



The Squad

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DATA ANALYSIS PROJECT

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WELCOME AND THANK YOU!

We want to say thank you to everyone who showed up to see our presentation and our hard work!

WHAT IS A DATA MODEL?

DEFINITION

A data model determines how data is exposed to the end user. Optimally creating and structuring database tables to answer business questions is the desired role of data modeling, setting the stage for the best data analysis possible by exposing the end user to the most relevant data they require.



WHAT DOES OUR MODEL DO?

Our model is designed to detect hand signals and convert said hand signals into rock, paper or scissors. The computer then outputs its guesses back to us in which we can use for a variety of things

HOW WE PLAN ON USING OUR MODEL

We plan to reconstruct the model and put it to use for the deaf. The model will see a ASL sign and then turn it into words in which a non-ASL user can read. We will then broaden to BSL and other sign languages so that all people will feel included in everyday things.

Issues

We were working on perfecting our model we had a issue with our validation going up, so we consulted ChatGPT and it gave us various solutions to our issue. We added more filters, implemented new systems such as early stopping if the model detects overfitting as to save time, but to no avail.

Varieties

We tried various combinations with various activators such as sigmoid,relu, Linear, and tanh. We also used different optimizers including Adam and SGD to assist in making the gradient smoother and not as spontaneous.

Resolutions

We understood after numerous hours of work that the problem wasn't the code but instead our data. We checked our pictures and saw that our initial pictures were dark and hard to see. Mr. Rudy heard our panic and gave us a database of hands to use



Methodology

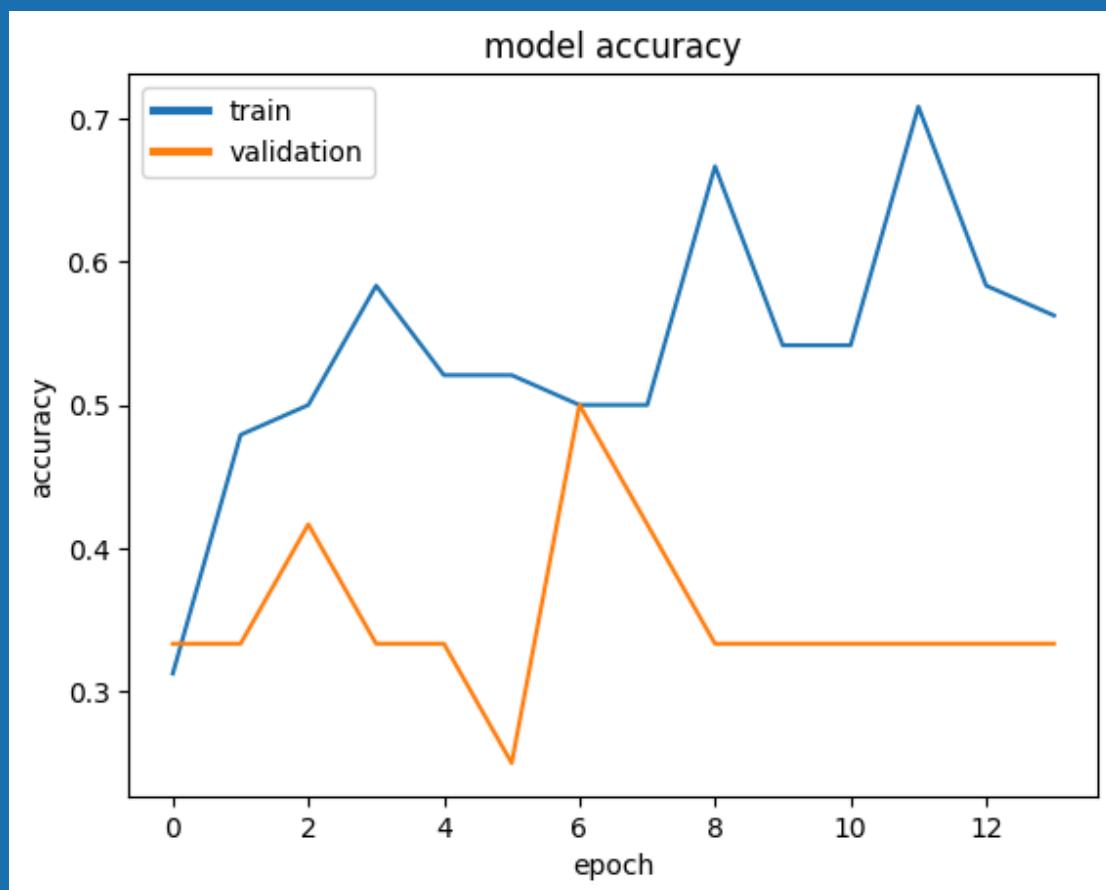
Our method to achieve these results were to increase and decrease the Epoch in the code through trial and error until we found good and consistent findings that match our data. But in the process, we discovered new ways to optimize our code. This allowed us to innovate and enhance the overall performance of our script.



