

Sonuçlar:

1. Tüm testler için accuracy değerlerinin karşılaştırması:

Accuracy karşılaştırması:	Adam, B.S.=128, lr=0.001	SGD, B.S.=128, lr=0.001	Adam, B.S.=64, lr=0.001
ResNet 18 (kendi resnetimiz)	89.01	88.46	90.43
Knowledge sonrası student (teacher: ResNet 18, student: ResNet 18) T=1.5, loss=0.5, 0.5	89.67	89.18	90.98
Knowledge sonrası student (teacher: ResNet 18, student: ResNet 18) T=2, loss=0.5, 0.5	90.24	89.51	91.29
Knowledge sonrası student (teacher: ResNet 18, student: ResNet 18) T=2.5, loss=0.5, 0.5	90.27	89.81	91.20
Knowledge sonrası student (teacher: ResNet 18, student: ResNet 18) T=3, loss=0.5, 0.5	89.65	88.85	91.07
Knowledge sonrası student (teacher: ResNet 18, student: ResNet 18) T=X, loss=0.7, 0.3	-	-	-
Knowledge sonrası student (teacher: ResNet 18, student: ResNet 18) T=X, loss=0.3, 0.7	-	-	-
Light ResNet 18	77.53	73.27	78.10
Knowledge sonrası student (teacher: ResNet 18, student: Light ResNet 18) T=1.5, loss=0.5, 0.5	88.85	87.60	89.06
Knowledge sonrası student (teacher: ResNet 18, student: Light ResNet 18) T=2, loss=0.5, 0.5	88.95	88.13	89.03
Knowledge sonrası student (teacher: ResNet 18, student: Light ResNet 18) T=2.5, loss=0.5, 0.5	89.25	87.99	89.56
Knowledge sonrası student (teacher: ResNet 18, student: Light ResNet 18) T=3, loss=0.5, 0.5	89.02	88.21	89.51
Knowledge sonrası student (teacher: ResNet 18, student: Light ResNet 18) T=X, loss=0.7, 0.3	-	-	-
Knowledge sonrası student (teacher: ResNet 18, student: Light ResNet 18) T=X, loss=0.3, 0.7	-	-	-
Transfer L. (2,3,4. katmanlar kapalı)	43.47	40.63	43.17
Transfer L. (2,3,4. katmanlar açık)	86.36	84.38	86.30

2. Adam, Batch size=128, lr=0.001:

Adam, Batch size=128, lr=0.001	Accuracy	Precision	Recall	F1 Score
ResNet 18 (kendi resnetimiz)	89.01	89.01	89.01	89.00
Knowledge sonrası student (teacher: ResNet 18, student: ResNet 18) T=1.5	89.67	89.69	89.67	89.66
Knowledge sonrası student (teacher: ResNet 18, student: ResNet 18) T=2	90.24	90.29	90.24	90.23
Knowledge sonrası student (teacher: ResNet 18, student: ResNet 18) T=2.5	90.27	90.41	90.27	90.30
Knowledge sonrası student (teacher: ResNet 18, student: ResNet 18) T=3	89.65	89.69	89.65	89.66
Knowledge sonrası student (teacher: ResNet 18, student: ResNet 18) T=X, loss=0.7, 0.3	-	-	-	-
Knowledge sonrası student (teacher: ResNet 18, student: ResNet 18) T=X, loss=0.3, 0.7	-	-	-	-
Light ResNet 18	77.53	77.38	77.53	77.37
Knowledge sonrası student (teacher: ResNet 18, student: Light ResNet 18) T=1.5	88.85	88.82	88.85	88.82
Knowledge sonrası student (teacher: ResNet 18, student: Light ResNet 18) T=2	88.95	88.92	88.95	88.87
Knowledge sonrası student (teacher: ResNet 18, student: Light ResNet 18) T=2.5	89.25	89.32	89.25	89.25
Knowledge sonrası student (teacher: ResNet 18, student: Light ResNet 18) T=3	89.02	89.09	89.02	89.01
Knowledge sonrası student (teacher: ResNet 18, student: Light ResNet 18) T=X, loss=0.7, 0.3	-	-	-	-
Knowledge sonrası student (teacher: ResNet 18, student: Light ResNet 18) T=X, loss=0.3, 0.7	-	-	-	-

Adam, Batch size=128, lr=0.001	Accuracy	Precision	Recall	F1 Score
Transfer Learning (2,3,4. katmanlar açık)	86.36	86.36	86.36	86.36
Transfer L. (2,3,4. katmanlar kapalı)	43.47	43.39	43.47	43.33

3. SGD, Batch size=128, lr=0.001:

SGD, Batch size=128, lr=0.001	Accuracy	Precision	Recall	F1 Score
ResNet 18 (kendi resnetimiz)	88.46	88.48	88.46	88.45
Knowledge sonrası student (teacher: ResNet 18, student: ResNet 18) T=1.5	89.18	89.19	89.18	89.18
Knowledge sonrası student (teacher: ResNet 18, student: ResNet 18) T=2	89.51	89.60	89.51	89.54
Knowledge sonrası student (teacher: ResNet 18, student: ResNet 18) T=2.5	89.81	89.83	89.81	89.80
Knowledge sonrası student (teacher: ResNet 18, student: ResNet 18) T=3	88.85	88.91	88.85	88.87
Knowledge sonrası student (teacher: ResNet 18, student: ResNet 18) T=X, loss=0.7, 0.3	-	-	-	-
Knowledge sonrası student (teacher: ResNet 18, student: ResNet 18) T=X, loss=0.3, 0.7	-	-	-	-
Light ResNet 18	73.27	73.32	73.27	73.29
Knowledge sonrası student (teacher: ResNet 18, student: Light ResNet 18) T=1.5	87.60	87.74	87.60	87.65
Knowledge sonrası student (teacher: ResNet 18, student: Light ResNet 18) T=2	88.13	88.25	88.13	88.16
Knowledge sonrası student (teacher: ResNet 18, student: Light ResNet 18) T=2.5	87.99	88.01	87.99	87.99
Knowledge sonrası student (teacher: ResNet 18, student: Light ResNet 18) T=3	88.21	88.21	88.21	88.17
Knowledge sonrası student (teacher: ResNet 18, student: Light ResNet 18) T=X, loss=0.7, 0.3	-	-	-	-
Knowledge sonrası student (teacher: ResNet 18, student: Light ResNet 18) T=X, loss=0.3, 0.7	-	-	-	-

SGD, Batch size=128, lr=0.001	Accuracy	Precision	Recall	F1 Score
Transfer Learning (2,3,4. katmanlar açık)	84.38	84.31	84.38	84.33
Transfer L. (2,3,4. katmanlar kapalı)	40.63	41.39	40.63	40.46

4. Adam, Batch size=64, lr=0.001:

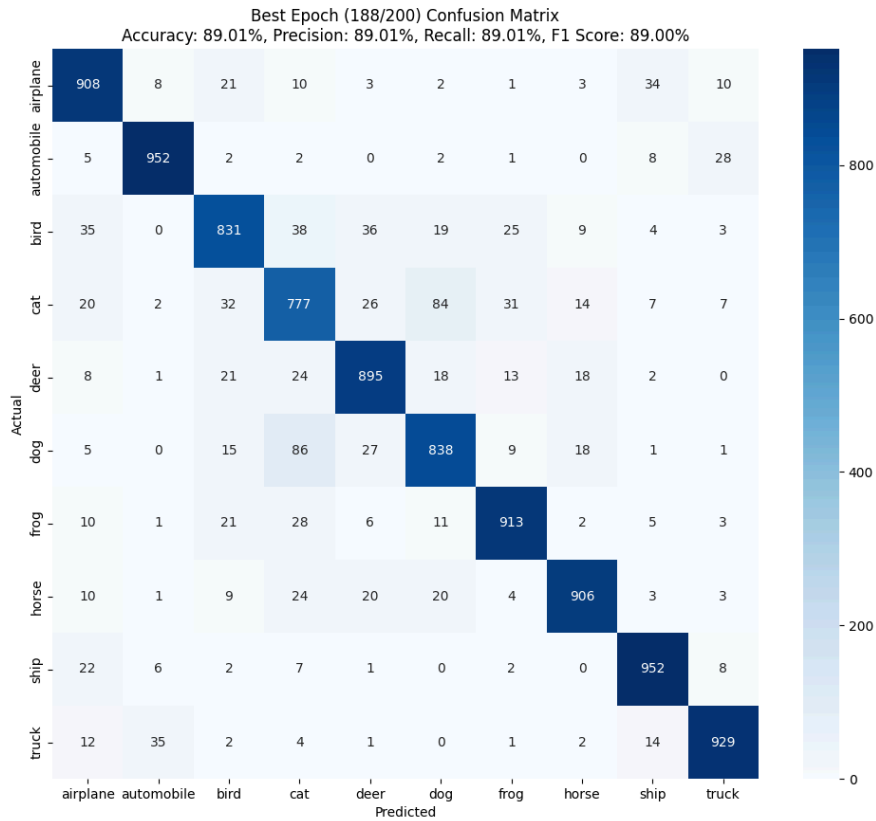
Adam, Batch size=64, lr=0.001	Accuracy	Precision	Recall	F1 Score
ResNet 18 (kendi resnetimiz)	90.43	90.51	90.43	90.46
Knowledge sonrası student (teacher: ResNet 18, student: ResNet 18) T=1.5	90.98	90.95	90.98	90.95
Knowledge sonrası student (teacher: ResNet 18, student: ResNet 18) T=2	91.29	91.29	91.29	91.29
Knowledge sonrası student (teacher: ResNet 18, student: ResNet 18) T=2.5	91.20	91.21	91.20	91.19
Knowledge sonrası student (teacher: ResNet 18, student: ResNet 18) T=3	91.07	91.04	91.07	91.04
Knowledge sonrası student (teacher: ResNet 18, student: ResNet 18) T=X, loss=0.7, 0.3	-	-	-	-
Knowledge sonrası student (teacher: ResNet 18, student: ResNet 18) T=X, loss=0.3, 0.7	-	-	-	-
Light ResNet 18	78.10	78.21	78.10	78.13
Knowledge sonrası student (teacher: ResNet 18, student: Light ResNet 18) T=1.5	89.06	89.05	89.06	89.02
Knowledge sonrası student (teacher: ResNet 18, student: Light ResNet 18) T=2	89.03	89.11	89.03	89.04
Knowledge sonrası student (teacher: ResNet 18, student: Light ResNet 18) T=2.5	89.56	89.62	89.56	89.56
Knowledge sonrası student (teacher: ResNet 18, student: Light ResNet 18) T=3	89.51	89.63	89.51	89.52
Knowledge sonrası student (teacher: ResNet 18, student: Light ResNet 18) T=X, loss=0.7, 0.3	-	-	-	-
Knowledge sonrası student (teacher: ResNet 18, student: Light ResNet 18) T=X, loss=0.3, 0.7	-	-	-	-

Adam, Batch size=64, lr=0.001	Accuracy	Precision	Recall	F1 Score
Transfer Learning (2,3,4. katmanlar açık)	86.30	86.37	86.30	86.31
Transfer L. (2,3,4. katmanlar kapalı)	43.17	43.61	43.17	42.91

