

ABNORMAL BEHAVIOR IN ONLINE EXAMINATION

Group 2



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About The Problem

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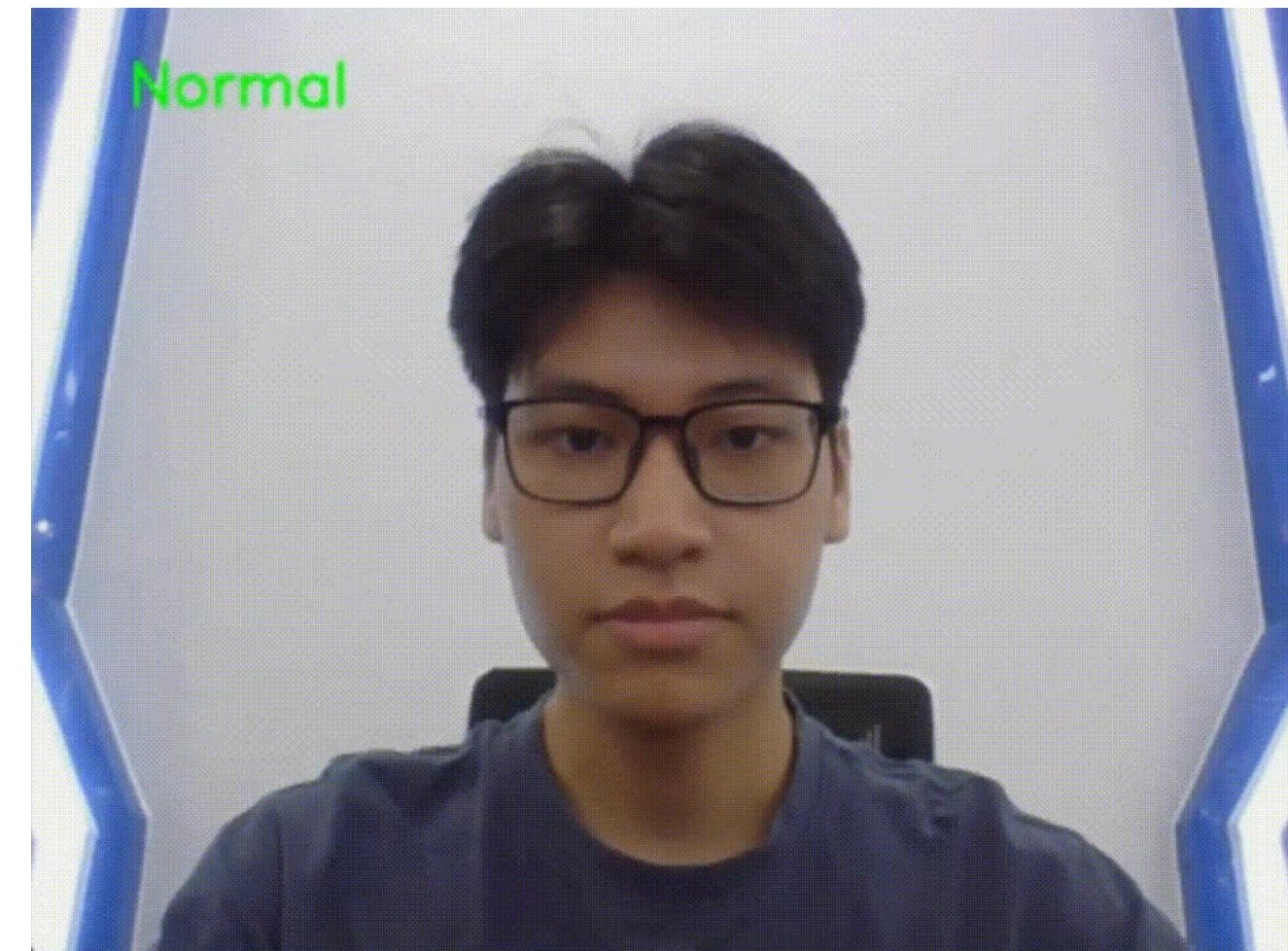
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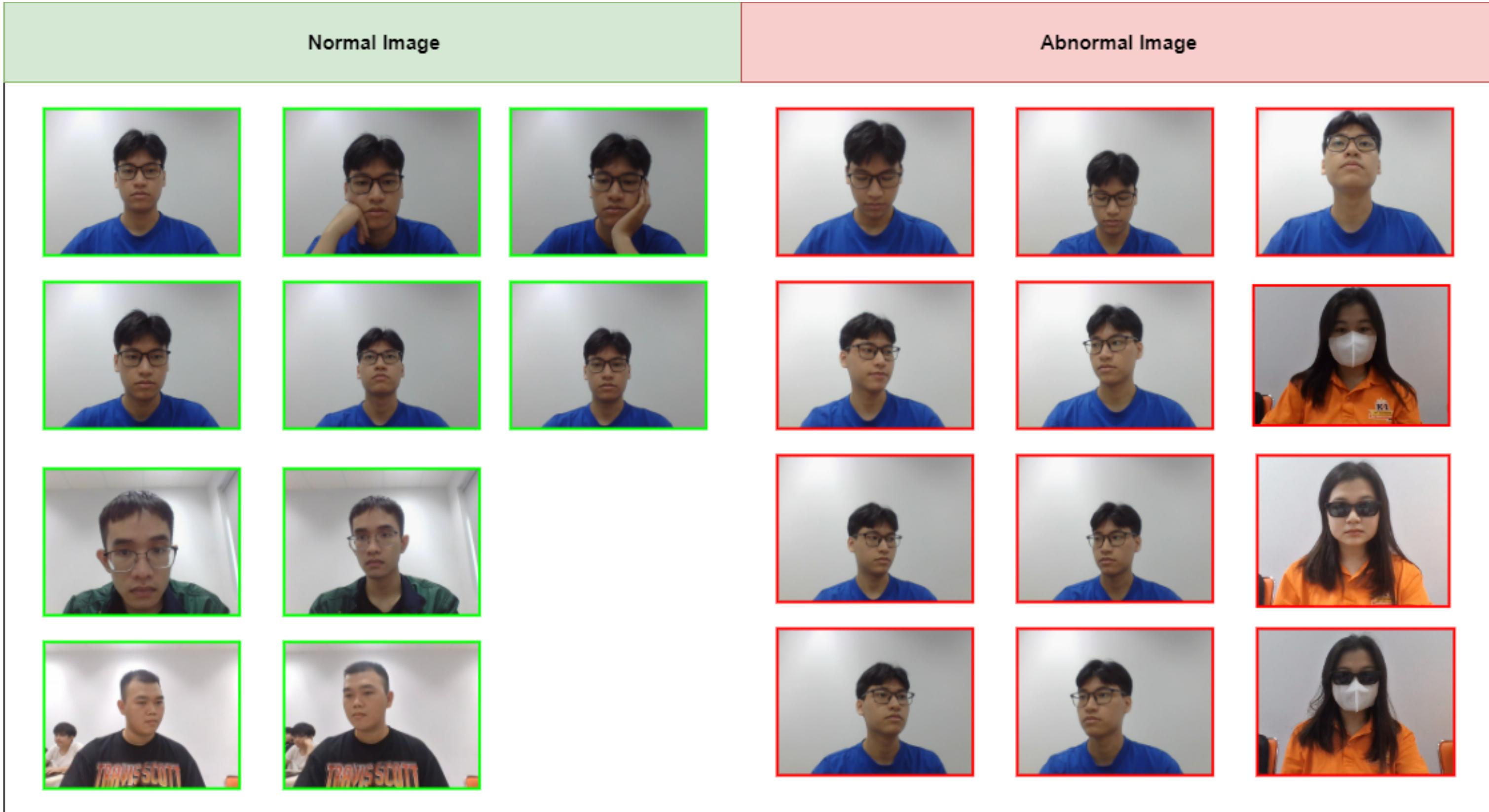
About The Problem

During exams, 2-3 exam invigilators are needed to observe the students

According to a survey by the American Educational Testing Service (ETS), the rate of students who have ever cheated on exams is currently about 75%