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WHAT WE STARTED WITH

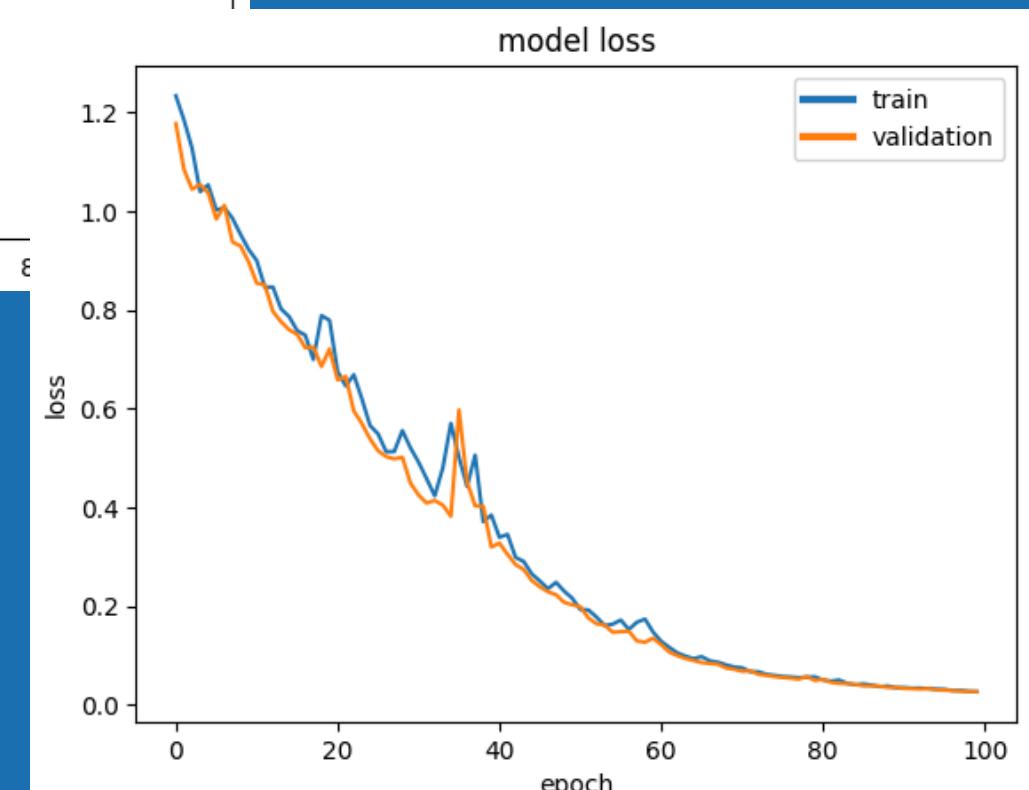
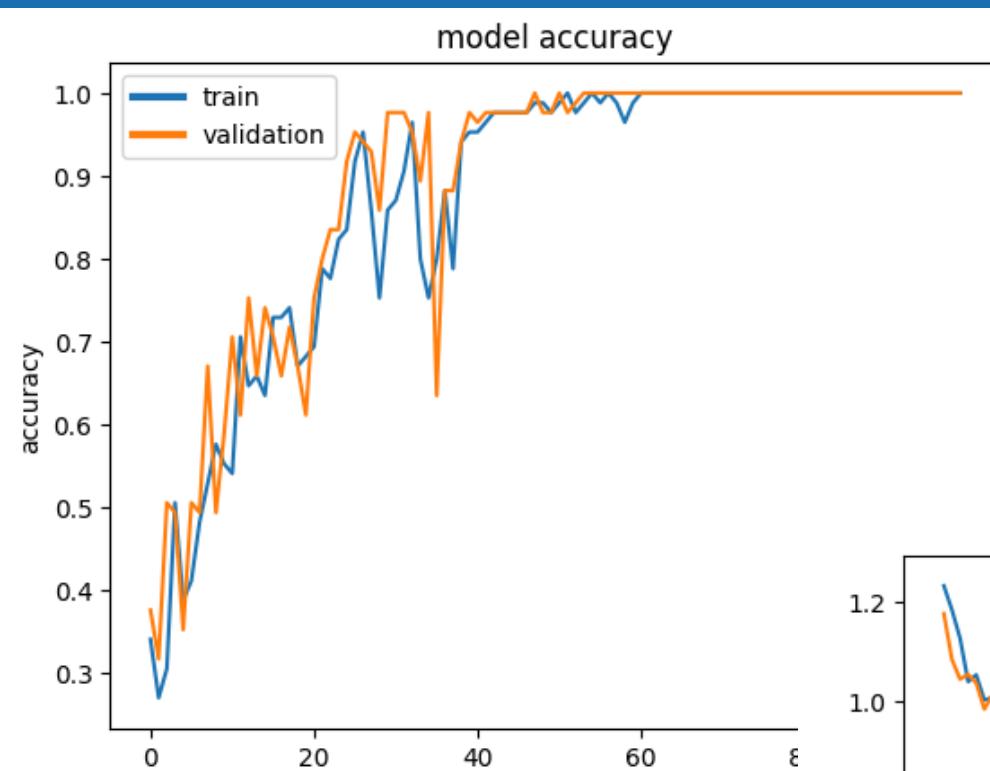
Our graph had very low validation and our model was very inaccurate