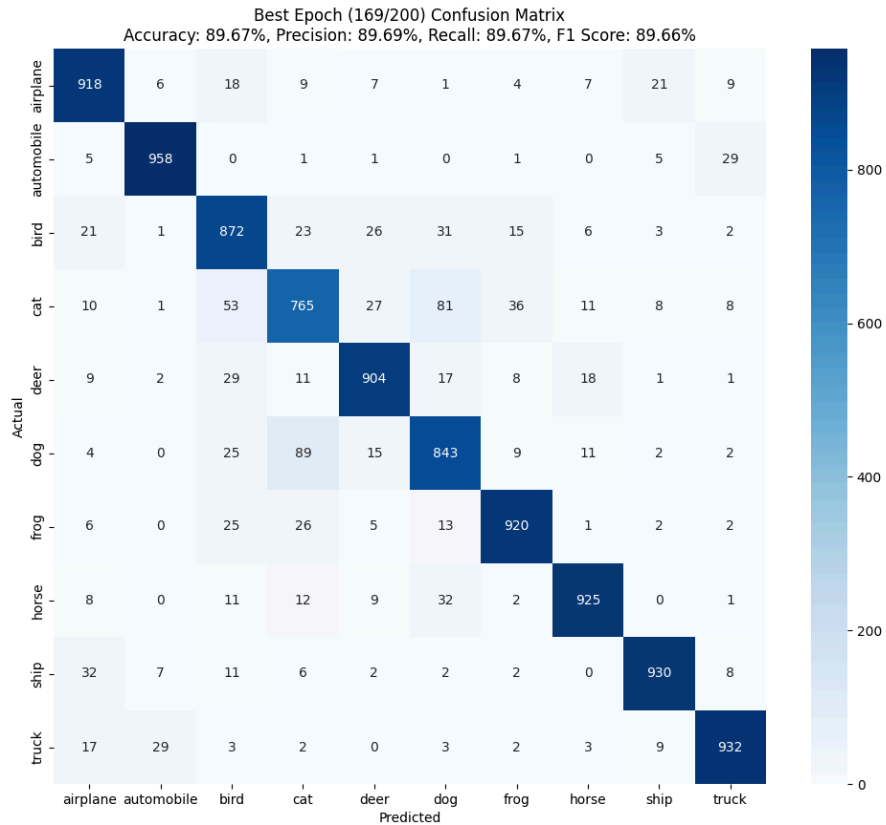
5. Knowledge Distillation Confusion Matrisler:

Adam, Batch size=128, lr=0.001 için:

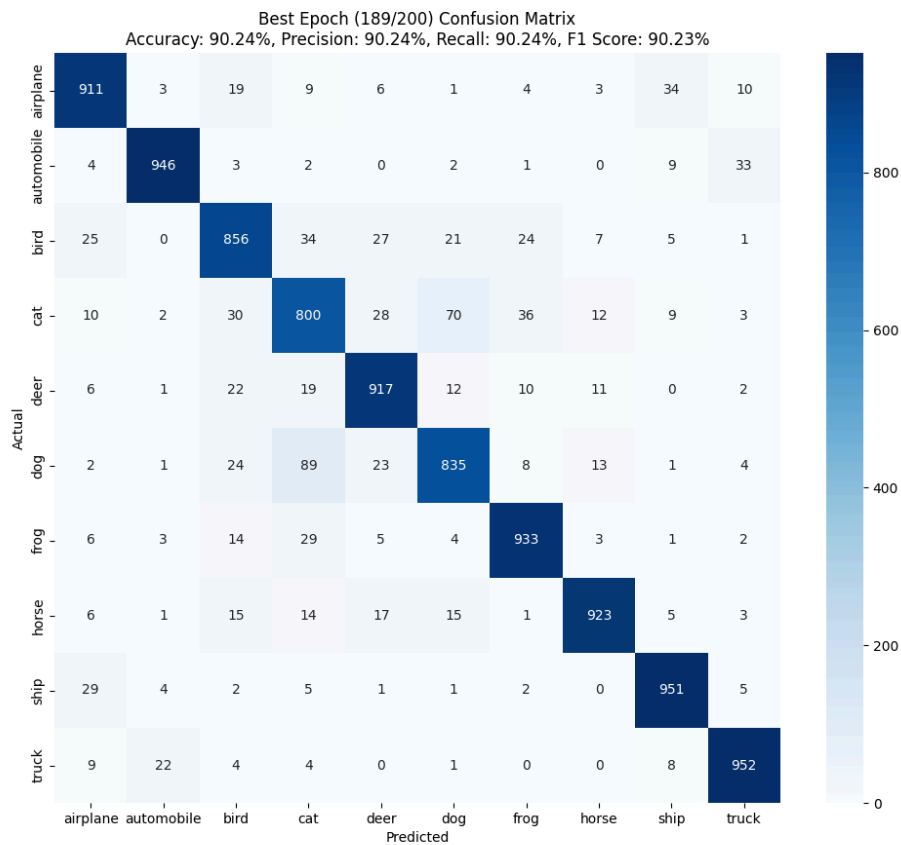
- **ResNet 18 (kendi resnetimiz):**



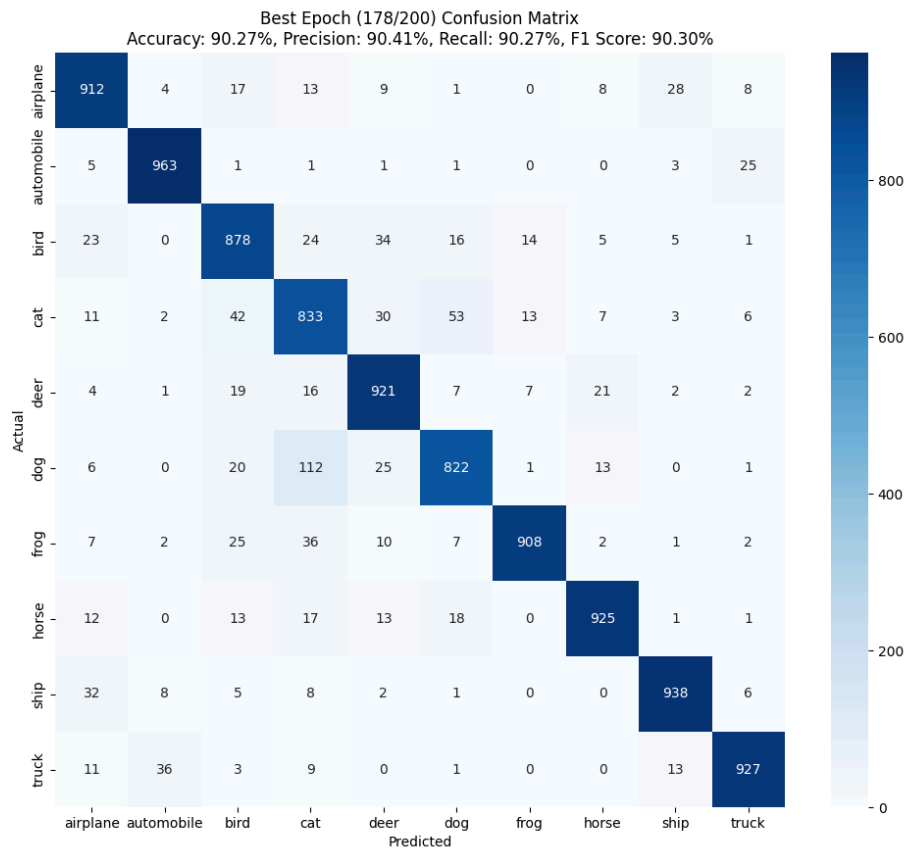
- **Knowledge sonrası student (teacher: ResNet 18, student: ResNet 18) T=1.5, loss=0.5, 0.5:**



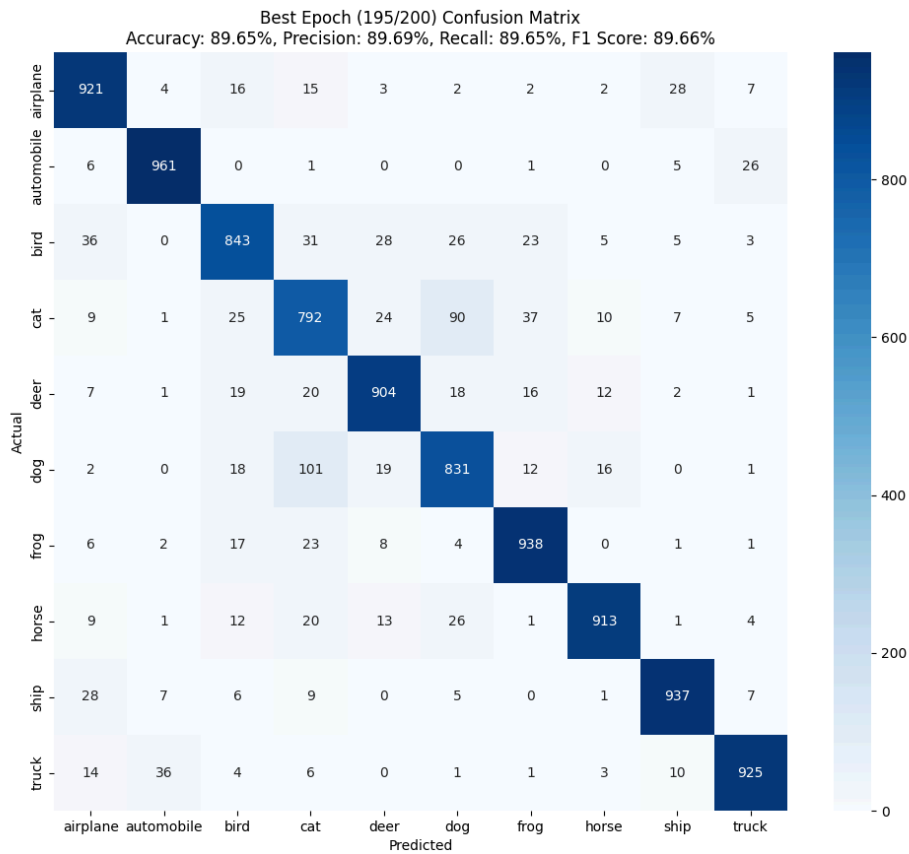
- **Knowledge sonrasi student (teacher: ResNet 18, student: ResNet 18) T=2, loss=0.5, 0.5:**



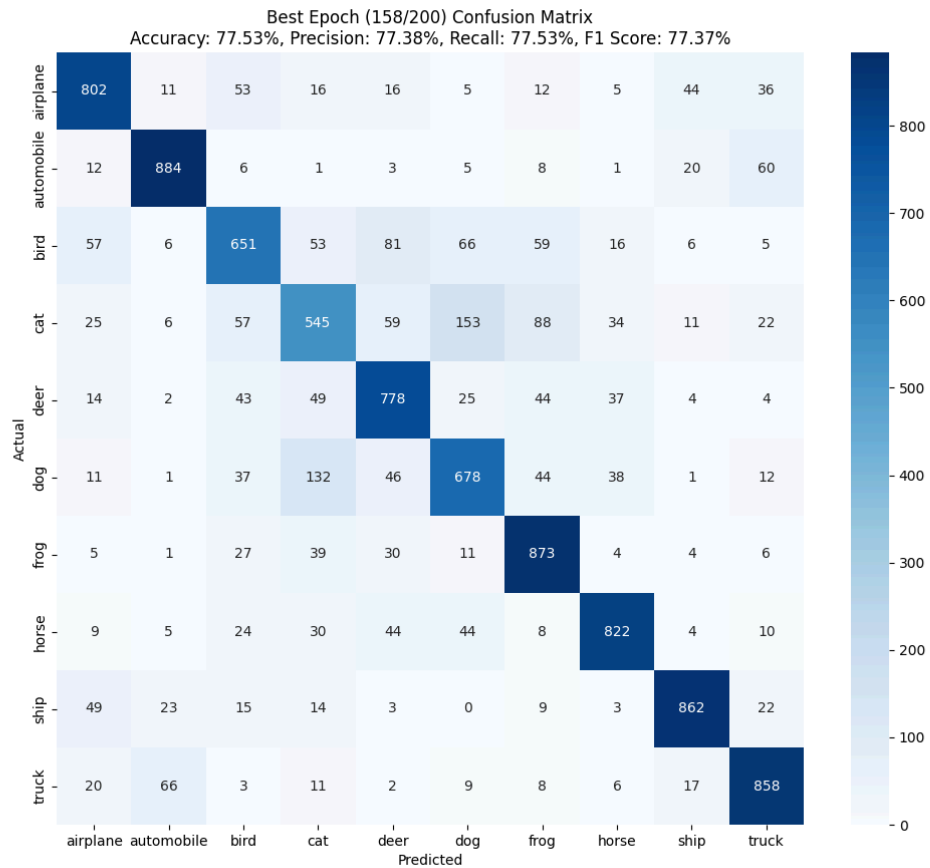
- **Knowledge sonrasi student (teacher: ResNet 18, student: ResNet 18) T=2.5, loss=0.5, 0.5:**