About The Problem



About The Solution

Our Solution

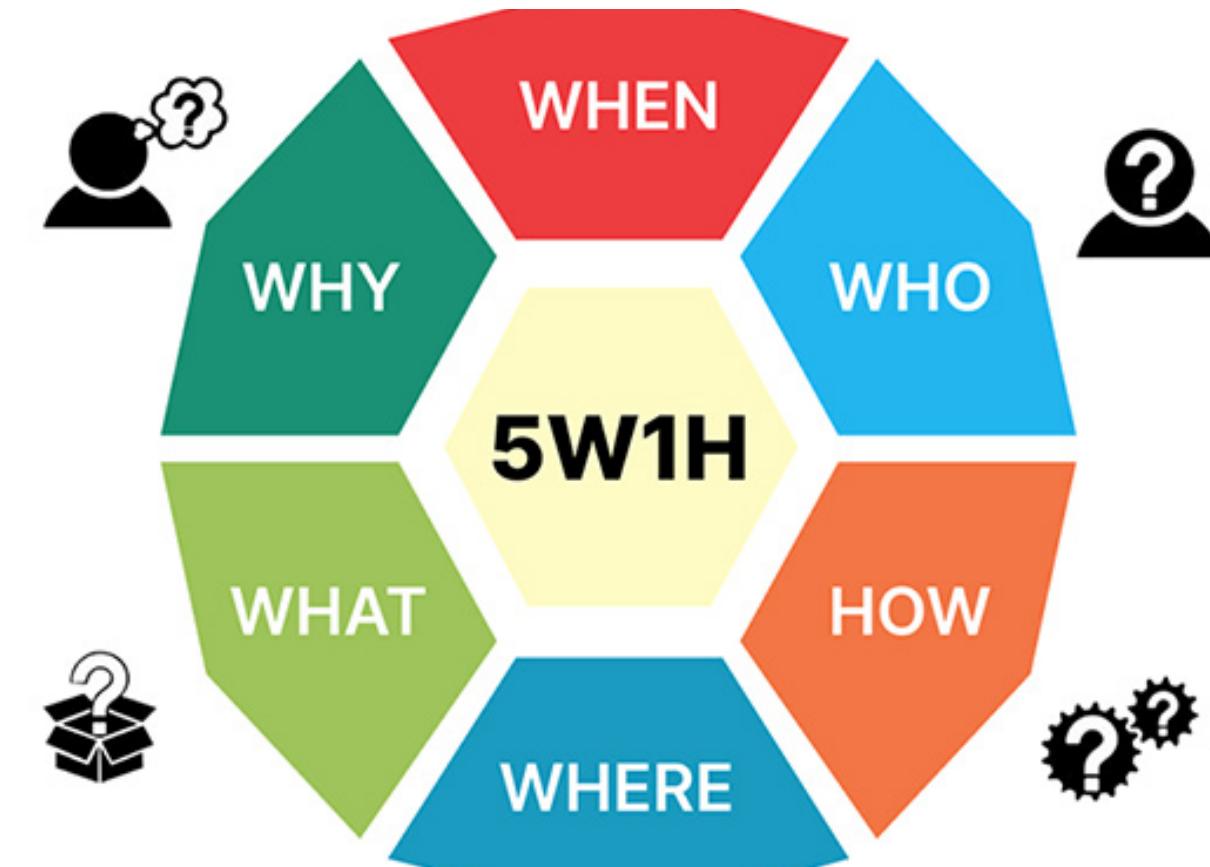
Design a system that assists exam invigilator while examination

Input



Output

ABNORMAL



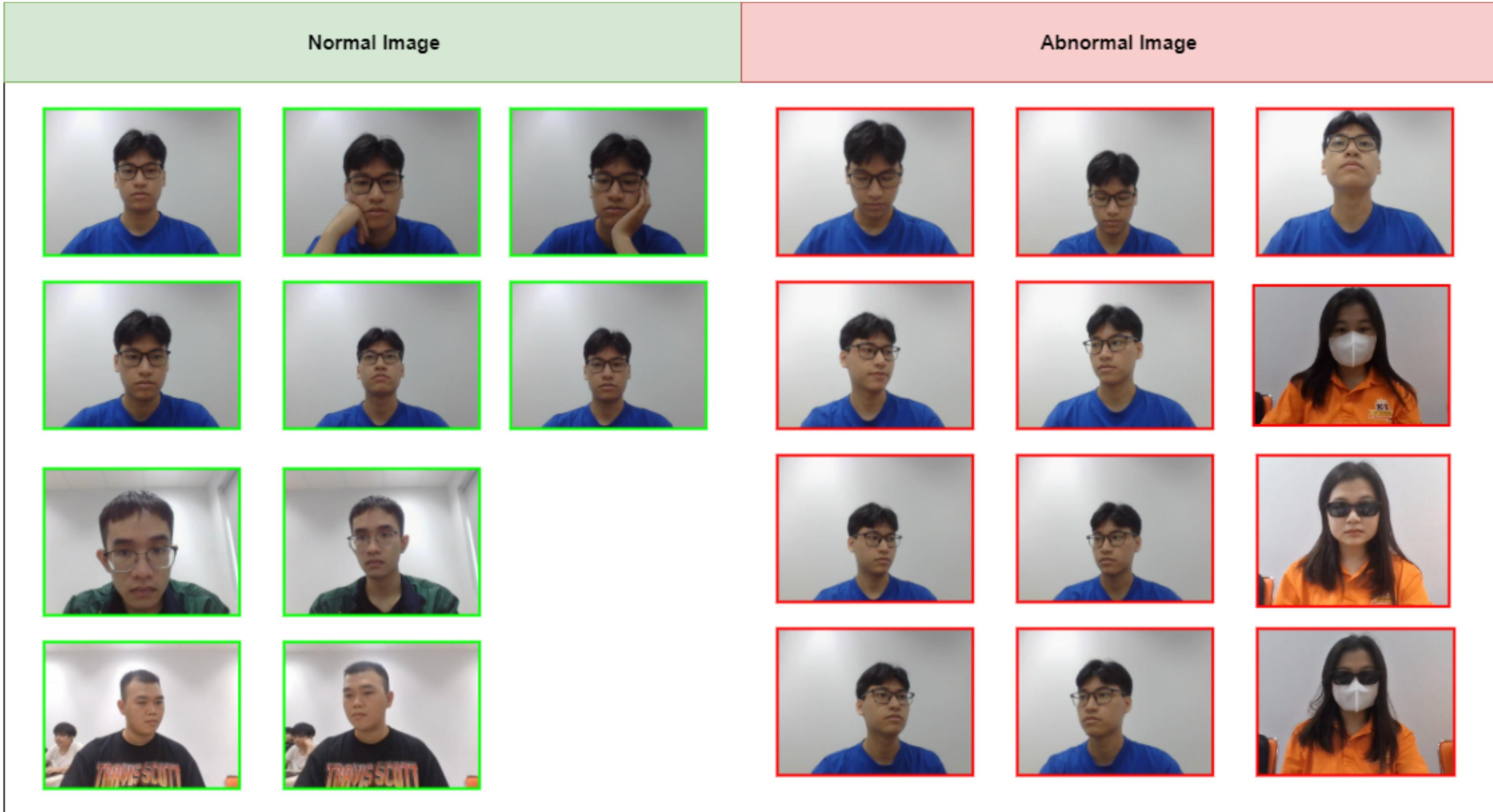
Case 01

The examination system will be locked when detect abnormal behavior (over warning threshold). Just using token from admin to unlock.

Case 02

In unexpected cases, the system always sends warning, admin can turn the warning off.

