Fold 1

_-_-_-_-_-_-_-_-_-_-_-_-_-_-_-_-_-_-_-`

confusion matrix of train data in epoch 1:

	Normal	AbNormal
Normal	43	13
AbNormal	11	295

	Tuberclosis	Cancer
Tuberclosis	41	13
Cancer	195	57

confusion matrix of valid data in epoch 1:

	Normal	AbNormal
Normal	8	0
AbNormal	4	38

	Tuberclosis	Cancer
Tuberclosis	7	0
Cancer	35	0

in model Normal/AbNormal Epoch:1/20 in Fold1: Training Loss:0.367, Valid Loss:0.521   Training Acc 93.37 %, Valid Acc 92.00 %

=======================================

in model TB/Cancer Epoch:1/20 in Fold1: Training Loss:0.803, Valid Loss:0.899   Training Acc 32.03 %, Valid Acc 16.67 %

=======================================

confusion matrix of train data in epoch 2:

	Normal	AbNormal
Normal	51	5
AbNormal	6	300

	Tuberclosis	Cancer
Tuberclosis	54	0
Cancer	249	3

confusion matrix of valid data in epoch 2:

	Normal	AbNormal
Normal	7	1
AbNormal	1	41

	Tuberclosis	Cancer
Tuberclosis	7	0
Cancer	35	0

in model Normal/AbNormal Epoch:2/20 in Fold1: Training Loss:0.115, Valid Loss:0.166   Training Acc 96.96 %, Valid Acc 96.00 %

==

in model TB/Cancer Epoch:2/20 in Fold1: Training Loss:0.187, Valid Loss:0.553   Training Acc 18.63 %, Valid Acc 16.67 %

==

confusion matrix of train data in epoch 3:

	Normal	AbNormal
Normal	56	0
AbNormal	0	306

	Tuberclosis	Cancer
Tuberclosis	54	0
Cancer	239	13

confusion matrix of valid data in epoch 3:

	Normal	AbNormal
Normal	7	1
AbNormal	1	41

	Tuberclosis	Cancer
Tuberclosis	7	0
Cancer	33	2

in model Normal/AbNormal Epoch:3/20 in Fold1: Training Loss:0.045, Valid Loss:0.105   Training Acc 100.00 %, Valid Acc 96.00 %

==

in model TB/Cancer Epoch:3/20 in Fold1: Training Loss:0.118, Valid Loss:0.497   Training Acc 21.90 %, Valid Acc 21.43 %

==

confusion matrix of train data in epoch 4:

	Normal	AbNormal
Normal	56	0
AbNormal	0	306

	Tuberclosis	Cancer

Tuberclosis   54   0

Cancer   171   81

confusion matrix of valid data in epoch 4:

       Normal AbNormal

Normal   6   2

AbNormal   1   41

         Tuberclosis Cancer

Tuberclosis   7   0

Cancer   28   7

in model Normal/AbNormal Epoch:4/20 in Fold1: Training Loss:0.027, Valid Loss:0.113   Training Acc 100.00 %, Valid Acc 94.00 %

=======================================

in model TB/Cancer Epoch:4/20 in Fold1: Training Loss:0.073, Valid Loss:0.412   Training Acc 44.12 %, Valid Acc 33.33 %

=======================================

confusion matrix of train data in epoch 5:

       Normal AbNormal

Normal   56   0

AbNormal   0   306

         Tuberclosis Cancer

Tuberclosis   54   0

Cancer   83   169

confusion matrix of valid data in epoch 5:

       Normal AbNormal

Normal   7   1

AbNormal   1   41

         Tuberclosis Cancer

Tuberclosis   7   0

Cancer   18   17

in model Normal/AbNormal Epoch:5/20 in Fold1: Training Loss:0.021, Valid Loss:0.091   Training Acc 100.00 %, Valid Acc 96.00 %

=======================================

in model TB/Cancer Epoch:5/20 in Fold1: Training Loss:0.045, Valid Loss:0.369   Training Acc 72.88 %, Valid Acc 57.14 %

==

confusion matrix of train data in epoch 6:

	Normal	AbNormal
Normal	55	1
AbNormal	0	306

	Tuberclosis	Cancer
Tuberclosis	54	0
Cancer	32	220

confusion matrix of valid data in epoch 6:

	Normal	AbNormal
Normal	4	4
AbNormal	0	42

	Tuberclosis	Cancer
Tuberclosis	7	0
Cancer	17	18

in model Normal/AbNormal Epoch:6/20 in Fold1: Training Loss:0.020, Valid Loss:0.204   Training Acc 99.72 %, Valid Acc 92.00 %