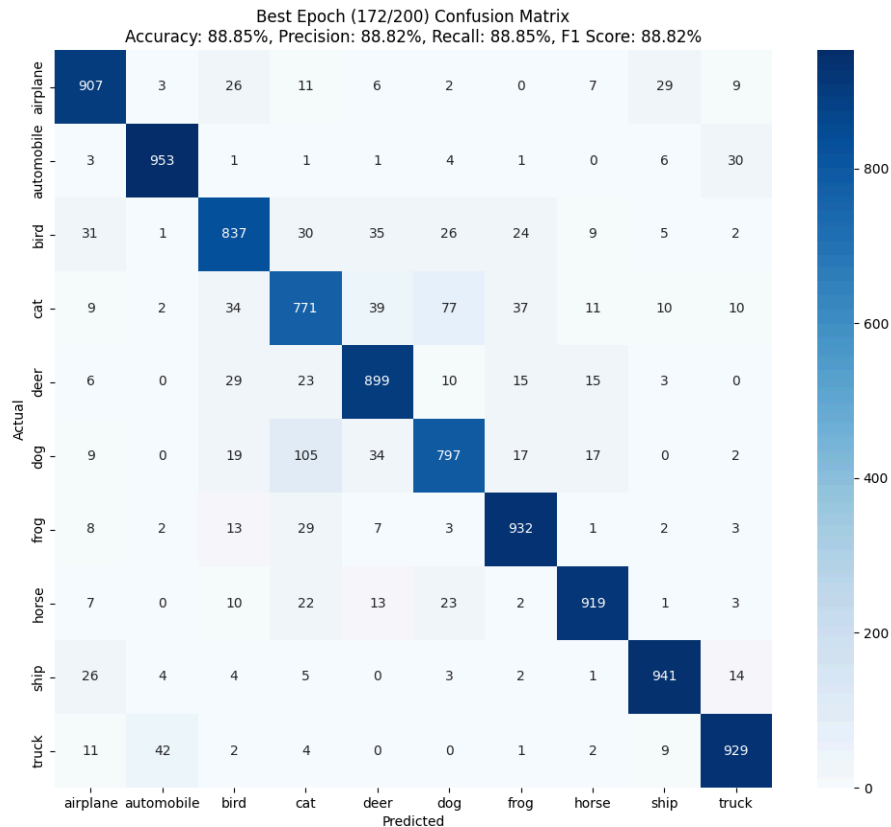
- **Knowledge sonrasi student (teacher: ResNet 18, student: ResNet 18) T=3, loss=0.5, 0.5:**



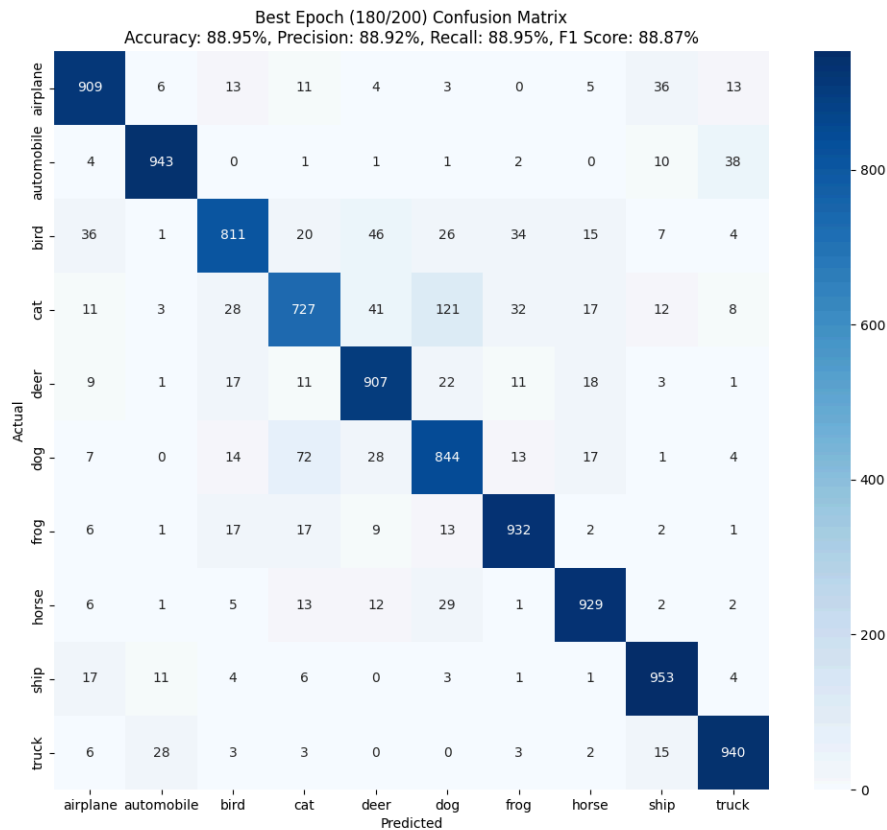
- **Light ResNet 18:**



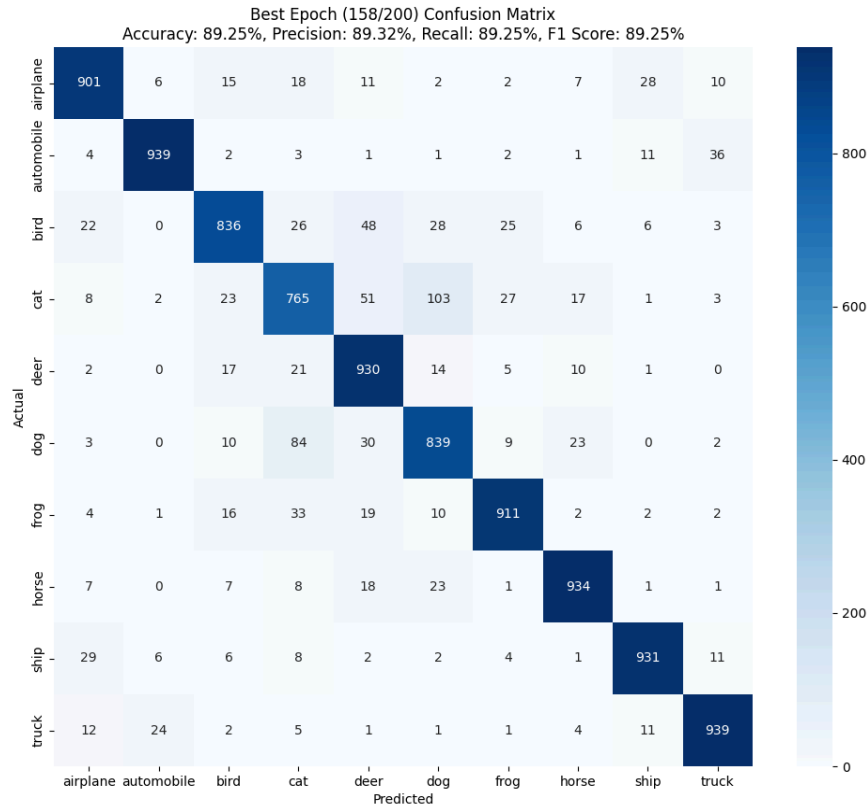
- **Knowledge sonrasi student (teacher: ResNet 18, student: Light ResNet 18) T=1.5, loss=0.5, 0.5:**



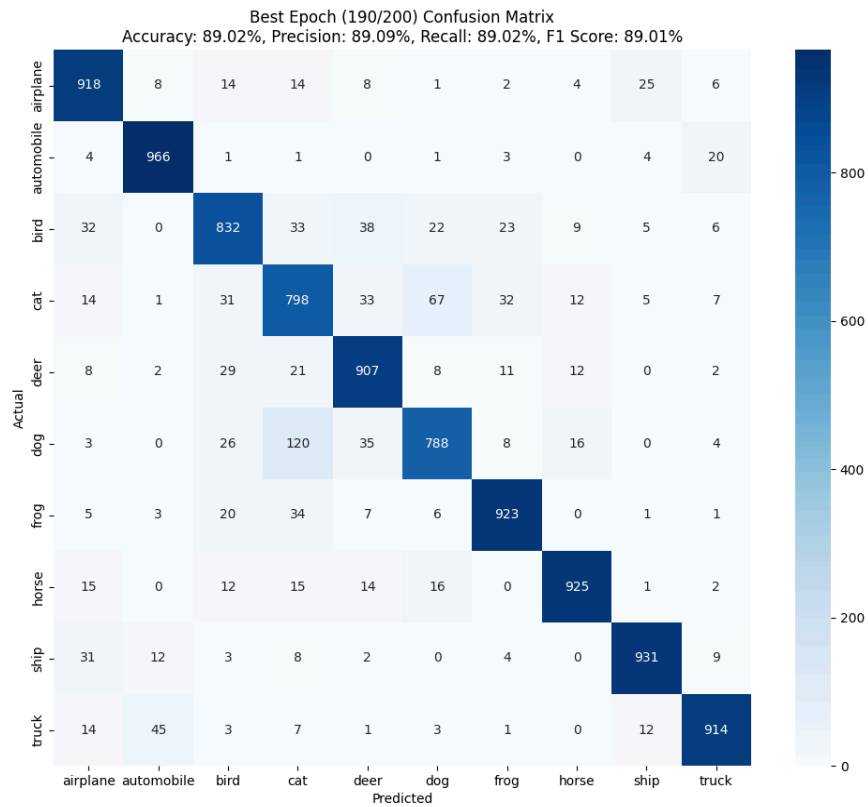
- **Knowledge sonrasi student (teacher: ResNet 18, student: Light ResNet 18) T=2, loss=0.5, 0.5:**



- **Knowledge sonrasi student (teacher: ResNet 18, student: Light ResNet 18) T=2.5, loss=0.5, 0.5:**

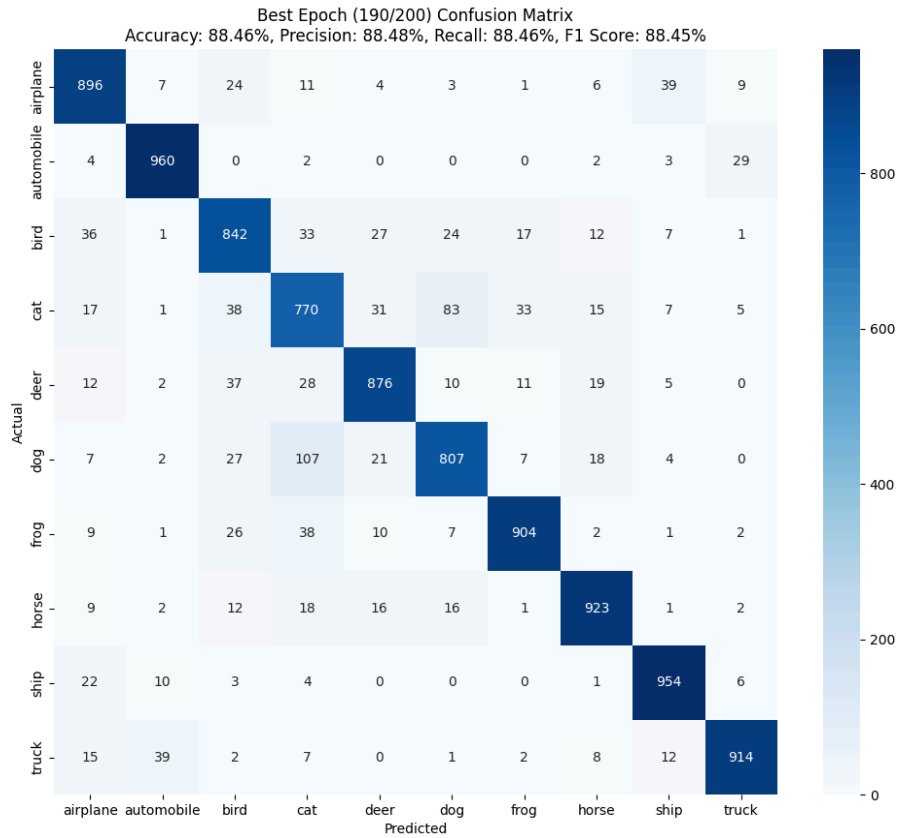


- **Knowledge sonrasi student (teacher: ResNet 18, student: Light ResNet 18) T=3, loss=0.5, 0.5:**

