27.11.2023 – 11.12.2023

Hüseyin Onur Taştan

Erdem Akdağlı

Cihat Kaya

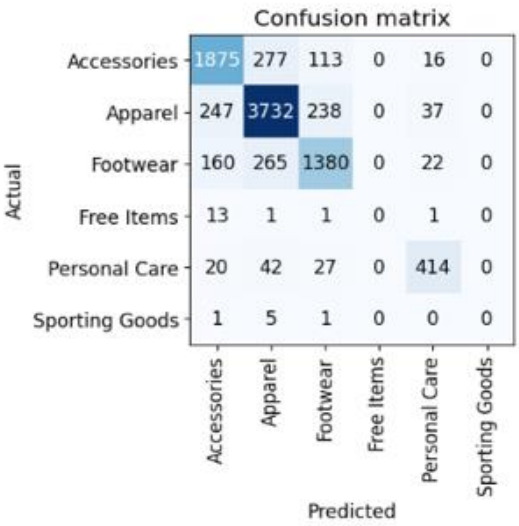
During these two weeks, we trained Alexnet, resnet152, Vgg-16, Densenet201 models. We compared our results below and observed which one worked with the best performance.

Vgg-16:

epoch	train_loss	valid_loss	accuracy	time
0	0.779368	0.652089	0.817169	15:12

epoch	train_loss	valid_loss	accuracy	time
0	0.656514	0.612332	0.829996	23:32
1	0.642626	0.592099	0.833146	23:27
2	0.596709	0.580846	0.832021	23:13
3	0.527094	0.582993	0.832808	23:49
4	0.496308	0.583779	0.832696	21:48

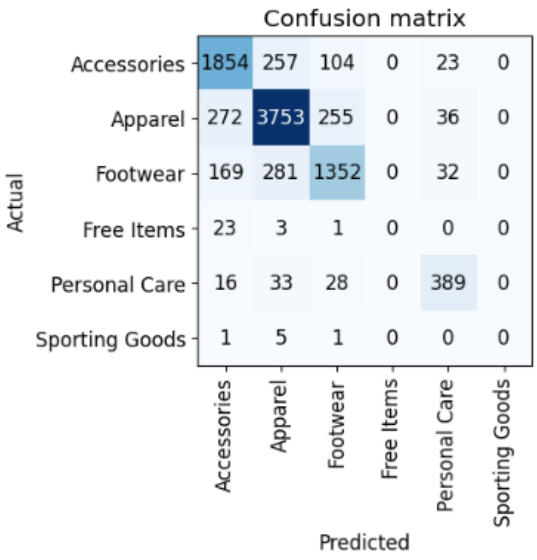
+ Code + Markdown



Alexnet:

epoch	train_loss	valid_loss	accuracy	time
0	0.789520	0.725821	0.802655	18:15

epoch	train_loss	valid_loss	accuracy	time
0	0.674700	0.627406	0.819757	18:03
1	0.657751	0.622507	0.818294	18:11
2	0.601286	0.604861	0.825270	19:58
3	0.520473	0.605702	0.824482	18:11
4	0.446846	0.617890	0.826733	17:55

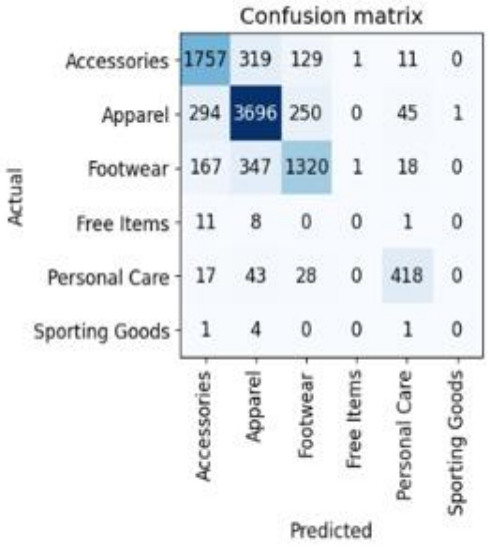


Densenet 201:

epoch	train_loss	valid_loss	accuracy	time
0	0.721381	0.707190	0.814469	16:21

epoch	train_loss	valid_loss	accuracy	time
0	0.627753	0.620149	0.822907	23:16
1	0.584238	0.610033	0.824820	21:56
2	0.493816	0.637652	0.818857	23:44
3	0.233019	0.841189	0.810644	21:18
4	0.078110	0.994564	0.809068	21:24

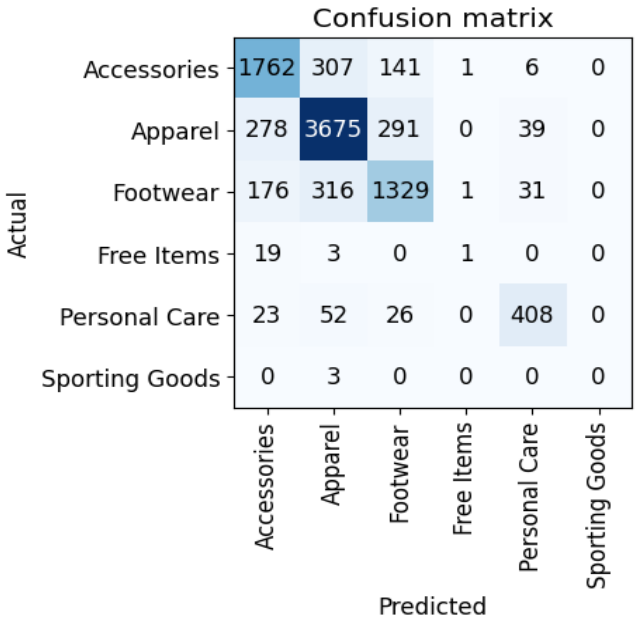
+ Code + Markdown



ResNet 152:

epoch	train_loss	valid_loss	accuracy	time
0	0.783401	0.690447	0.806031	18:32

epoch	train_loss	valid_loss	accuracy	time
0	0.630265	0.617421	0.820882	22:21
1	0.581335	0.608915	0.821782	24:17
2	0.465457	0.626763	0.818857	24:07
3	0.221868	0.835549	0.802655	20:38
4	0.069806	0.966914	0.807268	20:39



From the results we obtained, we saw that vgg-16 is the most performing model. It makes predictions with 83% success.VGG16 is a 16-layer deep learning model and is known to perform well in learning complex tasks. Resnet152 is a 152-layer deep learning model and is more complex than VGG16. However, as seen in the graph, Resnet152 has lower accuracy than VGG16. This suggests that Resnet152 may be overfitting the training dataset. AlexNet and DenseNet201 are less complex deep learning models. As seen in the table, these models have lower accuracy than VGG16 and Resnet152.