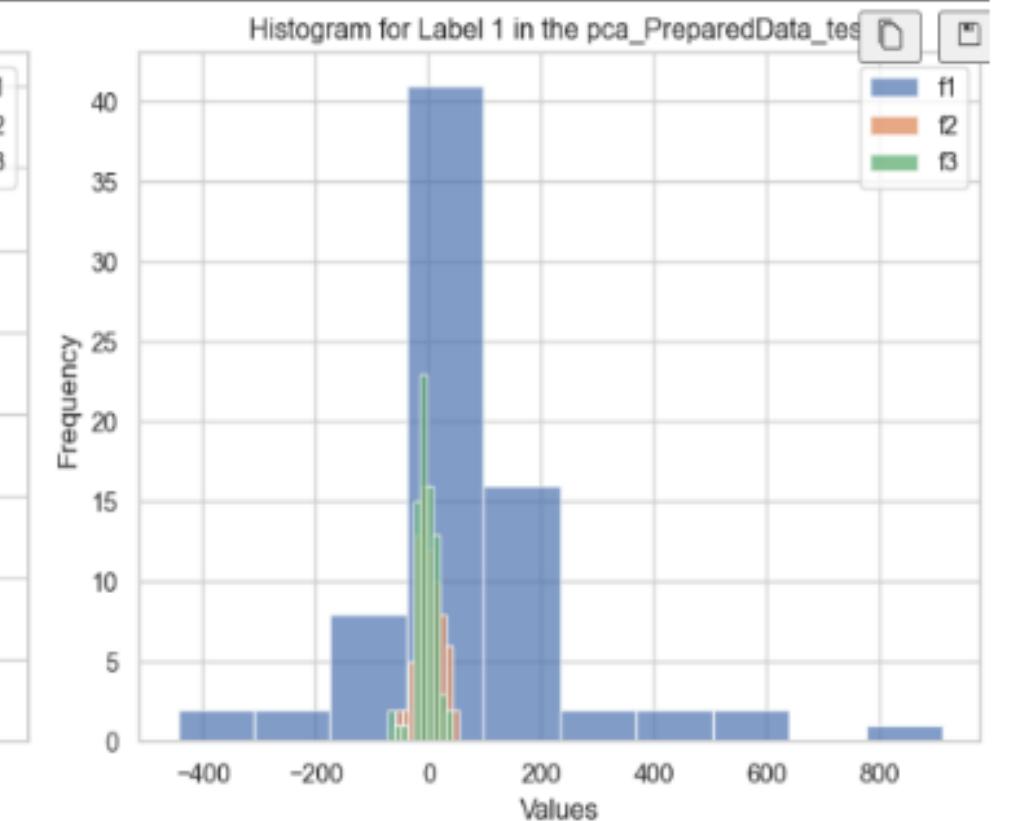
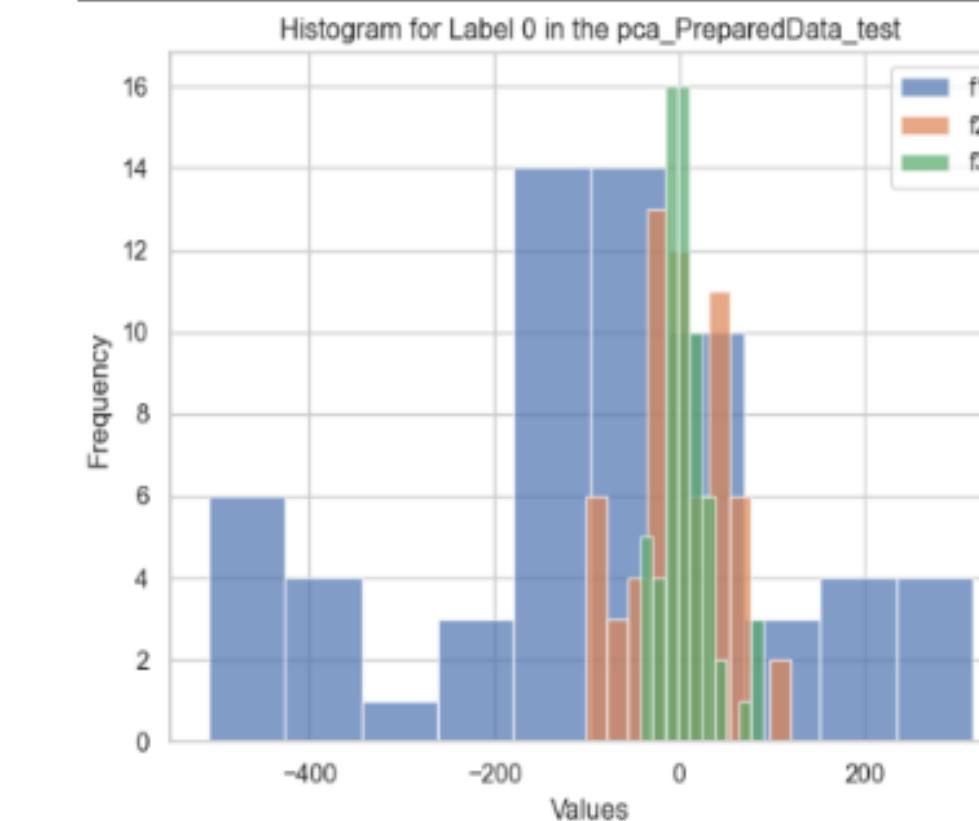
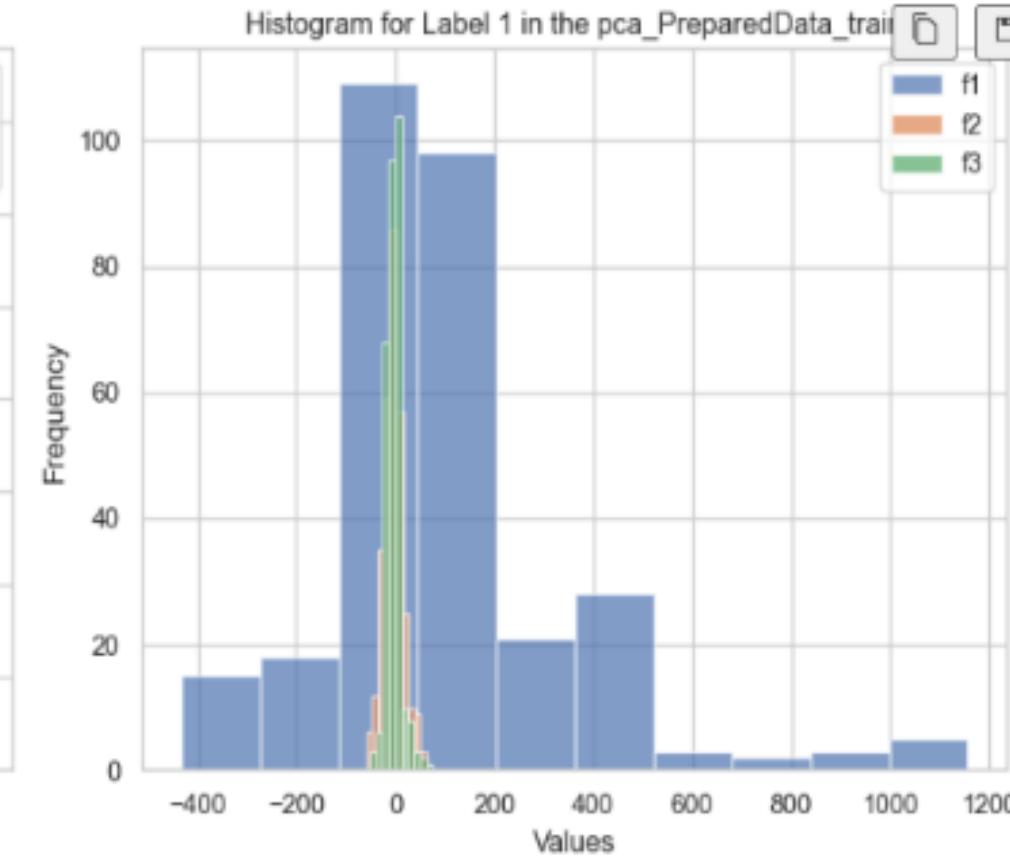
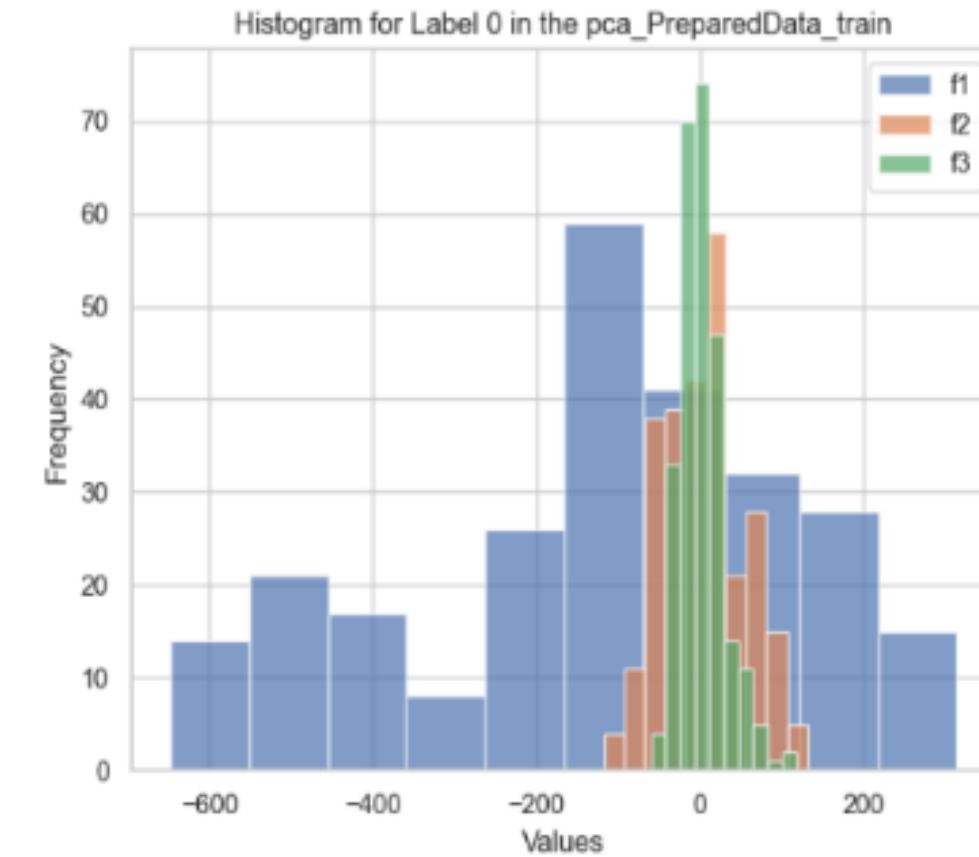