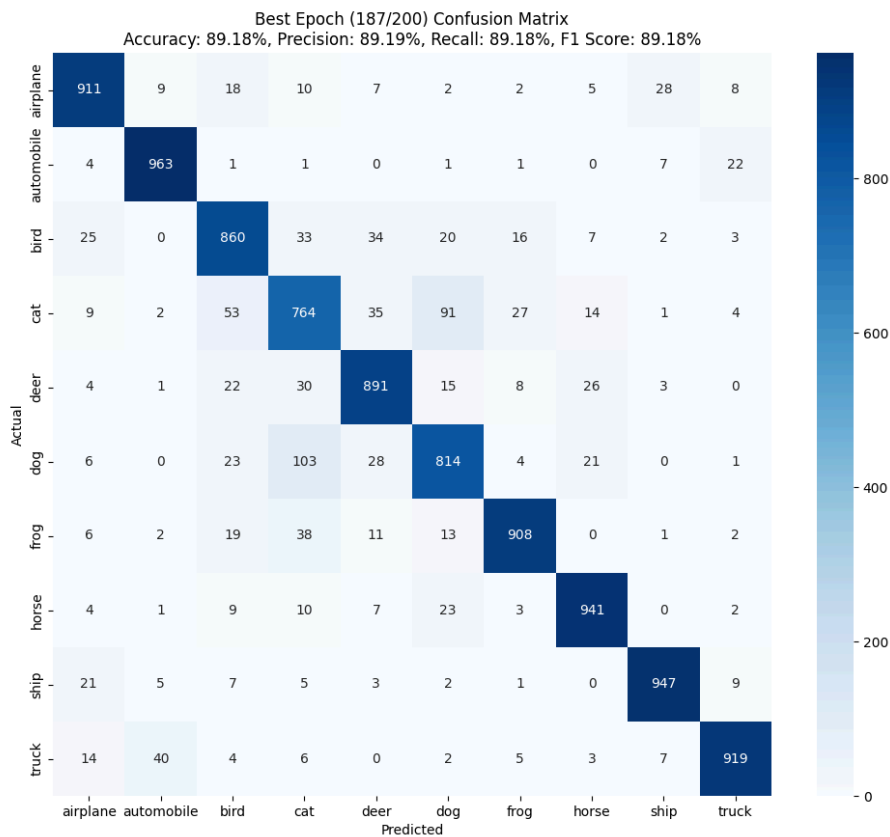


SGD, Batch size=128, lr=0.001 için:

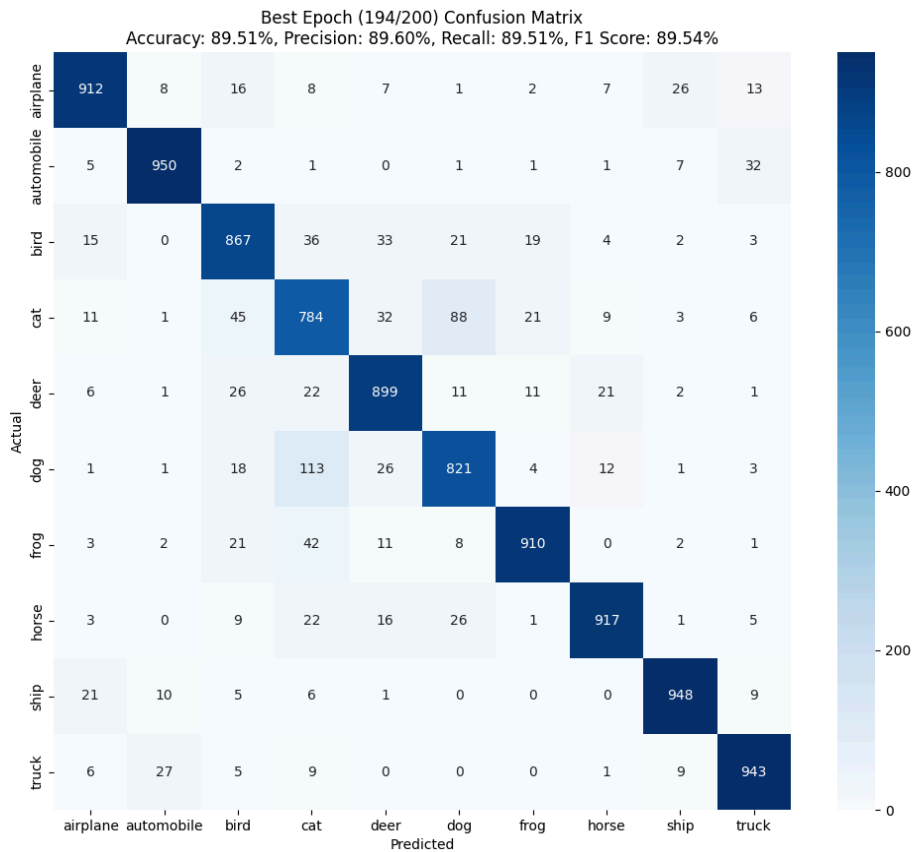
- **ResNet 18 (kendi resnetimiz):**



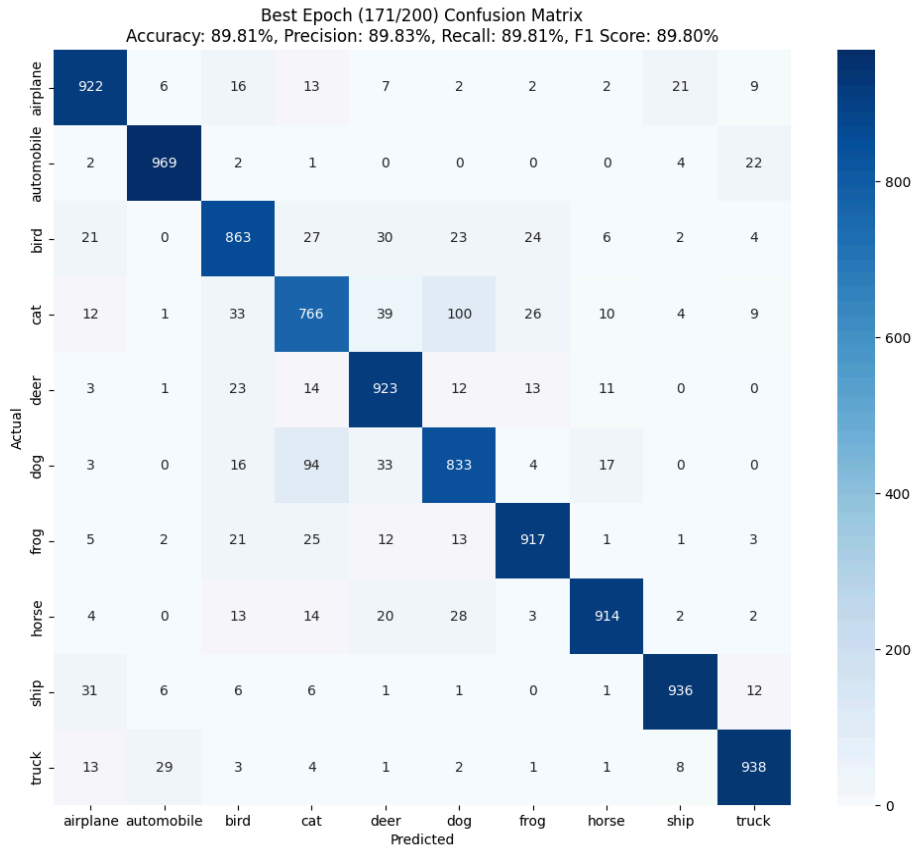
- **Knowledge sonrası student (teacher: ResNet 18, student: ResNet 18) T=1.5, loss=0.5, 0.5:**



- Knowledge sonrasi student (teacher: ResNet 18, student: ResNet 18) T=2, loss=0.5, 0.5:**

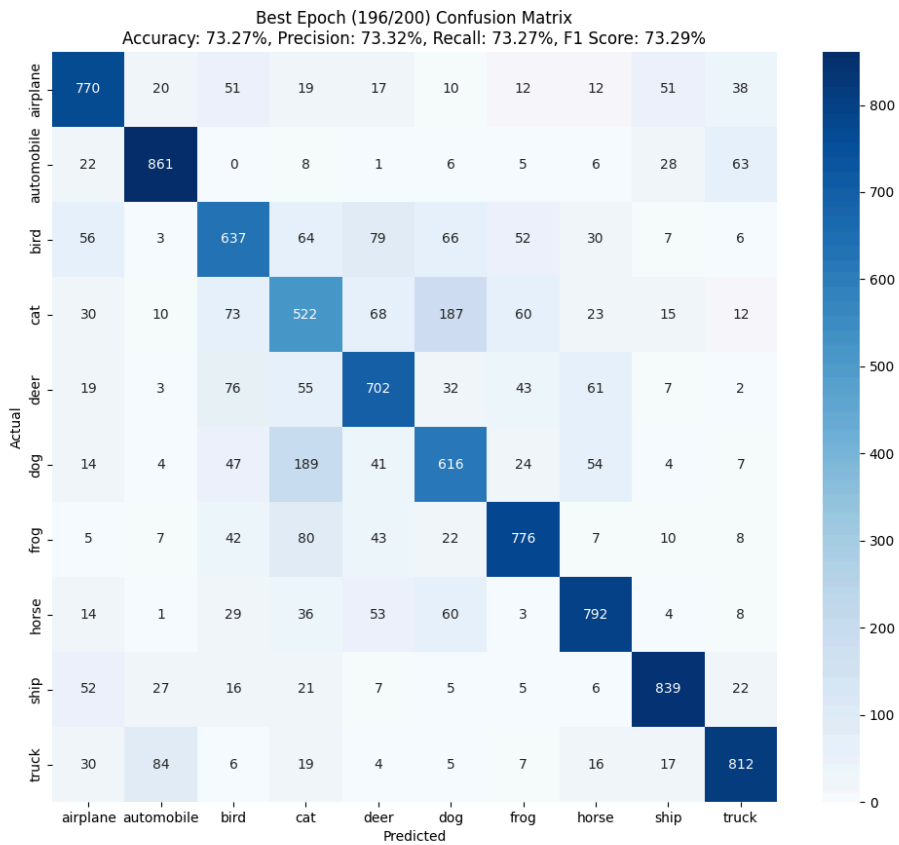


- Knowledge sonrasi student (teacher: ResNet 18, student: ResNet 18) T=2.5, loss=0.5, 0.5:**