==

in model TB/Cancer Epoch:6/20 in Fold1: Training Loss:0.032, Valid Loss:0.445   Training Acc 89.54 %, Valid Acc 59.52 %

==

confusion matrix of train data in epoch 7:

	Normal	AbNormal
Normal	55	1
AbNormal	1	305

	Tuberclosis	Cancer
Tuberclosis	54	0
Cancer	23	229

confusion matrix of valid data in epoch 7:

	Normal	AbNormal
Normal	7	1
AbNormal	2	40

	Tuberclosis	Cancer

Tuberclosis   6   1

Cancer   9   26

in model Normal/AbNormal Epoch:7/20 in Fold1: Training Loss:0.024, Valid Loss:0.109   Training Acc 99.45 %, Valid Acc 94.00 %

==

in model TB/Cancer Epoch:7/20 in Fold1: Training Loss:0.027, Valid Loss:0.388   Training Acc 92.48 %, Valid Acc 76.19 %

==

confusion matrix of train data in epoch 8:

	Normal	AbNormal
Normal	56	0
AbNormal	2	304

	Tuberclosis	Cancer
Tuberclosis	54	0
Cancer	10	242

confusion matrix of valid data in epoch 8:

	Normal	AbNormal
Normal	6	2
AbNormal	1	41

	Tuberclosis	Cancer
Tuberclosis	6	1
Cancer	4	31

in model Normal/AbNormal Epoch:8/20 in Fold1: Training Loss:0.018, Valid Loss:0.090   Training Acc 99.45 %, Valid Acc 94.00 %

==

in model TB/Cancer Epoch:8/20 in Fold1: Training Loss:0.021, Valid Loss:0.439   Training Acc 96.73 %, Valid Acc 88.10 %

==

confusion matrix of train data in epoch 9:

	Normal	AbNormal
Normal	56	0
AbNormal	0	306

	Tuberclosis	Cancer
Tuberclosis	54	0
Cancer	5	247

confusion matrix of valid data in epoch 9:

	Normal	AbNormal
Normal	6	2
AbNormal	1	41

	Tuberclosis	Cancer
Tuberclosis	6	1
Cancer	4	31

in model Normal/AbNormal Epoch:9/20 in Fold1: Training Loss:0.016, Valid Loss:0.115   Training Acc 100.00 %, Valid Acc 94.00 %

======================================

in model TB/Cancer Epoch:9/20 in Fold1: Training Loss:0.019, Valid Loss:0.384   Training Acc 98.37 %, Valid Acc 88.10 %

======================================

confusion matrix of train data in epoch 10:

	Normal	AbNormal
Normal	56	0
AbNormal	0	306

	Tuberclosis	Cancer
Tuberclosis	54	0
Cancer	6	246

confusion matrix of valid data in epoch 10:

	Normal	AbNormal
Normal	6	2
AbNormal	0	42

	Tuberclosis	Cancer
Tuberclosis	6	1
Cancer	7	28

in model Normal/AbNormal Epoch:10/20 in Fold1: Training Loss:0.011, Valid Loss:0.119   Training Acc 100.00 %, Valid Acc 96.00 %

======================================

in model TB/Cancer Epoch:10/20 in Fold1: Training Loss:0.023, Valid Loss:0.455   Training Acc 98.04 %, Valid Acc 80.95 %

======================================

confusion matrix of train data in epoch 11:

	Normal	AbNormal
Normal	56	0
AbNormal	0	306

	Tuberclosis	Cancer
Tuberclosis	54	0
Cancer	34	218

confusion matrix of valid data in epoch 11:

	Normal	AbNormal
Normal	6	2
AbNormal	1	41

	Tuberclosis	Cancer
Tuberclosis	6	1
Cancer	6	29

in model Normal/AbNormal Epoch:11/20 in Fold1: Training Loss:0.009, Valid Loss:0.095   Training Acc 100.00 %, Valid Acc 94.00 %

======================================

in model TB/Cancer Epoch:11/20 in Fold1: Training Loss:0.034, Valid Loss:0.525   Training Acc 88.89 %, Valid Acc 83.33 %

======================================

confusion matrix of train data in epoch 12:

	Normal	AbNormal
Normal	56	0
AbNormal	0	306

	Tuberclosis	Cancer
Tuberclosis	54	0
Cancer	34	218

confusion matrix of valid data in epoch 12:

	Normal	AbNormal
Normal	4	4
AbNormal	0	42

	Tuberclosis	Cancer
Tuberclosis	6	1

Cancer   9   26

in model Normal/AbNormal Epoch:12/20 in Fold1: Training Loss:0.009, Valid Loss:0.167   Training Acc 100.00 %, Valid Acc 92.00 %