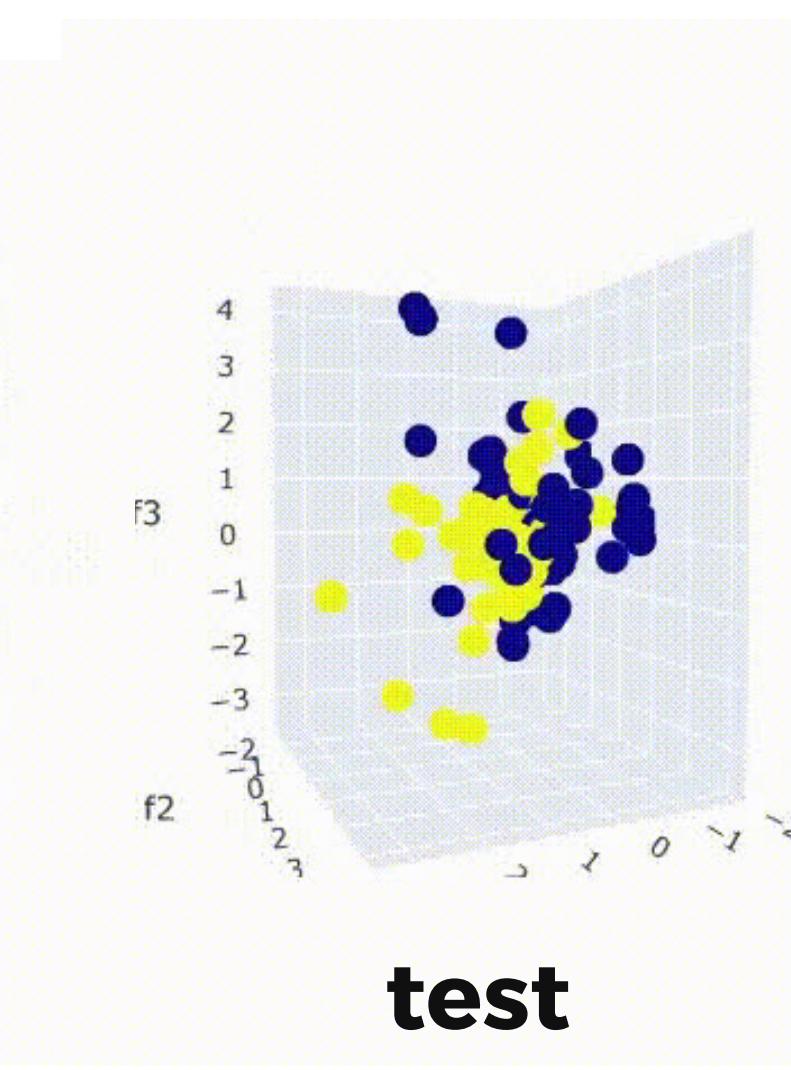
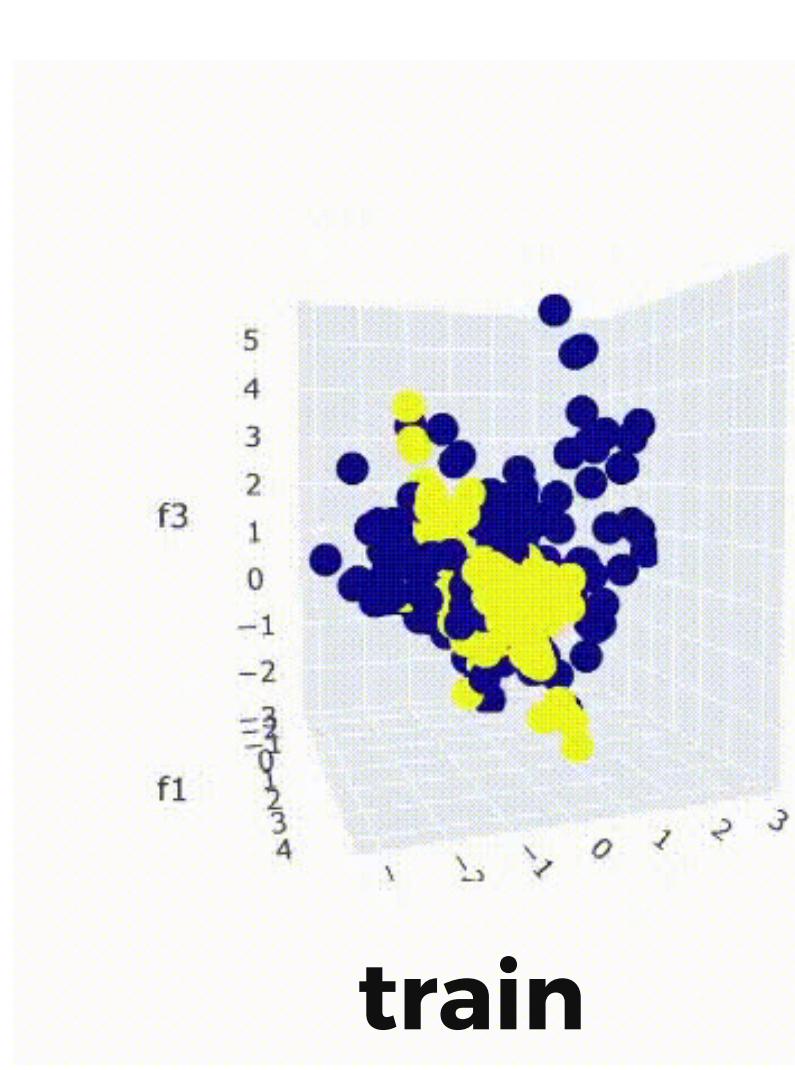
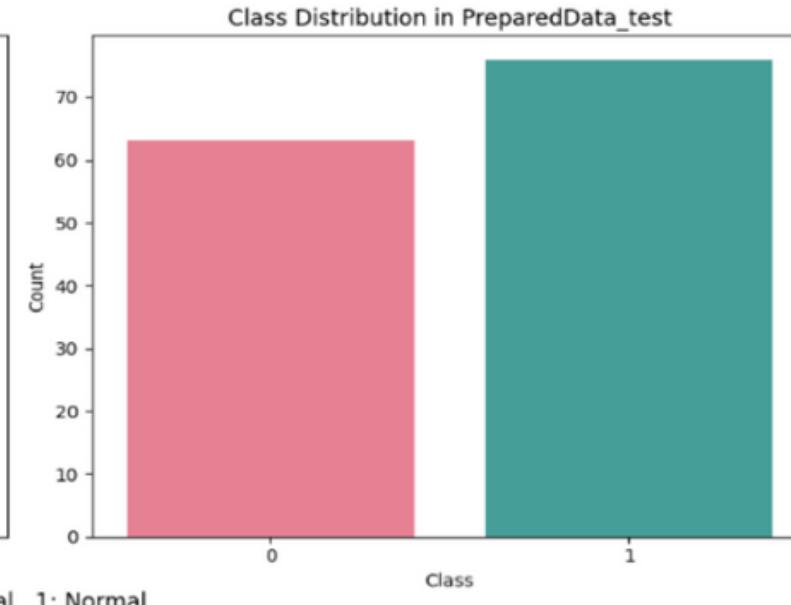
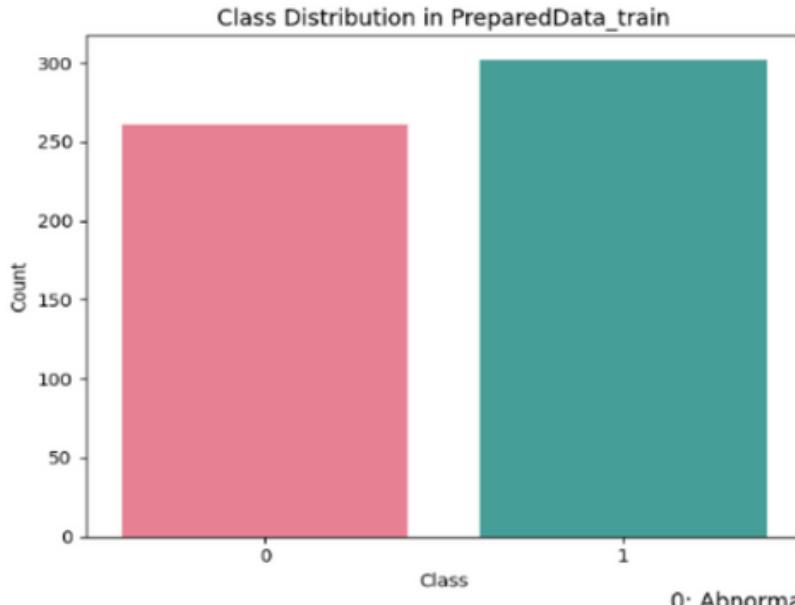
About the datasets