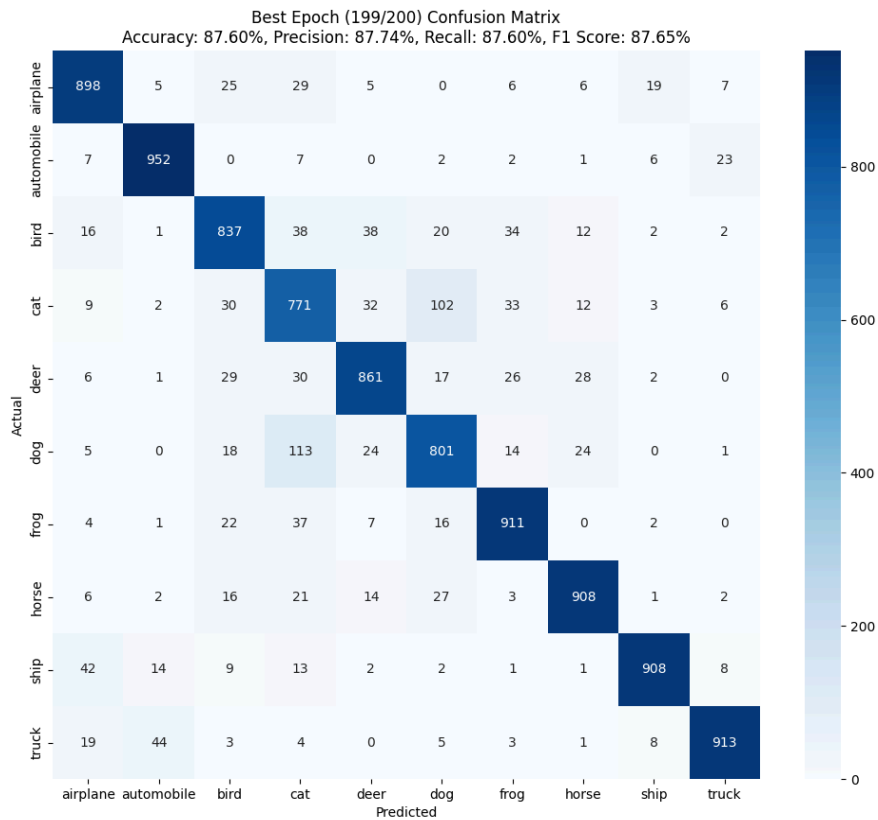


- **Knowledge sonrasi student (teacher: ResNet 18, student: ResNet 18) T=3, loss=0.5, 0.5:**

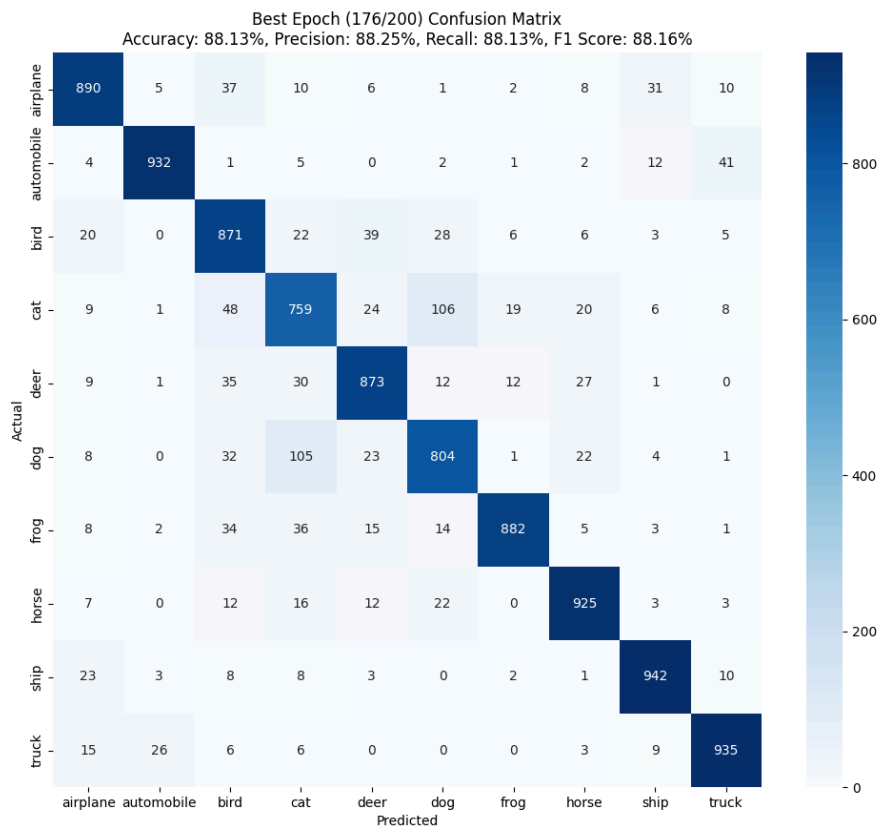
- **Light ResNet 18:**



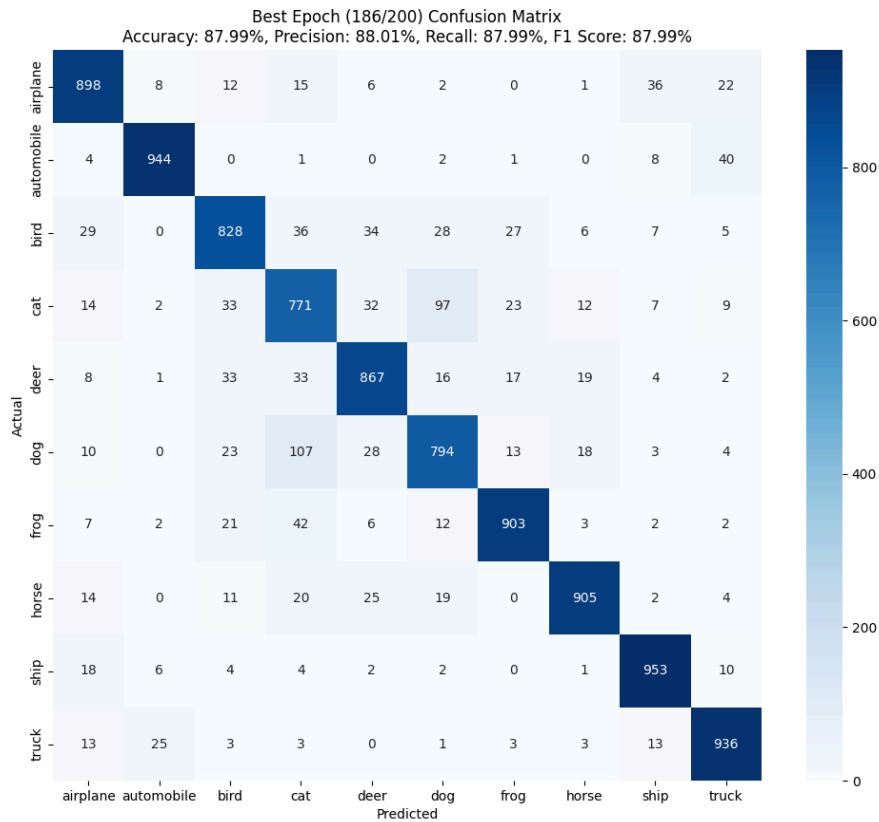
- **Knowledge sonrasi student (teacher: ResNet 18, student: Light ResNet 18) T=1.5, loss=0.5, 0.5:**



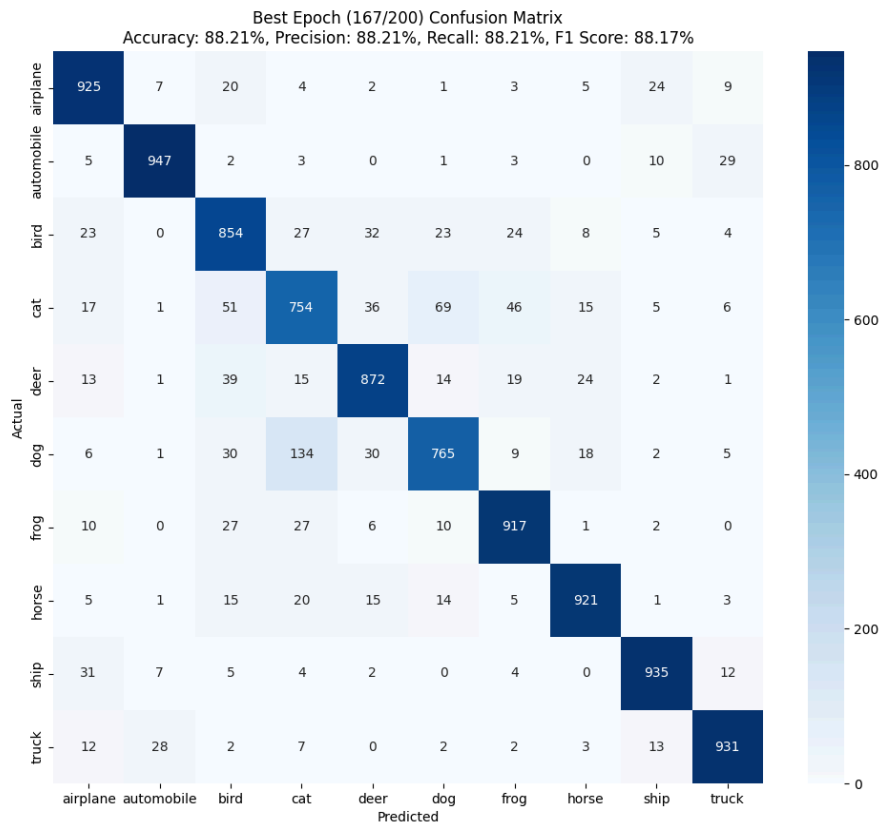
- **Knowledge sonrasi student (teacher: ResNet 18, student: Light ResNet 18) T=2, loss=0.5, 0.5:**



- **Knowledge sonrasi student (teacher: ResNet 18, student: Light ResNet 18) T=2.5, loss=0.5, 0.5:**

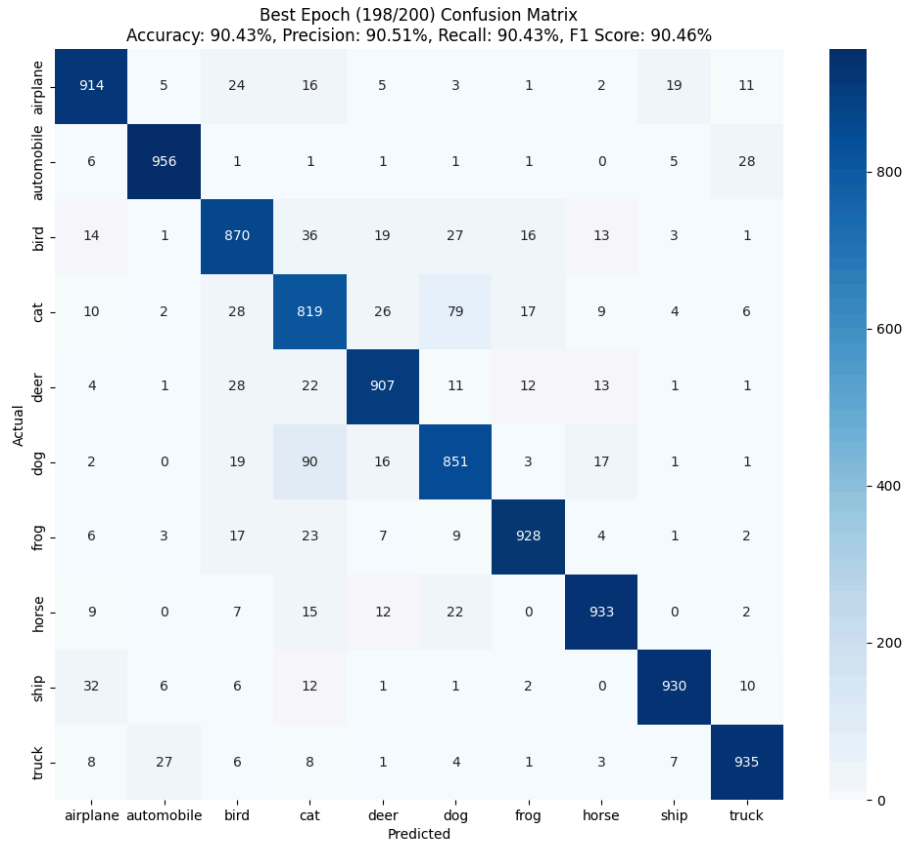


- **Knowledge sonrasi student (teacher: ResNet 18, student: Light ResNet 18) T=3, loss=0.5, 0.5:**