=======================================

in model TB/Cancer Epoch:12/20 in Fold1: Training Loss:0.033, Valid Loss:0.469   Training Acc 88.89 %, Valid Acc 76.19 %

=======================================

confusion matrix of train data in epoch 13:

	Normal	AbNormal
Normal	56	0
AbNormal	0	306

	Tuberclosis	Cancer
Tuberclosis	54	0
Cancer	7	245

confusion matrix of valid data in epoch 13:

	Normal	AbNormal
Normal	7	1
AbNormal	0	42

	Tuberclosis	Cancer
Tuberclosis	5	2
Cancer	4	31

in model Normal/AbNormal Epoch:13/20 in Fold1: Training Loss:0.011, Valid Loss:0.087   Training Acc 100.00 %, Valid Acc 98.00 %

=======================================

in model TB/Cancer Epoch:13/20 in Fold1: Training Loss:0.016, Valid Loss:0.533   Training Acc 97.71 %, Valid Acc 85.71 %

=======================================

confusion matrix of train data in epoch 14:

	Normal	AbNormal
Normal	56	0
AbNormal	0	306

	Tuberclosis	Cancer
Tuberclosis	54	0

Cancer   2   250

confusion matrix of valid data in epoch 14:

      Normal AbNormal

Normal   7   1

AbNormal   0   42

       Tuberclosis Cancer

Tuberclosis   5   2

Cancer   3   32

in model Normal/AbNormal Epoch:14/20 in Fold1: Training Loss:0.009, Valid Loss:0.105   Training Acc 100.00 %, Valid Acc 98.00 %

=======================================

in model TB/Cancer Epoch:14/20 in Fold1: Training Loss:0.009, Valid Loss:0.489   Training Acc 99.35 %, Valid Acc 88.10 %

=======================================

confusion matrix of train data in epoch 15:

      Normal AbNormal

Normal   56   0

AbNormal   0   306

       Tuberclosis Cancer

Tuberclosis   54   0

Cancer   1   251

confusion matrix of valid data in epoch 15:

      Normal AbNormal

Normal   7   1

AbNormal   1   41

       Tuberclosis Cancer

Tuberclosis   5   2

Cancer   2   33

in model Normal/AbNormal Epoch:15/20 in Fold1: Training Loss:0.007, Valid Loss:0.066   Training Acc 100.00 %, Valid Acc 96.00 %

=======================================

in model TB/Cancer Epoch:15/20 in Fold1: Training Loss:0.007, Valid Loss:0.543   Training Acc 99.67 %, Valid Acc 90.48 %

======================================

confusion matrix of train data in epoch 16:

	Normal	AbNormal
Normal	56	0
AbNormal	0	306

	Tuberclosis	Cancer
Tuberclosis	54	0
Cancer	2	250

confusion matrix of valid data in epoch 16:

	Normal	AbNormal
Normal	7	1
AbNormal	0	42

	Tuberclosis	Cancer
Tuberclosis	5	2
Cancer	2	33

in model Normal/AbNormal Epoch:16/20 in Fold1: Training Loss:0.006, Valid Loss:0.101   Training Acc 100.00 %, Valid Acc 98.00 %

======================================

in model TB/Cancer Epoch:16/20 in Fold1: Training Loss:0.007, Valid Loss:0.608   Training Acc 99.35 %, Valid Acc 90.48 %

======================================

confusion matrix of train data in epoch 17:

	Normal	AbNormal
Normal	56	0
AbNormal	0	306

	Tuberclosis	Cancer
Tuberclosis	54	0
Cancer	0	252

confusion matrix of valid data in epoch 17:

	Normal	AbNormal
Normal	7	1
AbNormal	0	42

	Tuberclosis	Cancer

Tuberclosis	5	2
Cancer	3	32

in model Normal/AbNormal Epoch:17/20 in Fold1: Training Loss:0.004, Valid Loss:0.101   Training Acc 100.00 %, Valid Acc 98.00 %

==

in model TB/Cancer Epoch:17/20 in Fold1: Training Loss:0.006, Valid Loss:0.507   Training Acc 100.00 %, Valid Acc 88.10 %

==

confusion matrix of train data in epoch 18:

	Normal	AbNormal
Normal	56	0
AbNormal	0	306

	Tuberclosis	Cancer
Tuberclosis	54	0
Cancer	0	252

confusion matrix of valid data in epoch 18:

	Normal	AbNormal
Normal	7	1
AbNormal	0	42

	Tuberclosis	Cancer
Tuberclosis	5	2
Cancer	3	32

in model Normal/AbNormal Epoch:18/20 in Fold1: Training Loss:0.003, Valid Loss:0.089   Training Acc 100.00 %, Valid Acc 98.00 %

==

in model TB/Cancer Epoch:18/20 in Fold1: Training Loss:0.005, Valid Loss:0.525   Training Acc 100.00 %, Valid Acc 88.10 %

==

confusion matrix of train data in epoch 19:

	Normal	AbNormal
Normal	56	0
AbNormal	0	306

	Tuberclosis	Cancer

Tuberclosis   54   0

Cancer   0   252

confusion matrix of valid data in epoch 19:

        Normal AbNormal

Normal   7   1

AbNormal   0   42

        Tuberclosis Cancer

Tuberclosis   5   2

Cancer   1   34

in model Normal/AbNormal Epoch:19/20 in Fold1: Training Loss:0.003, Valid Loss:0.088   Training Acc 100.00 %, Valid Acc 98.00 %

=======================================

in model TB/Cancer Epoch:19/20 in Fold1: Training Loss:0.005, Valid Loss:0.550   Training Acc 100.00 %, Valid Acc 92.86 %

=======================================

confusion matrix of train data in epoch 20:

        Normal AbNormal

Normal   56   0

AbNormal   0   306

        Tuberclosis Cancer

Tuberclosis   54   0

Cancer   0   252

confusion matrix of valid data in epoch 20:

        Normal AbNormal

Normal   7   1

AbNormal   0   42

        Tuberclosis Cancer

Tuberclosis   5   2

Cancer   1   34

in model Normal/AbNormal Epoch:20/20 in Fold1: Training Loss:0.002, Valid Loss:0.087   Training Acc 100.00 %, Valid Acc 98.00 %

=======================================

in model TB/Cancer Epoch:20/20 in Fold1: Training Loss:0.004, Valid Loss:0.566   Training Acc 100.00 %, Valid Acc 92.86 %

=======================================

best accuracy of valid dataset in fold 1 is 95.43 % in epoch: 19

* * * * * * * * * *
 _ _ _ _ _ _ _ _ _ _

	Normal	AbNormal
Normal	16	1
AbNormal	3	83

	Tuberclosis	Cancer
Tuberclosis	11	4
Cancer	5	66

in Fold1: Test correct1: 99, Test correct2: 77

in Fold1: Test acc1:96.117 %, Test loss1 0.06, Test acc2:89.535 %, Test loss2 0.62

Fold 2

_·_·_·_·_·_·_·_·_·_·_·_·_·_·_·_·

confusion matrix of train data in epoch 1:

	Normal	AbNormal
Normal	39	18
AbNormal	11	294

	Tuberclosis	Cancer
Tuberclosis	41	12
Cancer	198	54

confusion matrix of valid data in epoch 1:

	Normal	AbNormal
Normal	8	0
AbNormal	6	36

	Tuberclosis	Cancer
Tuberclosis	7	0
Cancer	35	0

in model Normal/AbNormal Epoch:1/20 in Fold2: Training Loss:0.374, Valid Loss:0.557   Training Acc 91.99 %, Valid Acc 88.00 %

=======================================

in model TB/Cancer Epoch:1/20 in Fold2: Training Loss:0.805, Valid Loss:0.932   Training Acc 31.15 %, Valid Acc 16.67 %

=======================================

confusion matrix of train data in epoch 2:

        Normal AbNormal

Normal   56   1

AbNormal   4   301

          Tuberclosis Cancer

Tuberclosis   53   0

Cancer   252   0

confusion matrix of valid data in epoch 2:

        Normal AbNormal

Normal   7   1

AbNormal   0   42

          Tuberclosis Cancer

Tuberclosis   7   0

Cancer   35   0

in model Normal/AbNormal Epoch:2/20 in Fold2: Training Loss:0.108, Valid Loss:0.133   Training Acc 98.62 %, Valid Acc 98.00 %

=======================================

in model TB/Cancer Epoch:2/20 in Fold2: Training Loss:0.197, Valid Loss:0.615   Training Acc 17.38 %, Valid Acc 16.67 %

=======================================

confusion matrix of train data in epoch 3:

        Normal AbNormal

Normal   57   0

AbNormal   0   305

          Tuberclosis Cancer

Tuberclosis   53   0

Cancer   243   9

confusion matrix of valid data in epoch 3:

        Normal AbNormal

Normal   6   2

AbNormal   0   42

          Tuberclosis Cancer

Tuberclosis   7   0

Cancer   34   1

in model Normal/AbNormal Epoch:3/20 in Fold2: Training Loss:0.046, Valid Loss:0.079   Training Acc 100.00 %, Valid Acc 96.00 %

=======================================
in model TB/Cancer Epoch:3/20 in Fold2: Training Loss:0.130, Valid Loss:0.603   Training Acc 20.33 %, Valid Acc 19.05 %

=======================================
confusion matrix of train data in epoch 4:

	Normal	AbNormal
Normal	57	0
AbNormal	1	304

	Tuberclosis	Cancer
Tuberclosis	53	0
Cancer	191	61

confusion matrix of valid data in epoch 4:

	Normal	AbNormal
Normal	6	2
AbNormal	0	42

	Tuberclosis	Cancer
Tuberclosis	7	0
Cancer	28	7

in model Normal/AbNormal Epoch:4/20 in Fold2: Training Loss:0.029, Valid Loss:0.082   Training Acc 99.72 %, Valid Acc 96.00 %

=======================================
in model TB/Cancer Epoch:4/20 in Fold2: Training Loss:0.083, Valid Loss:0.553   Training Acc 37.38 %, Valid Acc 33.33 %

=======================================
confusion matrix of train data in epoch 5:

	Normal	AbNormal
Normal	56	1
AbNormal	0	305

	Tuberclosis	Cancer
Tuberclosis	53	0
Cancer	106	146

confusion matrix of valid data in epoch 5:

	Normal	AbNormal
Normal	6	2
AbNormal	0	42

	Tuberclosis	Cancer
Tuberclosis	7	0
Cancer	14	21

in model Normal/AbNormal Epoch:5/20 in Fold2: Training Loss:0.025, Valid Loss:0.091   Training Acc 99.72 %, Valid Acc 96.00 %

======================================

in model TB/Cancer Epoch:5/20 in Fold2: Training Loss:0.051, Valid Loss:0.482   Training Acc 65.25 %, Valid Acc 66.67 %

======================================

confusion matrix of train data in epoch 6:

	Normal	AbNormal
Normal	56	1
AbNormal	0	305

	Tuberclosis	Cancer
Tuberclosis	53	0
Cancer	58	194

confusion matrix of valid data in epoch 6:

	Normal	AbNormal
Normal	7	1
AbNormal	0	42

	Tuberclosis	Cancer
Tuberclosis	7	0
Cancer	10	25

in model Normal/AbNormal Epoch:6/20 in Fold2: Training Loss:0.029, Valid Loss:0.057   Training Acc 99.72 %, Valid Acc 98.00 %

======================================

in model TB/Cancer Epoch:6/20 in Fold2: Training Loss:0.037, Valid Loss:0.445   Training Acc 80.98 %, Valid Acc 76.19 %

======================================

confusion matrix of train data in epoch 7:

	Normal	AbNormal

	Normal	AbNormal
Normal	57	0
AbNormal	2	303

	Tuberclosis	Cancer
Tuberclosis	53	0
Cancer	26	226

confusion matrix of valid data in epoch 7:

	Normal	AbNormal
Normal	5	3
AbNormal	0	42

	Tuberclosis	Cancer
Tuberclosis	5	2
Cancer	4	31

in model Normal/AbNormal Epoch:7/20 in Fold2: Training Loss:0.018, Valid Loss:0.111   Training Acc 99.45 %, Valid Acc 94.00 %

======================================

in model TB/Cancer Epoch:7/20 in Fold2: Training Loss:0.031, Valid Loss:0.510   Training Acc 91.48 %, Valid Acc 85.71 %

======================================

confusion matrix of train data in epoch 8:

	Normal	AbNormal
Normal	57	0
AbNormal	0	305

	Tuberclosis	Cancer
Tuberclosis	53	0
Cancer	23	229

confusion matrix of valid data in epoch 8:

	Normal	AbNormal
Normal	6	2
AbNormal	0	42

	Tuberclosis	Cancer
Tuberclosis	6	1
Cancer	6	29

in model Normal/AbNormal Epoch:8/20 in Fold2: Training Loss:0.012, Valid Loss:0.112   Training Acc 100.00 %, Valid Acc 96.00 %

=====================================

in model TB/Cancer Epoch:8/20 in Fold2: Training Loss:0.037, Valid Loss:0.414   Training Acc 92.46 %, Valid Acc 83.33 %

=====================================

confusion matrix of train data in epoch 9:

	Normal	AbNormal
Normal	57	0
AbNormal	0	305

	Tuberclosis	Cancer
Tuberclosis	53	0
Cancer	38	214

confusion matrix of valid data in epoch 9:

	Normal	AbNormal
Normal	7	1
AbNormal	0	42

	Tuberclosis	Cancer
Tuberclosis	6	1
Cancer	2	33

in model Normal/AbNormal Epoch:9/20 in Fold2: Training Loss:0.009, Valid Loss:0.078   Training Acc 100.00 %, Valid Acc 98.00 %

=====================================

in model TB/Cancer Epoch:9/20 in Fold2: Training Loss:0.043, Valid Loss:0.467   Training Acc 87.54 %, Valid Acc 92.86 %

=====================================

confusion matrix of train data in epoch 10:

	Normal	AbNormal
Normal	57	0
AbNormal	0	305

	Tuberclosis	Cancer
Tuberclosis	53	0
Cancer	18	234

confusion matrix of valid data in epoch 10:

	Normal	AbNormal
Normal	6	2
AbNormal	0	42

	Tuberclosis	Cancer
Tuberclosis	7	0
Cancer	3	32

in model Normal/AbNormal Epoch:10/20 in Fold2: Training Loss:0.009, Valid Loss:0.103   Training Acc 100.00 %, Valid Acc 96.00 %

=====================================

in model TB/Cancer Epoch:10/20 in Fold2: Training Loss:0.025, Valid Loss:0.288   Training Acc 94.10 %, Valid Acc 92.86 %

=====================================

confusion matrix of train data in epoch 11:

	Normal	AbNormal
Normal	57	0
AbNormal	0	305

	Tuberclosis	Cancer
Tuberclosis	53	0
Cancer	7	245

confusion matrix of valid data in epoch 11:

	Normal	AbNormal
Normal	7	1
AbNormal	0	42

	Tuberclosis	Cancer
Tuberclosis	6	1
Cancer	4	31

in model Normal/AbNormal Epoch:11/20 in Fold2: Training Loss:0.007, Valid Loss:0.097   Training Acc 100.00 %, Valid Acc 98.00 %

=====================================

in model TB/Cancer Epoch:11/20 in Fold2: Training Loss:0.016, Valid Loss:0.367   Training Acc 97.70 %, Valid Acc 88.10 %

=====================================

confusion matrix of train data in epoch 12:

	Normal	AbNormal
Normal	57	0
AbNormal	0	305

	Tuberclosis	Cancer
Tuberclosis	53	0
Cancer	0	252

confusion matrix of valid data in epoch 12:

	Normal	AbNormal
Normal	6	2
AbNormal	0	42

	Tuberclosis	Cancer
Tuberclosis	7	0
Cancer	3	32

in model Normal/AbNormal Epoch:12/20 in Fold2: Training Loss:0.005, Valid Loss:0.097   Training Acc 100.00 %, Valid Acc 96.00 %

======================================

in model TB/Cancer Epoch:12/20 in Fold2: Training Loss:0.011, Valid Loss:0.334   Training Acc 100.00 %, Valid Acc 92.86 %

======================================

confusion matrix of train data in epoch 13:

	Normal	AbNormal
Normal	57	0
AbNormal	0	305

	Tuberclosis	Cancer
Tuberclosis	53	0
Cancer	0	252

confusion matrix of valid data in epoch 13:

	Normal	AbNormal
Normal	7	1
AbNormal	0	42

	Tuberclosis	Cancer
Tuberclosis	6	1
Cancer	0	35

in model Normal/AbNormal Epoch:13/20 in Fold2: Training Loss:0.004, Valid Loss:0.096   Training Acc 100.00 %, Valid Acc 98.00 %

=======================================

in model TB/Cancer Epoch:13/20 in Fold2: Training Loss:0.009, Valid Loss:0.416   Training Acc 100.00 %, Valid Acc 97.62 %

=======================================

confusion matrix of train data in epoch 14:

	Normal	AbNormal
Normal	57	0
AbNormal	0	305

	Tuberclosis	Cancer
Tuberclosis	53	0
Cancer	0	252

confusion matrix of valid data in epoch 14:

	Normal	AbNormal
Normal	6	2
AbNormal	0	42

	Tuberclosis	Cancer
Tuberclosis	6	1
Cancer	0	35

in model Normal/AbNormal Epoch:14/20 in Fold2: Training Loss:0.004, Valid Loss:0.098   Training Acc 100.00 %, Valid Acc 96.00 %

=======================================

in model TB/Cancer Epoch:14/20 in Fold2: Training Loss:0.008, Valid Loss:0.459   Training Acc 100.00 %, Valid Acc 97.62 %

=======================================

confusion matrix of train data in epoch 15:

	Normal	AbNormal
Normal	57	0
AbNormal	0	305

	Tuberclosis	Cancer
Tuberclosis	53	0
Cancer	0	252

confusion matrix of valid data in epoch 15:

	Normal	AbNormal
Normal	6	2
AbNormal	0	42

	Tuberclosis	Cancer
Tuberclosis	5	2
Cancer	0	35

in model Normal/AbNormal Epoch:15/20 in Fold2: Training Loss:0.003, Valid Loss:0.097   Training Acc 100.00 %, Valid Acc 96.00 %

=======================================

in model TB/Cancer Epoch:15/20 in Fold2: Training Loss:0.007, Valid Loss:0.495   Training Acc 100.00 %, Valid Acc 95.24 %

=======================================

confusion matrix of train data in epoch 16:

	Normal	AbNormal
Normal	57	0
AbNormal	0	305

	Tuberclosis	Cancer
Tuberclosis	53	0
Cancer	0	252

confusion matrix of valid data in epoch 16:

	Normal	AbNormal
Normal	6	2
AbNormal	0	42

	Tuberclosis	Cancer
Tuberclosis	5	2
Cancer	0	35

in model Normal/AbNormal Epoch:16/20 in Fold2: Training Loss:0.003, Valid Loss:0.098   Training Acc 100.00 %, Valid Acc 96.00 %

=======================================

in model TB/Cancer Epoch:16/20 in Fold2: Training Loss:0.006, Valid Loss:0.518   Training Acc 100.00 %, Valid Acc 95.24 %

=======================================

confusion matrix of train data in epoch 17:

	Normal	AbNormal
Normal	57	0
AbNormal	0	305

	Tuberclosis	Cancer
Tuberclosis	53	0
Cancer	0	252

confusion matrix of valid data in epoch 17:

	Normal	AbNormal
Normal	6	2
AbNormal	0	42

	Tuberclosis	Cancer
Tuberclosis	5	2
Cancer	0	35

in model Normal/AbNormal Epoch:17/20 in Fold2: Training Loss:0.003, Valid Loss:0.098   Training Acc 100.00 %, Valid Acc 96.00 %

=====================================

in model TB/Cancer Epoch:17/20 in Fold2: Training Loss:0.006, Valid Loss:0.549   Training Acc 100.00 %, Valid Acc 95.24 %

=====================================

confusion matrix of train data in epoch 18:

	Normal	AbNormal
Normal	57	0
AbNormal	0	305

	Tuberclosis	Cancer
Tuberclosis	53	0
Cancer	0	252

confusion matrix of valid data in epoch 18:

	Normal	AbNormal
Normal	6	2
AbNormal	0	42

	Tuberclosis	Cancer
Tuberclosis	5	2

Cancer   0   35

in model Normal/AbNormal Epoch:18/20 in Fold2: Training Loss:0.003, Valid Loss:0.098   Training Acc 100.00 %, Valid Acc 96.00 %

=======================================

in model TB/Cancer Epoch:18/20 in Fold2: Training Loss:0.005, Valid Loss:0.571   Training Acc 100.00 %, Valid Acc 95.24 %

=======================================

confusion matrix of train data in epoch 19:

	Normal	AbNormal
Normal	57	0
AbNormal	0	305

	Tuberclosis	Cancer
Tuberclosis	53	0
Cancer	0	252

confusion matrix of valid data in epoch 19:

	Normal	AbNormal
Normal	6	2
AbNormal	0	42

	Tuberclosis	Cancer
Tuberclosis	5	2
Cancer	0	35

in model Normal/AbNormal Epoch:19/20 in Fold2: Training Loss:0.002, Valid Loss:0.099   Training Acc 100.00 %, Valid Acc 96.00 %

=======================================

in model TB/Cancer Epoch:19/20 in Fold2: Training Loss:0.005, Valid Loss:0.597   Training Acc 100.00 %, Valid Acc 95.24 %

=======================================

confusion matrix of train data in epoch 20:

	Normal	AbNormal
Normal	57	0
AbNormal	0	305

	Tuberclosis	Cancer
Tuberclosis	53	0

Cancer   0   252

confusion matrix of valid data in epoch 20:

        Normal AbNormal

Normal   6   2

AbNormal   0   42

          Tuberclosis Cancer

Tuberclosis   5   2

Cancer   0   35

in model Normal/AbNormal Epoch:20/20 in Fold2: Training Loss:0.002, Valid Loss:0.099   Training Acc 100.00 %, Valid Acc 96.00 %

=======================================

in model TB/Cancer Epoch:20/20 in Fold2: Training Loss:0.004, Valid Loss:0.617   Training Acc 100.00 %, Valid Acc 95.24 %