About The Datasets



https://github.com/dinhanit/Abnormal_Behavior/tree/data/Source/Data



About The Value

Benefit Of The Project

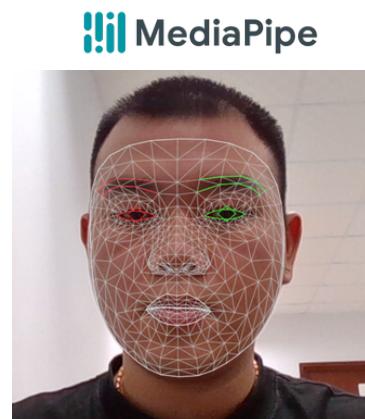
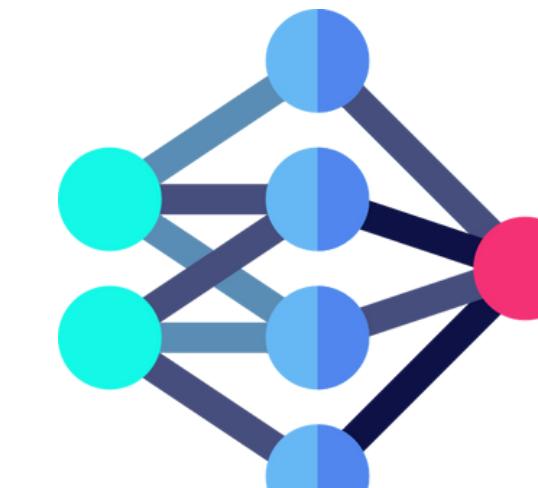
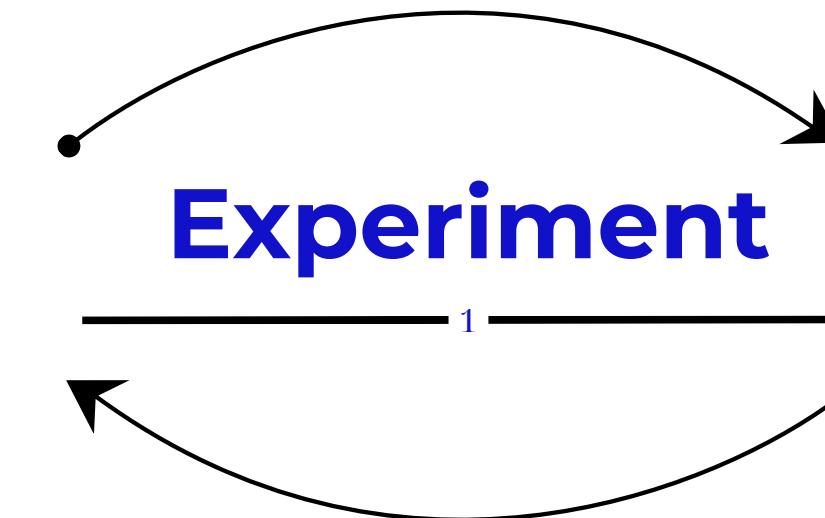
Helping invigilators reduce their effort when administering exams (tracking each student) and reduces the number of invigilators.

Performance+

Effort-



Workflow



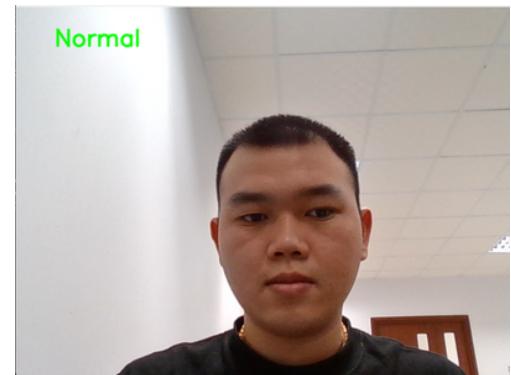
Inference

3

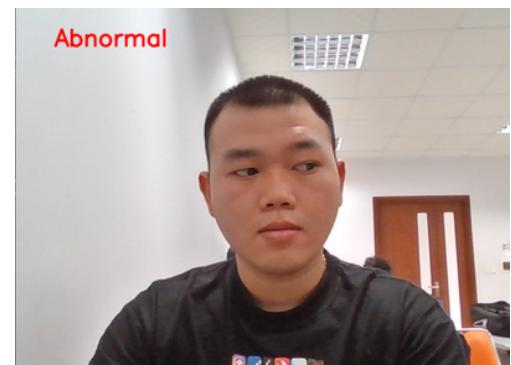
A diagram showing a laptop icon on the left. A horizontal arrow labeled '3' points from the laptop to a large yellow-to-blue gradient oval labeled 'Best Model' in the center. Above the oval is a downward-pointing arrow labeled '2'.