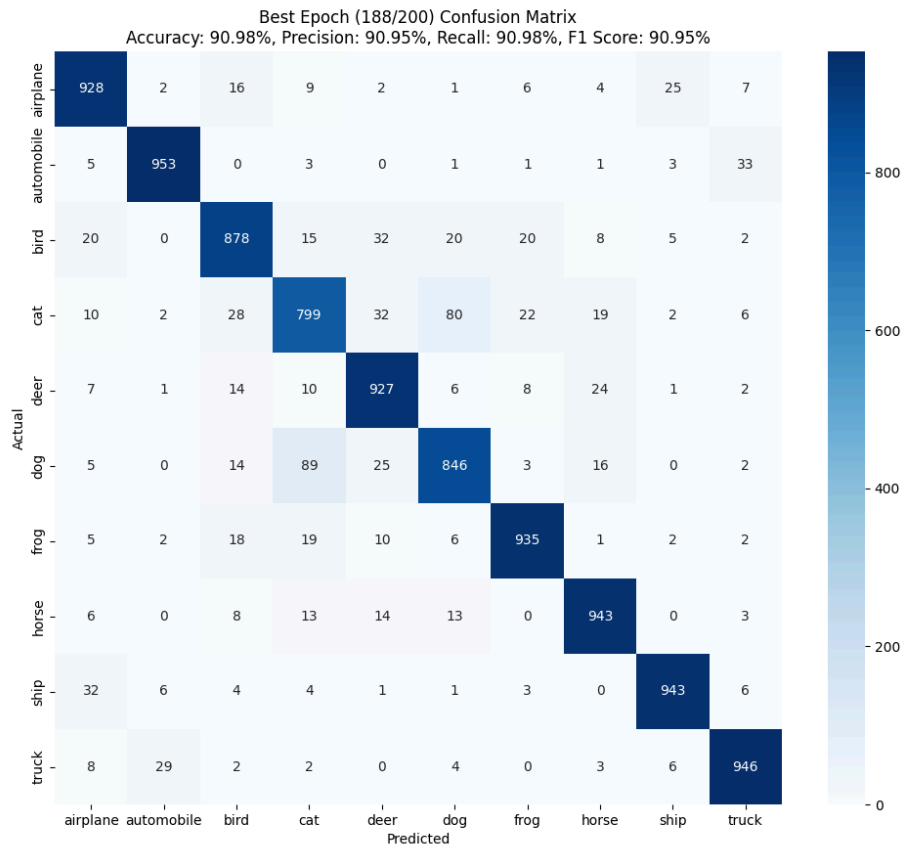


Adam, Batch size=64, lr=0.001 için:

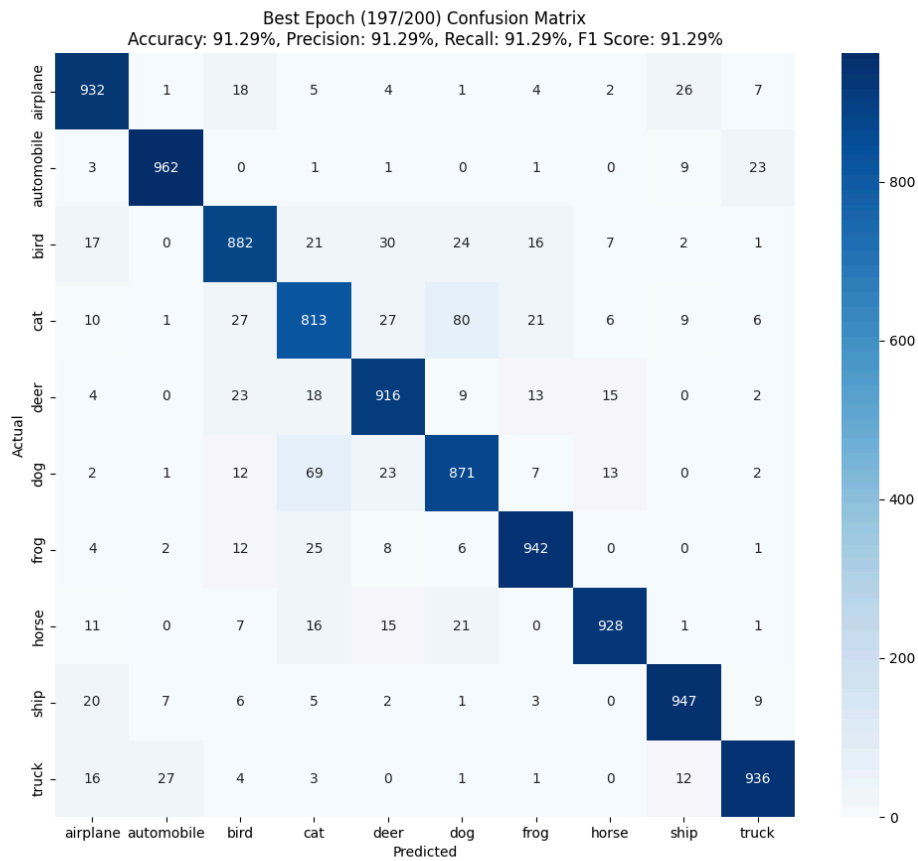
- **ResNet 18 (kendi resnetimiz):**



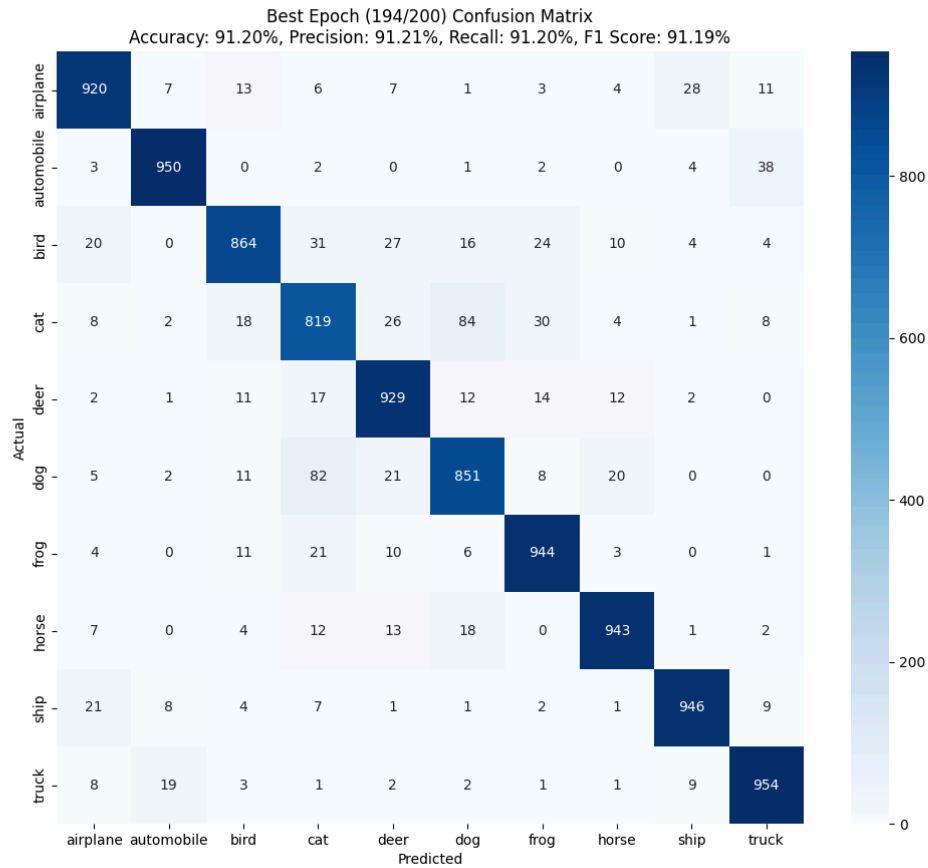
- **Knowledge sonrası student (teacher: ResNet 18, student: ResNet 18) T=1.5, loss=0.5, 0.5:**



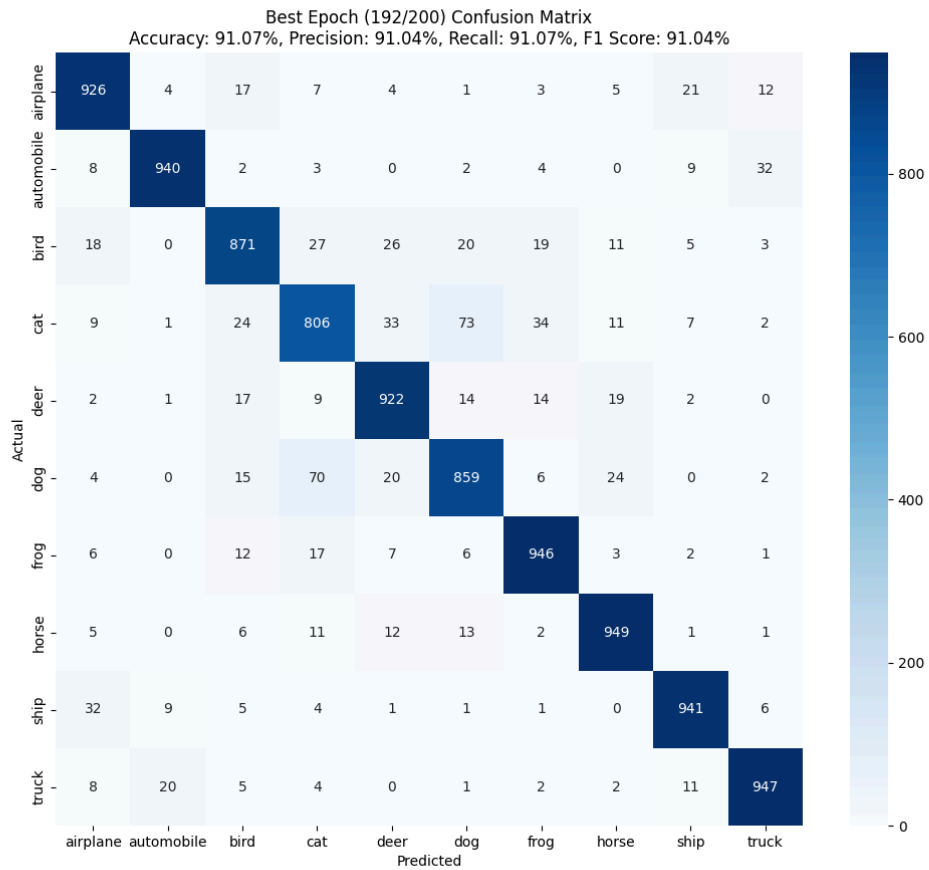
- **Knowledge sonrasi student (teacher: ResNet 18, student: ResNet 18) T=2, loss=0.5, 0.5:**



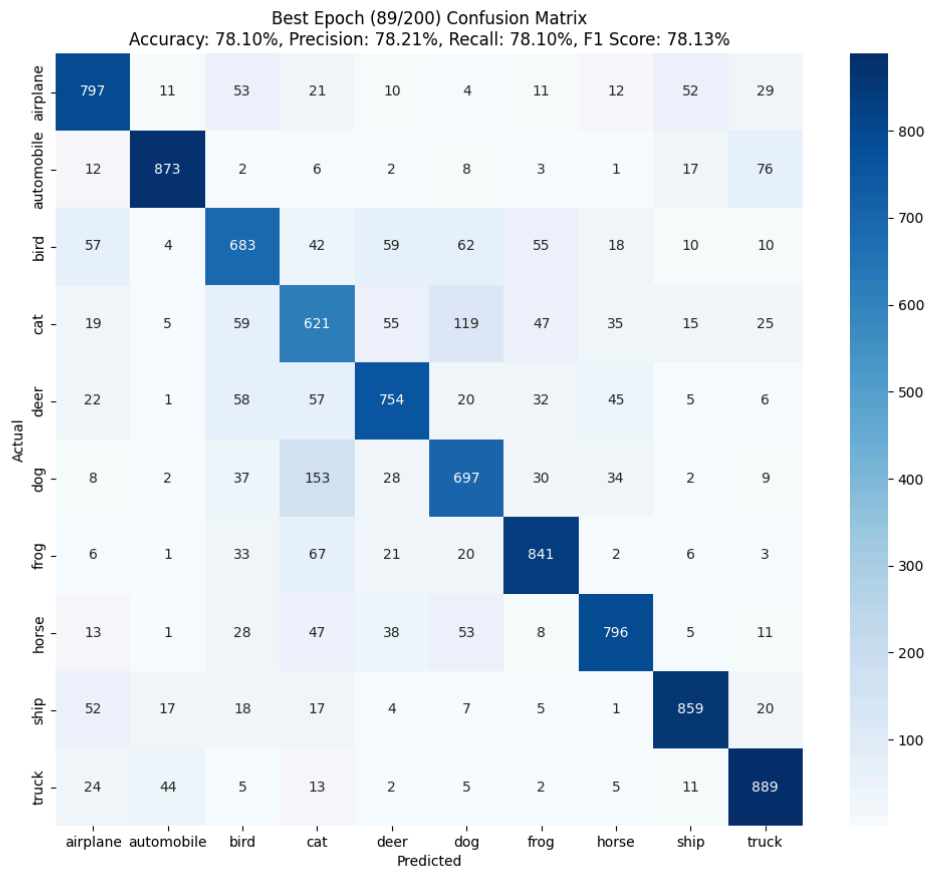
- **Knowledge sonrasi student (teacher: ResNet 18, student: ResNet 18) T=2.5, loss=0.5, 0.5:**



