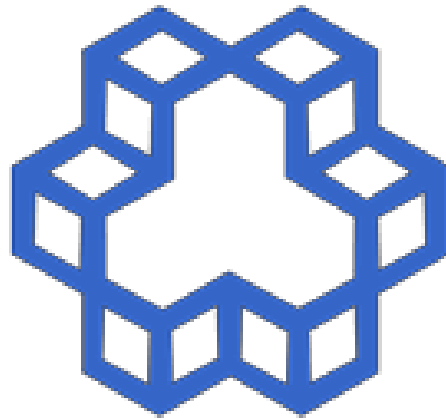


In the name of God
Clothing Classification



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Solving the Exercise:

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*Seeking help from friends and solving the exercise is allowed, but any copying of the code and other results will be considered as **a zero** mark .

(Visual Data Classification)

Clothing Classification Project (CNN/ANN/D)

In this project, different parts of the code are given and you have to create a convolutional neural network model and multilayer neural network. Create a model that is able to classify clothes.

As you know, the photos are actually arrays that contain numbers from 0 to 255 without the number of pixels, and in the given dataset, 70.000 photos of the clothes are brought and the label for each dress is explained on the code.

It should be noted that 60.000 of the data have been separated for the train, validation, and 10.000 of them have been separated for testing, and the preprocessing process has been done well.

Challenge 1: Call all your libraries that you think are needed to build your convolutional model.

Challenge 2: Design three convolutional models that:

- The first model must have 4 convolutional layers with maxpooling and the other hyperparameters should be selected arbitrarily, then the schematic of the model should be displayed and the network should be trained, and the usual visualizations should be done and the accuracy of the model should be displayed on the test data (Suggestion: classification report in scikit-learn library).
- The second model: It must have 4 layers of convolution with Meanpooling and the other hyperparameters should be selected arbitrarily, then the schematic of the model should be displayed and the network should be trained, and the usual visualizations should be done and the accuracy of the model should be displayed on the test data.



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- The third model: Choose the model that has more accuracy on the test data and add the dropout layer to it, then display the schematic of the serious model D and train the model D, then perform the usual visualizations and display the accuracy of the model on the test data and examine the effect of the dropout layer Give it.