Best Model

Normal

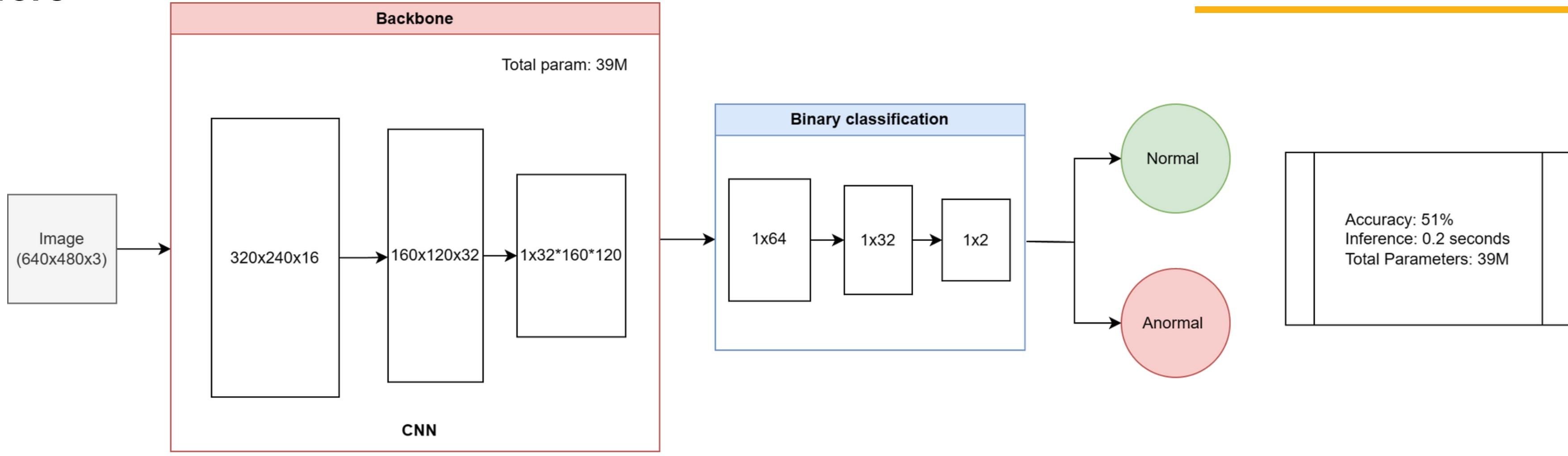


Abnormal

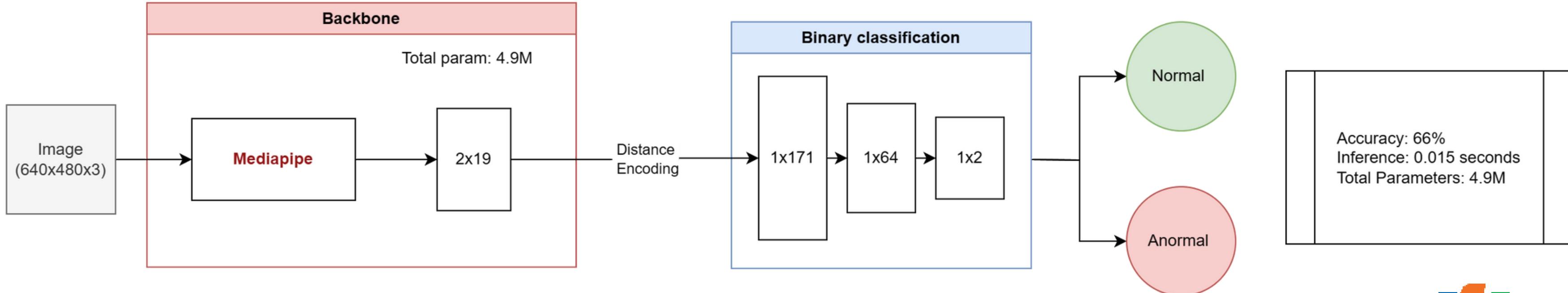


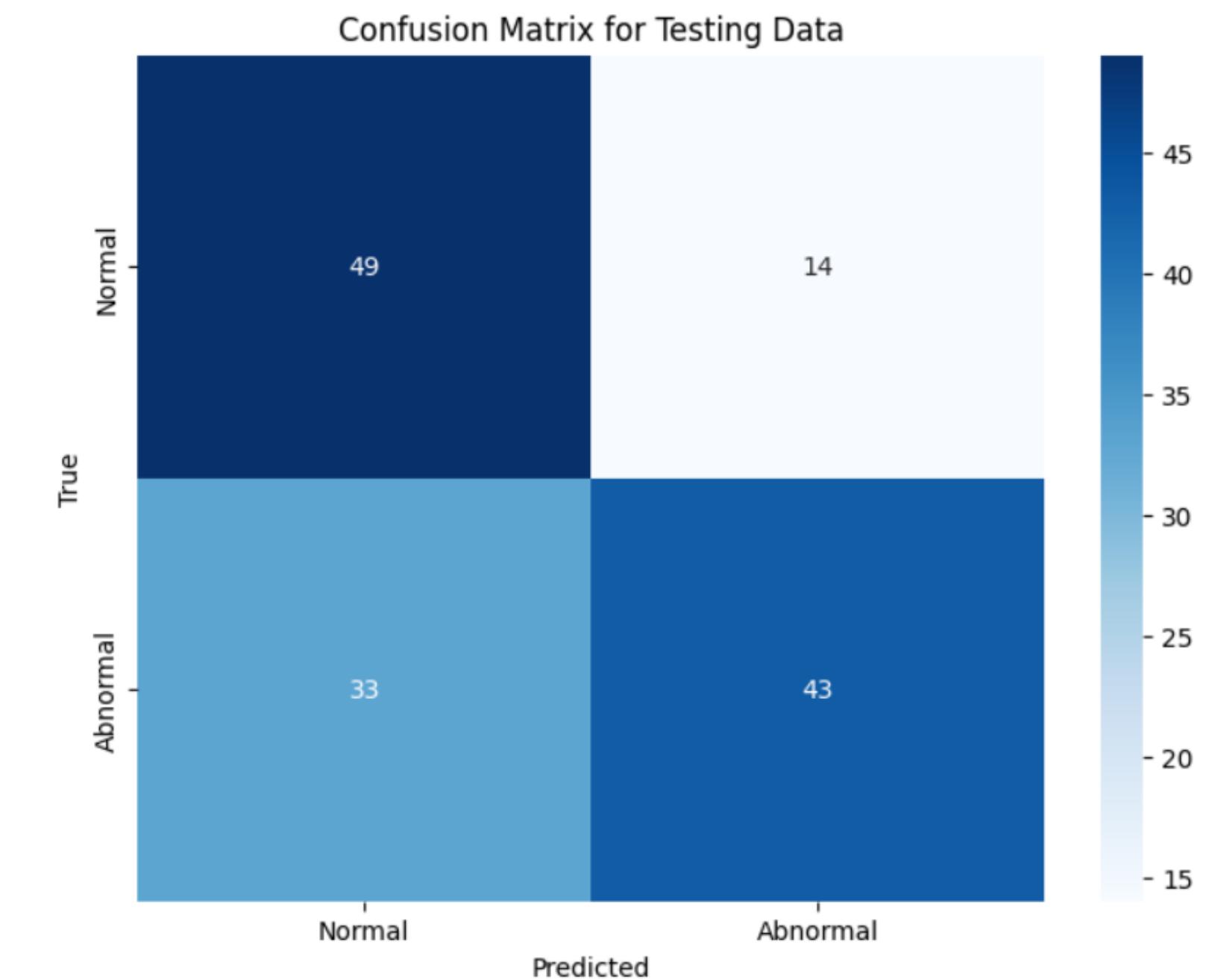
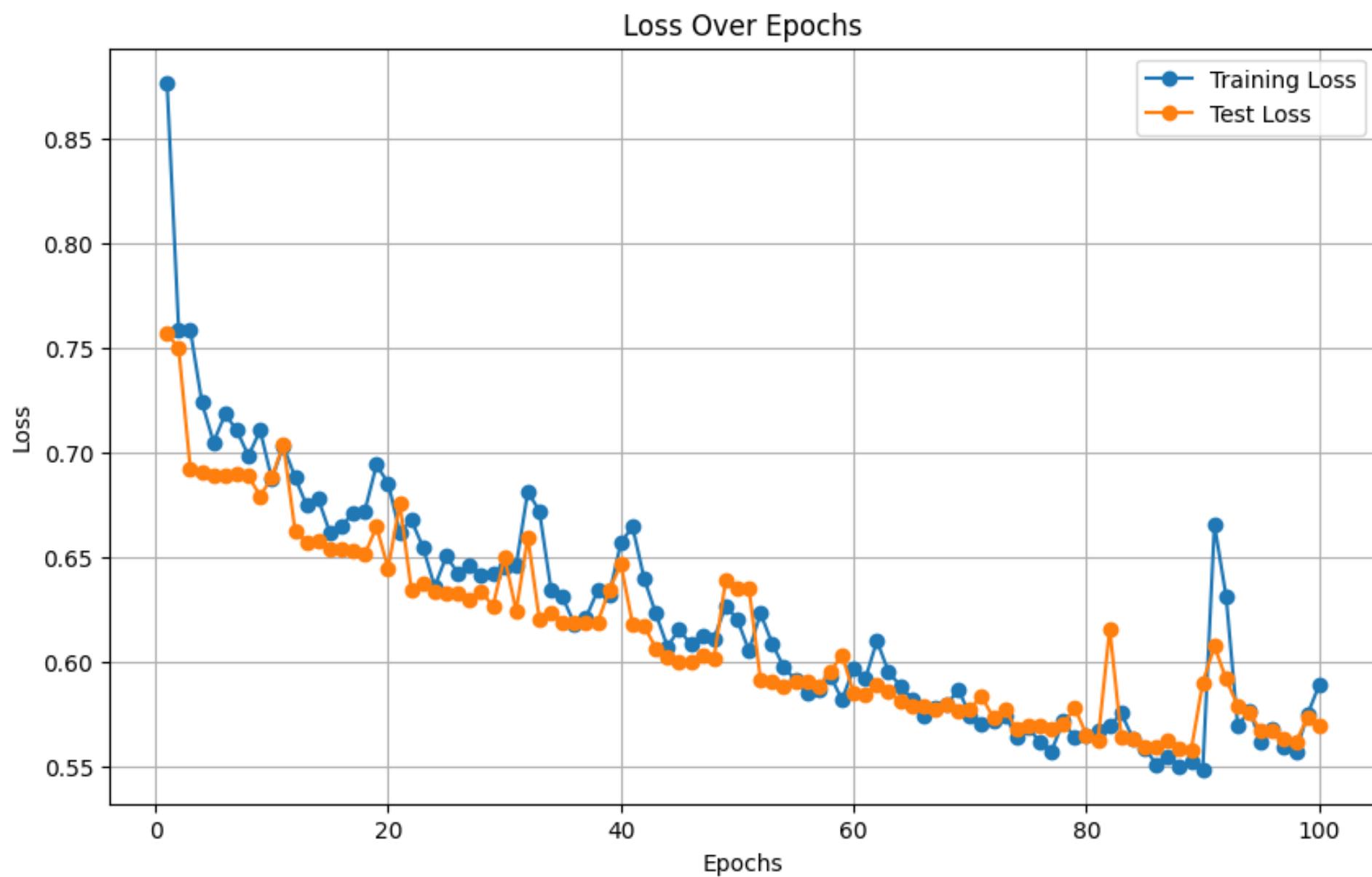
Model Architecture