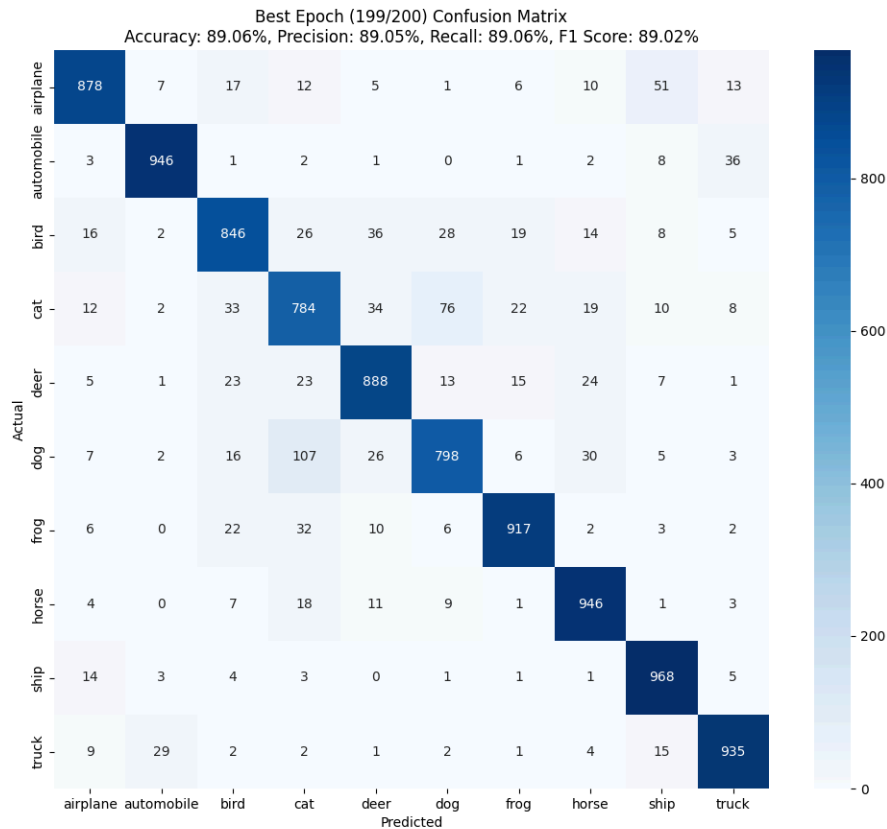
- **Knowledge sonrasi student (teacher: ResNet 18, student: ResNet 18) T=3, loss=0.5, 0.5:**



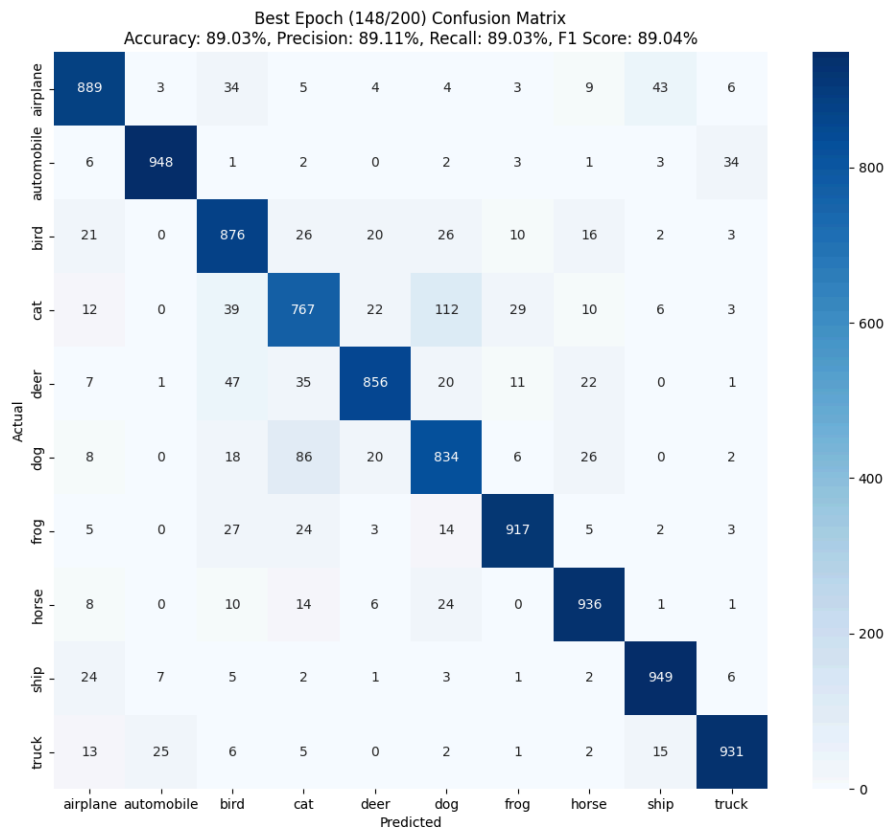
- **Light ResNet 18:**



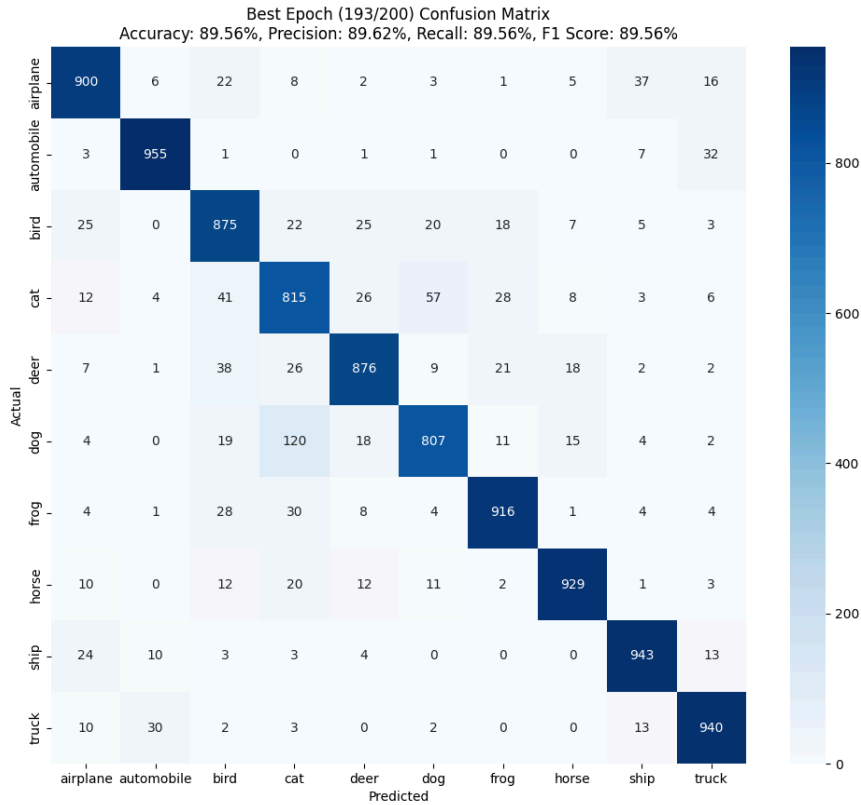
- **Knowledge sonrasi student (teacher: ResNet 18, student: Light ResNet 18) T=1.5, loss=0.5, 0.5:**



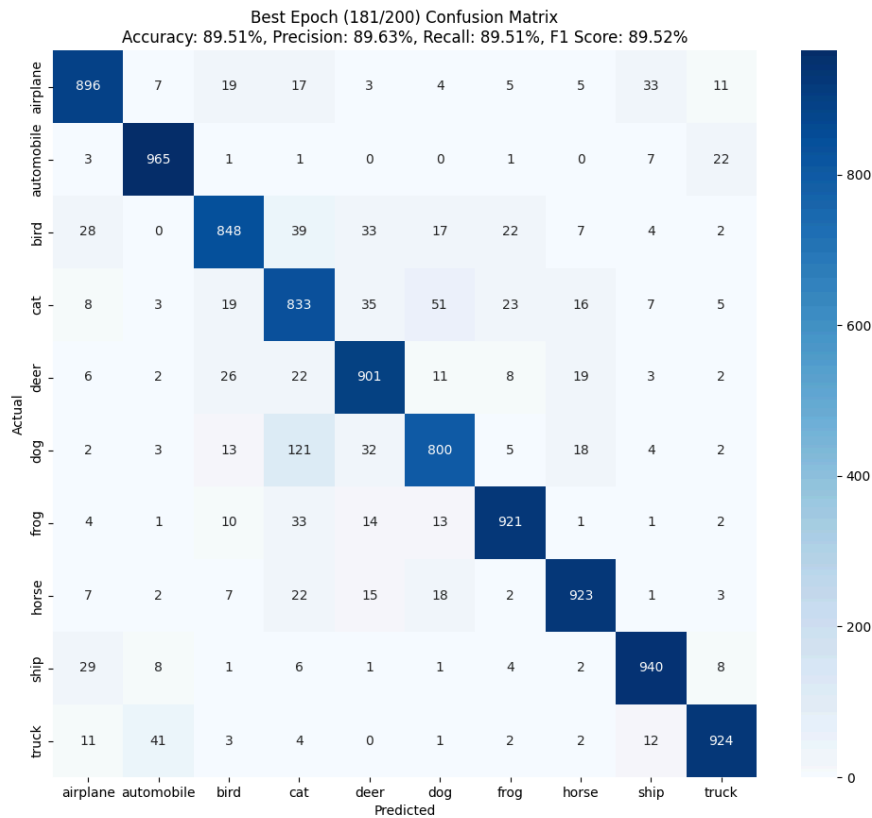
- **Knowledge sonrasi student (teacher: ResNet 18, student: Light ResNet 18) T=2, loss=0.5, 0.5:**



- **Knowledge sonrasi student (teacher: ResNet 18, student: Light ResNet 18) T=2.5, loss=0.5, 0.5:**



