Context: For comparing multiple models, I've trained 1-5 for 5 epochs, 6-9 for 8 epochs. Final model is trained for 30 epochs.

Experiment Number	Model	Result	Decision + Explanation
1	Model with 3 Conv3d + Batch Normalization + Pooling layers	• categorical_accuracy: 0.3092 • val_categorical_accuracy: 0.2000 • Overfitting, very low and fluctuating validation accuracy.	Increase layers to extract more features.
2	Increasing Layer Set on Experiment 1	• categorical_accuracy: 0.2443 • val_categorical_accuracy: 0.2400 • Number of parameters dropped sharply.	Use more Kernels in dense layer of this model
3	Increasing Dense Layer Kernels on Experiment 2	• categorical_accuracy: 0.2941 • val_categorical_accuracy: 0.4400 • Both validation and training accuracies are increasing steadily and the losses are also decreasing steadily. Also unlike Experiment 1, the number of parameters are much lower as well.	Model is not able to converge in 5 (low) epochs so we shall try increasing speed with increasing batch size.
4	Increasing batch size on Experiment 3	• categorical_accuracy: 0.4344 • val_categorical_accuracy: 0.5200 • The training and validation accuracies both struggle in the beginning but start to increase very slowly later.	We shall try increasing the learning rate as well and check if the model starts performing better
5	Increasing learning rate on Experiment 4	• categorical_accuracy: 0.5143 • val_categorical_accuracy: 0.5600 • Increasing learning rate did not help acheieve the desired output. The model now overfits a lot.	We shall try to increase the number of epochs of model and bring down the batch size to 32 and see if it is a better one
6	Increasing epochs to 8 on Experiment 3	• categorical_accuracy: 0.3756 • val_categorical_accuracy: 0.4000 • Both training and validation accuracy has reduced	Still not getting desired out put we will change the architecture for experimentation
7	CNN+RNN with MobileNetV2 Transfer Learning + GRU layers	• categorical_accuracy: 0.8462 • val_categorical_accuracy: 0.6700 • Model is overfitting	So we shall try adding dropout layer to mobilenetv2.
8	Decreasing the number of output neurons from MobileNet on Experiment 7	• categorical_accuracy: 0.7783 • val_categorical_accuracy: 0.5200 • The model is still overfitting and there has been no improvement.	We will now try combining multiple changes with some increase in parameters and some decrease. Also we shall tweak optimser as well
9	Decreasing batch size and learning rate, increasing GRU Kernels	• categorical_accuracy: 0.7677 • val_categorical_accuracy: 0.6200 • The model has a high tendency of overfitting. Adding dropouts and the learning rate reduction didnt help much	There is not much improvement.
Final Model	Model 1 trained for 30 epochs	• Both training and validation accuracy are increasing. Overfitting also started increasing after 15th epochs. • Model out-put at 15th epoch has accuracy of 60% for both training and validation datasets.	I'll be using model out-put at 15th epoch for final production.