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IV – BS Economics
IE 198 Case 5

1. Model Summary

```
Model: "sequential_4"

Layer (type)                 Output Shape              Param #
=================================================================
conv2d_11 (Conv2D)           (None, 26, 26, 32)        320

conv2d_12 (Conv2D)           (None, 24, 24, 64)        18496

max_pooling2d_10 (MaxPooling (None, 12, 12, 64)        0

dropout_5 (Dropout)          (None, 12, 12, 64)        0

conv2d_13 (Conv2D)           (None, 10, 10, 128)       73856

max_pooling2d_11 (MaxPooling (None, 5, 5, 128)         0

dropout_6 (Dropout)          (None, 5, 5, 128)         0

flatten_4 (Flatten)          (None, 3200)              0

dense_8 (Dense)              (None, 128)               409728

dense_9 (Dense)              (None, 10)                1290
=================================================================
Total params: 503,690
Trainable params: 503,690
Non-trainable params: 0

None
```

2. Model Accuracy

	precision	recall	f1-score	support
0	0.87	0.87	0.87	1000
1	0.99	0.98	0.98	1000
2	0.90	0.83	0.86	1000
3	0.90	0.93	0.92	1000
4	0.85	0.84	0.84	1000
5	0.99	0.96	0.98	1000
6	0.70	0.76	0.73	1000
7	0.90	0.99	0.95	1000
8	0.98	0.98	0.98	1000
9	0.99	0.92	0.95	1000
accuracy			0.91	10000
macro avg	0.91	0.91	0.91	10000
weighted avg	0.91	0.91	0.91	10000

3. Steps done to account for overfitting
   - Reduced number of epochs from 25 to 20
   - Added a dropout equal to 0.50.
4. Predictions for the first 10 rows – ankle boot, trouser, T-shirt/top, T-shirt/top, sandal, T-shirt/top, dress, sandal, coat, shirt