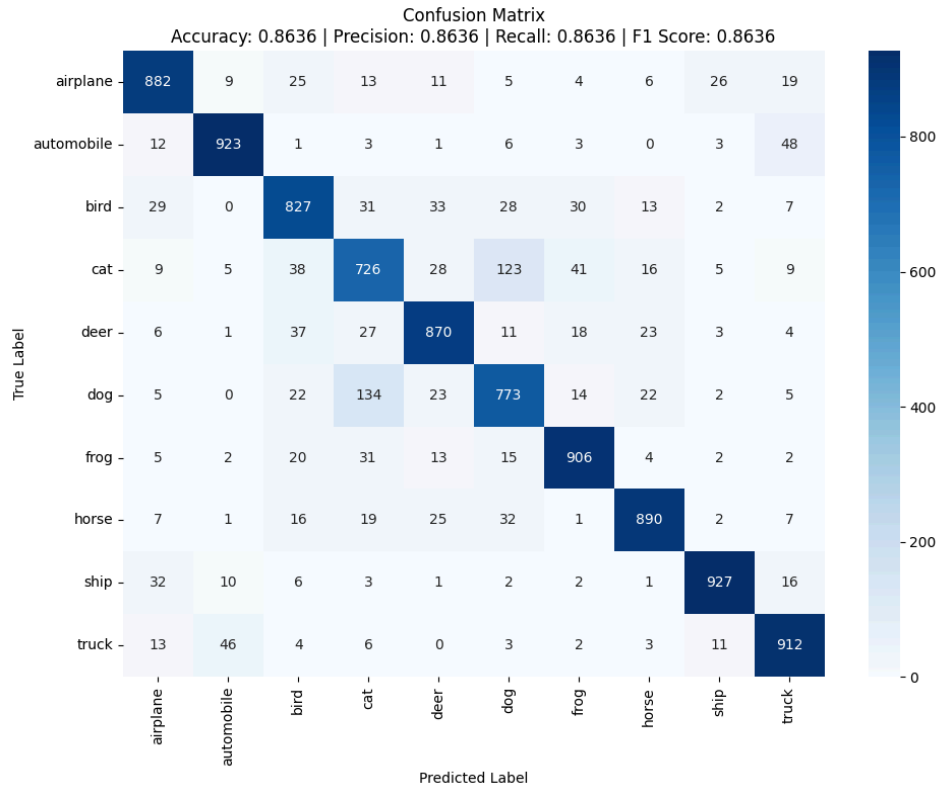
- **Knowledge sonrasi student (teacher: ResNet 18, student: Light ResNet 18) T=3, loss=0.5, 0.5:**



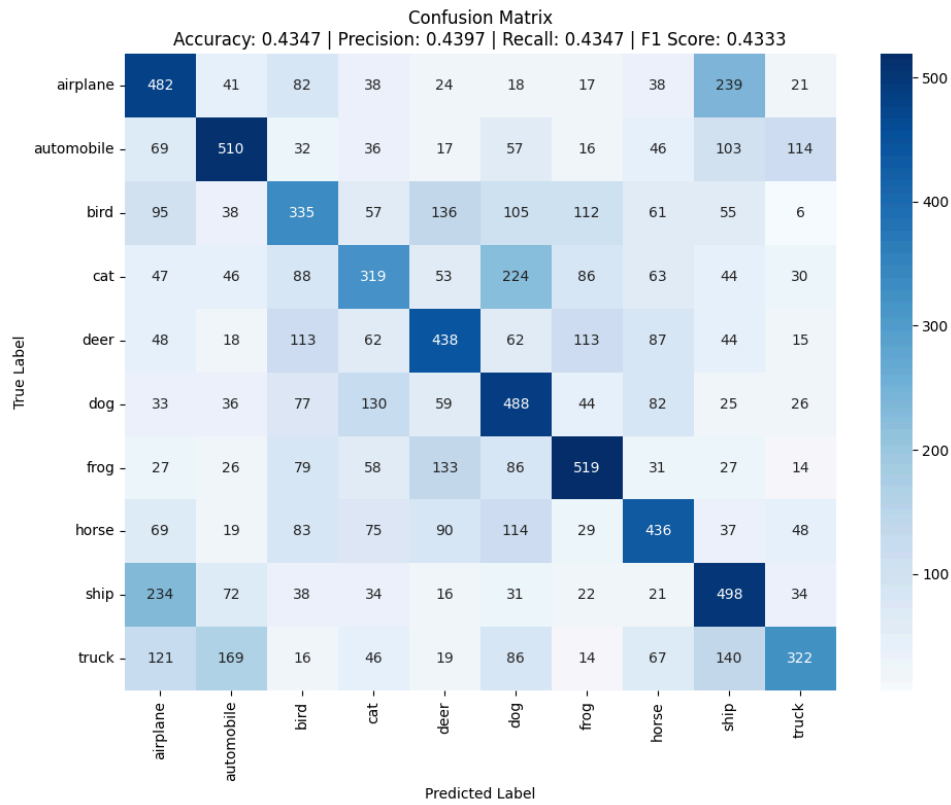
6. Transfer Learning Confusion Matrisler:

Adam, Batch size=128, lr=0.001 için:

- Transfer Learning (2,3,4. katmanlar açık):

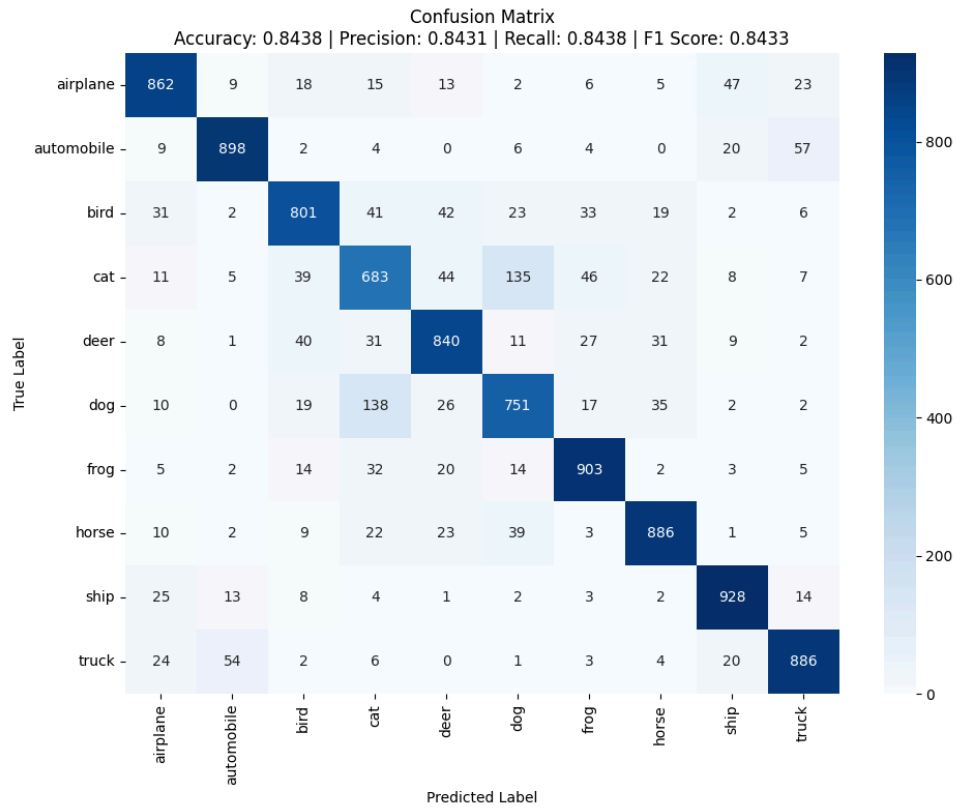


- Transfer Learning (2,3,4. katmanlar kapalı):

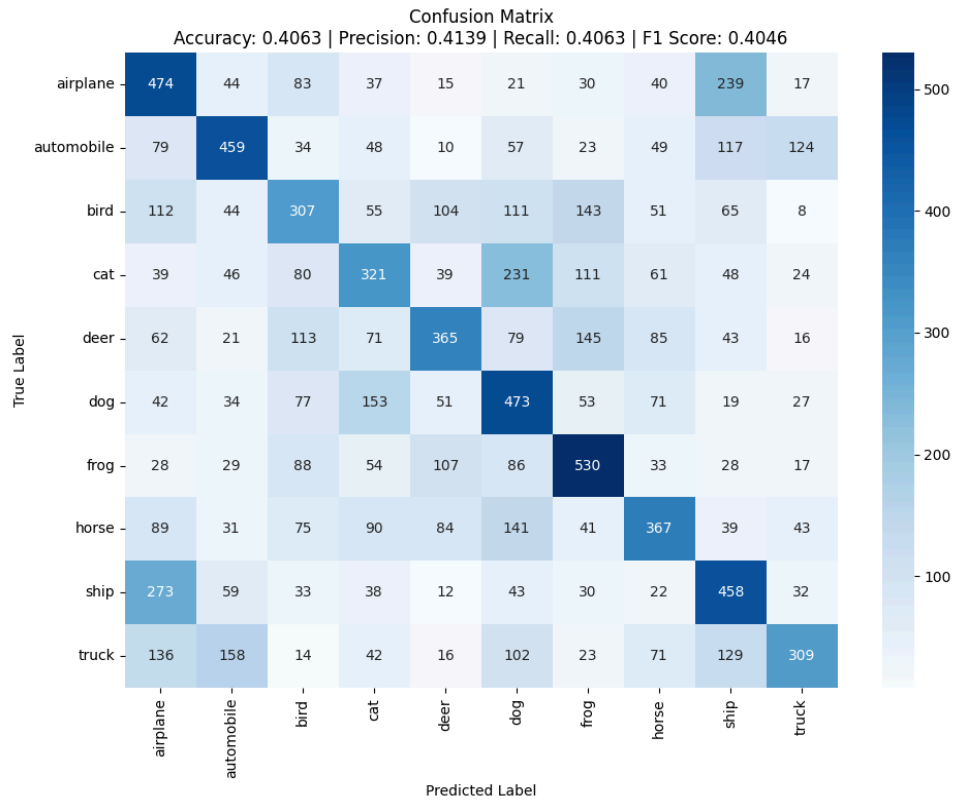


SGD, Batch size=128, lr=0.001 için:

- **Transfer Learning (2,3,4. katmanlar açık):**

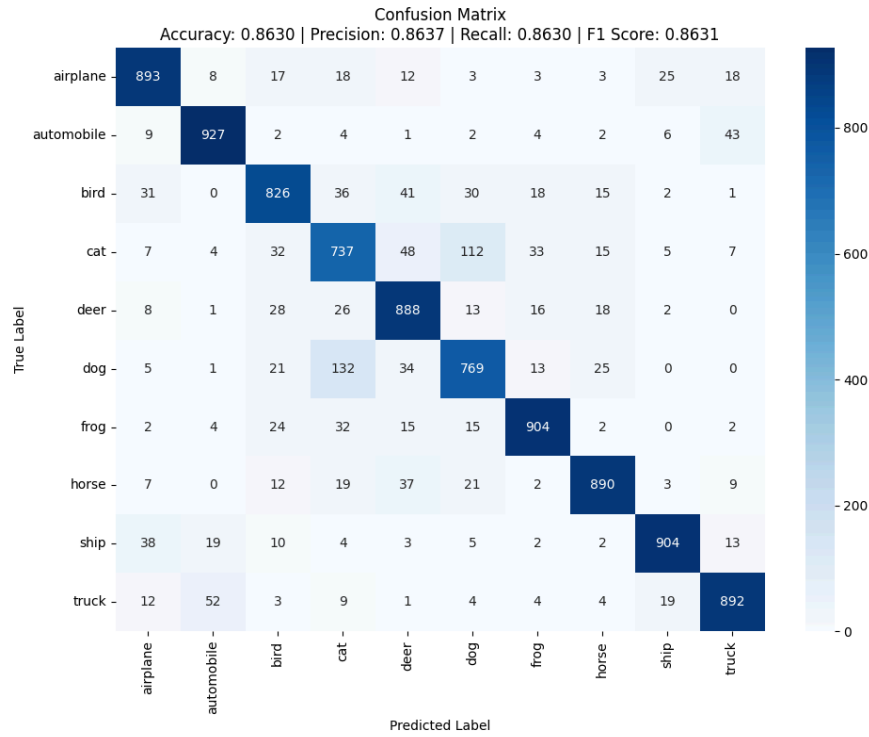


- **Transfer Learning (2,3,4. katmanlar kapalı):**



Adam, Batch size=64, lr=0.001 için:

- **Transfer Learning (2,3,4. katmanlar açık):**



- **Transfer Learning (2,3,4. katmanlar kapalı):**

