P	P	8:40	A	A	
13	Bradd Pitt	II A	4	P	P	8:09	P	P	8:39	P	P	8:09
14	Yash Kulkarni	II A	45	P	P	8:35	P	P	8:35	P	P	8:35
15	Hemang Reshwal	II A	16	A	A		P	P	8:56	P	P	
16	Emon Kalyon Roy	II A	7	P	P	8:40	P	P	8:25	P	P	8:40
17	Girish Babu	II A	17	P	P	8:29	P	P	8:40	P	P	8:29
18	Pranav Ajinkya	II A	18	P	P	8:56	P	P	8:42	P	P	8:56





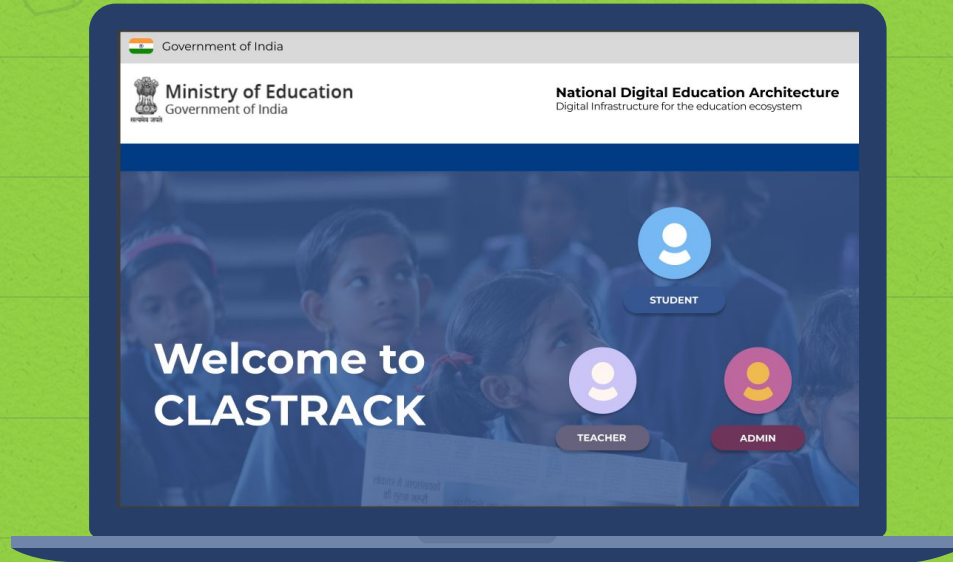


MOBILE



TABLET.





DESKTOP