Before



Now



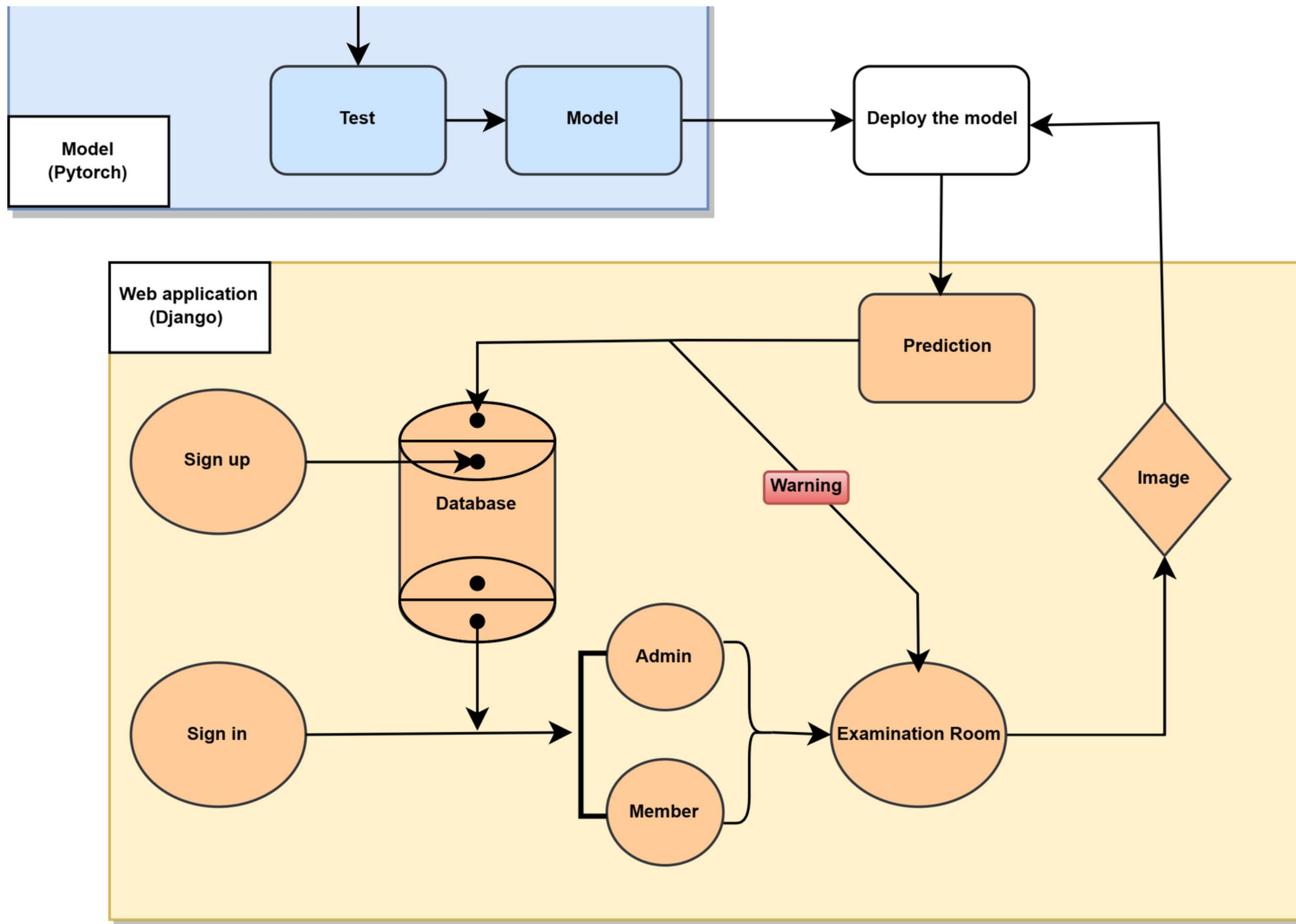


LEARNING_RATE= 0.0001

EPOCHS= 100

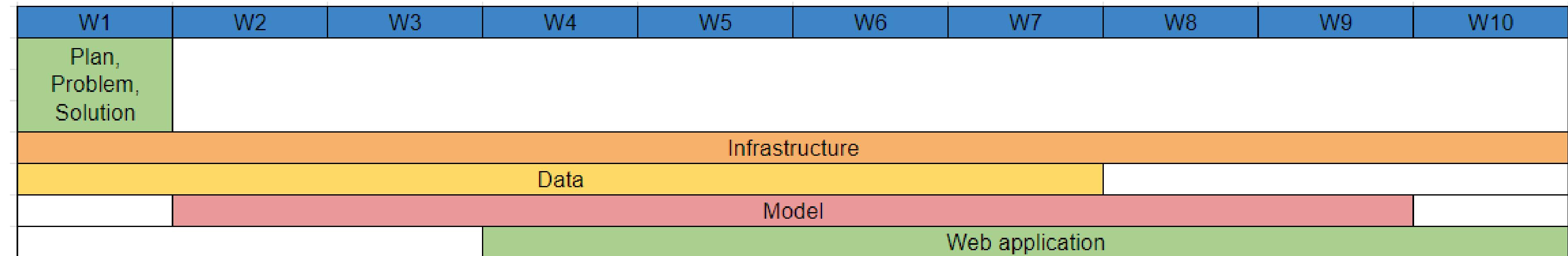
BATCH_SIZE= 64

Web Work Diagram



Function Information					Effort	Status	Note	
No	Component	Component	Role	To Do List				
	General	Plan	Đạt	Building timeline	0.1	Done		
				Propose some problems	0.1	Done		
				Identify feasibility	0.1	Done		
				Finalize the problem	0.1	Done		
				Value	0.1	Done		
				Define input and output	0.1	Done		
				Problem report	0.1	Done		
		Solution	All	Define the general solution	0.1	Done		
				Building system architecture	1	Done		
				Define the details of all tasks	0.1	Done		
				Solution report	0.1	Done		
	Data	Head detection	Hoàn + Chi	Prepare model detect facemesh	0.1	Done		
				Write api extract keypoint	1	Done		
				Detect testing	1	Done		
		Get data		Data collection	7	Done		
				Split data	0.5	Done		
		Processing		Convert to numpy	0.1	Done		
				EDA data	7	Done		
		Bảo + An	Set up processed data for training	0.5	Done			
			Build basic CNN	0.5	Done			
			Training	0.5	Done			
			Tuning: Model(CNN, ResNet), Hyperparameter	7	Done			
			Evaluating	2	Done			
			FastAPI run model	1	Done			
			Content: Online exam room integrate abnormal detection					
	Web	Đạt	Đạt	Exam room system	2	Done		
				Management system	3	Done		
				Connect FastAPI model	0.1	Done		
				Database	2	Done		