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HOW WE ENDED

Our model with the higher quality photos led to higher validation until it eventually got it right every time.



DATA ARCHITECTURE

Layer (type)	Output Shape	Param #
conv2d_3 (Conv2D)	(None, 478, 638, 32)	896
batch_normalization_4 (BatchNormalization)	(None, 478, 638, 32)	128
max_pooling2d_3 (MaxPooling2D)	(None, 239, 319, 32)	0
dropout_4 (Dropout)	(None, 239, 319, 32)	0
conv2d_4 (Conv2D)	(None, 237, 317, 64)	18496
batch_normalization_5 (BatchNormalization)	(None, 237, 317, 64)	256
max_pooling2d_4 (MaxPooling2D)	(None, 118, 158, 64)	0
dropout_5 (Dropout)	(None, 118, 158, 64)	0
conv2d_5 (Conv2D)	(None, 116, 156, 128)	73856
batch_normalization_6 (BatchNormalization)	(None, 116, 156, 128)	512
max_pooling2d_5 (MaxPooling2D)	(None, 58, 78, 128)	0
dropout_6 (Dropout)	(None, 58, 78, 128)	0
flatten_1 (Flatten)	(None, 579072)	0
dense_2 (Dense)	(None, 256)	148242688
batch_normalization_7 (BatchNormalization)	(None, 256)	1024
dropout_7 (Dropout)	(None, 256)	0
dense_3 (Dense)	(None, 3)	771

Our model is larger than our peers because we decided to implement more features into to make our model more effective, we got a lot of advice from ChatGPT. We implemented early stopping and condescended the pictures to keep quality.

Questions?

THANKS FOR LISTENING

Presentations are communication tools that can be used as demonstrations, lectures, speeches, reports, and more.