Timeline



Time												
W1		W2	W3	W4	W5	W6	W7	W8	W9	W10	Status	
General											Done ▾	
Prolem	Solution	Plan										
			Data								Done ▾	
			Prepare	Analyze data	Process	Report	Zip					
			Model								Done ▾	
			Setup	Custom Model		Train	Evaluate	Tuning	Test model	Deploy		
								Web			Done ▾	
				FrontEnd		BackEnd		Deploy	Test web			
										Real Time Testing		

THANK YOU

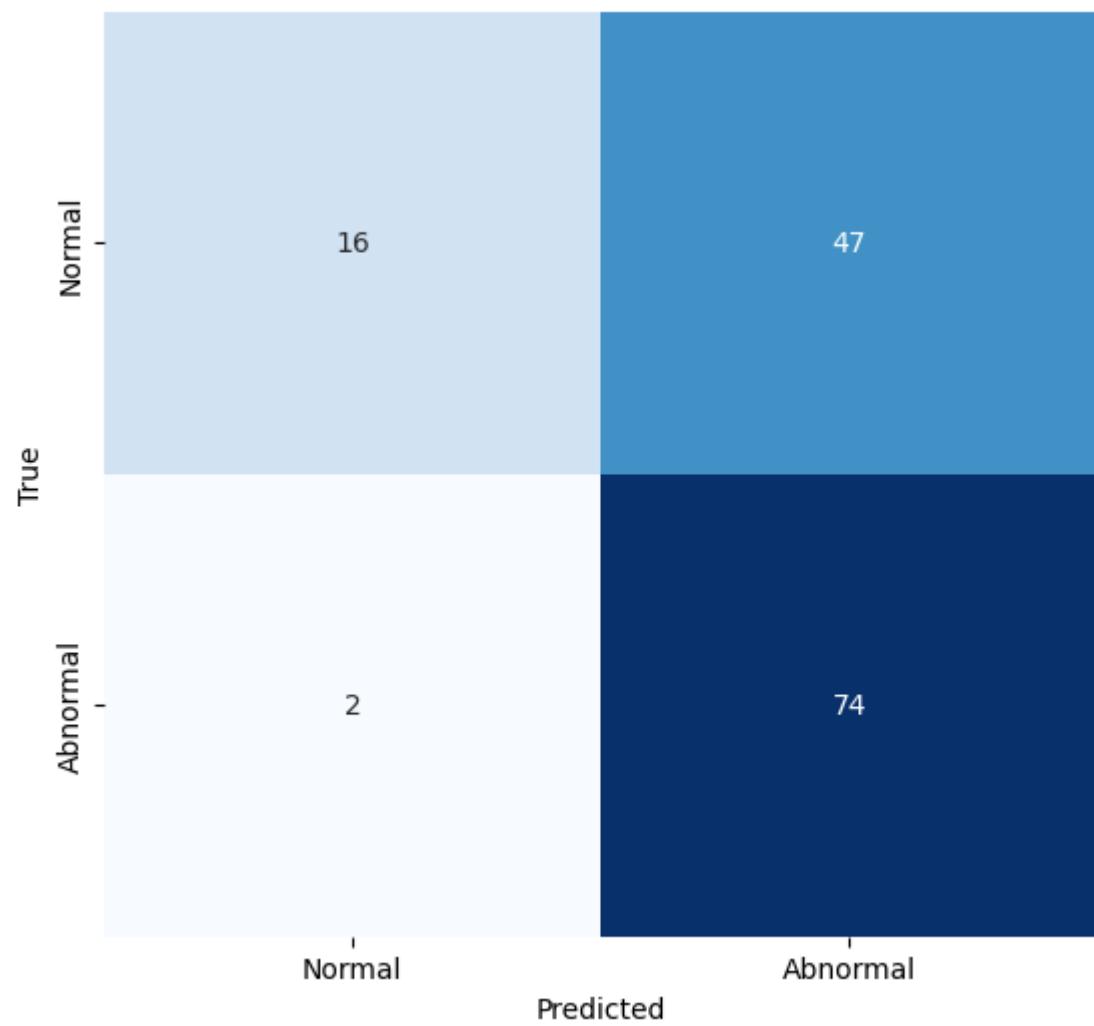
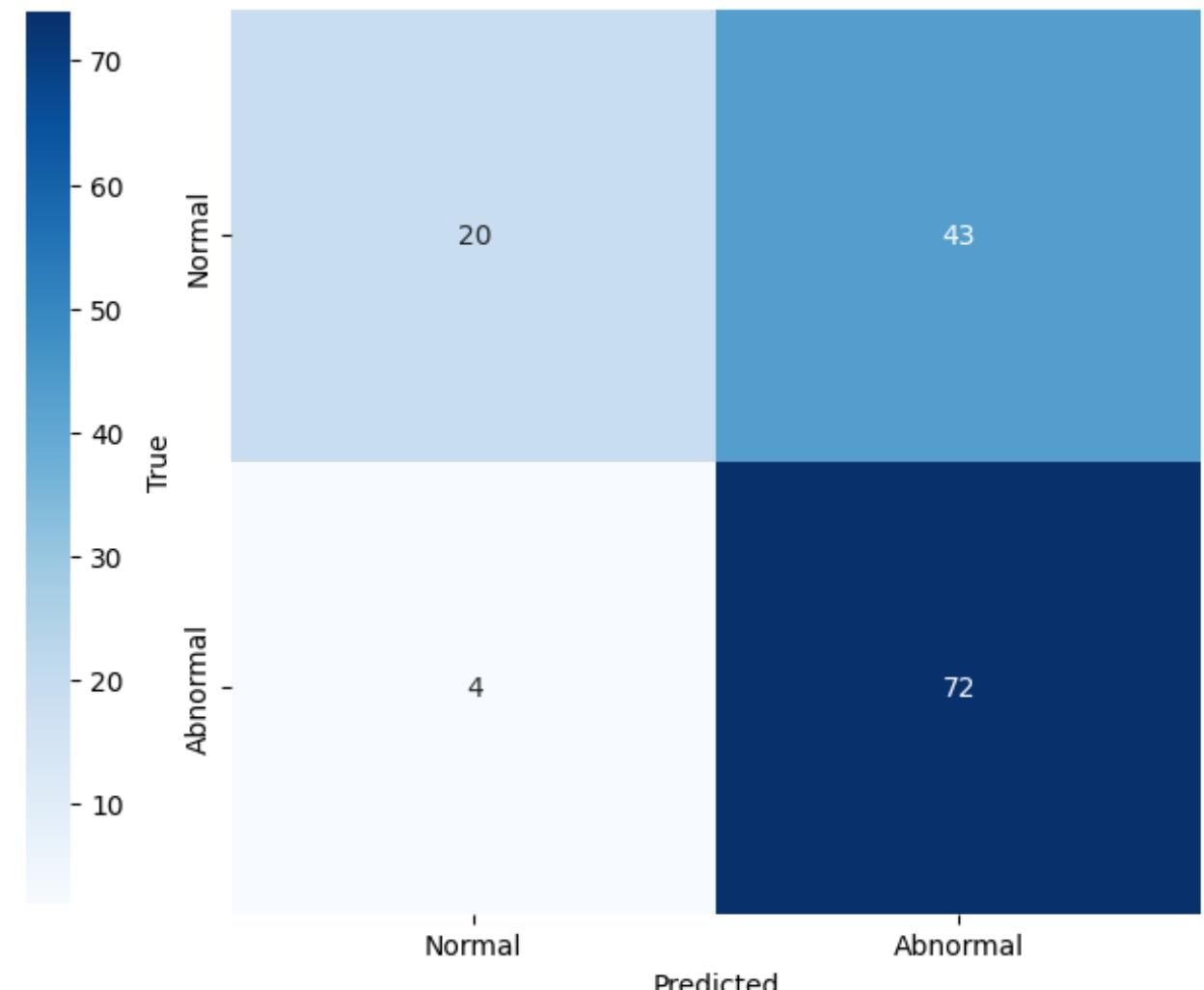
FOR YOUR ATTENTION

End Slide

Real-time testing

Total Frames Processed	467
True Predictions	399
Precision	0.9732
Recall	0.7786
F1 score	0.8651
Accuracy	76%

Method Training	Precesion	Recall	Accuracy (Realtime Testing)
478 keypoints (2x478)	0.7568	0.7482	61%
19 keypoints (2x19)	0.6555	0.6547	65%
19 pair-wise distances (1x171)	0.7783	0.6553	76%

478 keypoints

19 keypoints

19 pair-wise keypoints