=======================================

best accuracy of valid dataset in fold 2 is 97.81 % in epoch: 13

* * * * * * * * * *
_ _ _ _ _ _ _ _ _ _

        Normal AbNormal

Normal   15   1

AbNormal   3   84

          Tuberclosis Cancer

Tuberclosis   14   2

Cancer   3   68

in Fold2: Test correct1: 99, Test correct2: 82

in Fold2: Test acc1:96.117 %, Test loss1 0.12, Test acc2:94.253 %, Test loss2 0.32

Fold 3

_._._._._._._._._._._._._._._._._._._.

confusion matrix of train data in epoch 1:

        Normal AbNormal

Normal   40   17

AbNormal   13   292

          Tuberclosis Cancer

Tuberclosis   39   15

Cancer   196   55

confusion matrix of valid data in epoch 1:

	Normal	AbNormal
Normal	8	0
AbNormal	11	31

	Tuberclosis	Cancer
Tuberclosis	7	0
Cancer	35	0

in model Normal/AbNormal Epoch:1/20 in Fold3: Training Loss:0.376, Valid Loss:0.590   Training Acc 91.71 %, Valid Acc 78.00 %

======================================

in model TB/Cancer Epoch:1/20 in Fold3: Training Loss:0.852, Valid Loss:0.913   Training Acc 30.82 %, Valid Acc 16.67 %

======================================

confusion matrix of train data in epoch 2:

	Normal	AbNormal
Normal	54	3
AbNormal	3	302

	Tuberclosis	Cancer
Tuberclosis	54	0
Cancer	251	0

confusion matrix of valid data in epoch 2:

	Normal	AbNormal
Normal	8	0
AbNormal	4	38

	Tuberclosis	Cancer
Tuberclosis	7	0
Cancer	35	0

in model Normal/AbNormal Epoch:2/20 in Fold3: Training Loss:0.109, Valid Loss:0.210   Training Acc 98.34 %, Valid Acc 92.00 %

======================================

in model TB/Cancer Epoch:2/20 in Fold3: Training Loss:0.209, Valid Loss:0.617   Training Acc 17.70 %, Valid Acc 16.67 %

======================================

confusion matrix of train data in epoch 3:

	Normal	AbNormal
Normal	57	0
AbNormal	0	305

	Tuberclosis	Cancer
Tuberclosis	54	0
Cancer	250	1

confusion matrix of valid data in epoch 3:

	Normal	AbNormal
Normal	7	1
AbNormal	3	39

	Tuberclosis	Cancer
Tuberclosis	7	0
Cancer	34	1

in model Normal/AbNormal Epoch:3/20 in Fold3: Training Loss:0.042, Valid Loss:0.180   Training Acc 100.00 %, Valid Acc 92.00 %

======================================

in model TB/Cancer Epoch:3/20 in Fold3: Training Loss:0.134, Valid Loss:0.546   Training Acc 18.03 %, Valid Acc 19.05 %

======================================

confusion matrix of train data in epoch 4:

	Normal	AbNormal
Normal	56	1
AbNormal	0	305

	Tuberclosis	Cancer
Tuberclosis	54	0
Cancer	206	45

confusion matrix of valid data in epoch 4:

	Normal	AbNormal
Normal	7	1
AbNormal	2	40

	Tuberclosis	Cancer
Tuberclosis	7	0
Cancer	27	8

in model Normal/AbNormal Epoch:4/20 in Fold3: Training Loss:0.029, Valid Loss:0.161   Training Acc 99.72 %, Valid Acc 94.00 %

==

in model TB/Cancer Epoch:4/20 in Fold3: Training Loss:0.085, Valid Loss:0.502   Training Acc 32.46 %, Valid Acc 35.71 %

==

confusion matrix of train data in epoch 5:

	Normal	AbNormal
Normal	56	1
AbNormal	0	305

	Tuberclosis	Cancer
Tuberclosis	54	0
Cancer	130	121

confusion matrix of valid data in epoch 5:

	Normal	AbNormal
Normal	7	1
AbNormal	4	38

	Tuberclosis	Cancer
Tuberclosis	6	1
Cancer	20	15

in model Normal/AbNormal Epoch:5/20 in Fold3: Training Loss:0.021, Valid Loss:0.218   Training Acc 99.72 %, Valid Acc 90.00 %

==

in model TB/Cancer Epoch:5/20 in Fold3: Training Loss:0.059, Valid Loss:0.500   Training Acc 57.38 %, Valid Acc 50.00 %

==

confusion matrix of train data in epoch 6:

	Normal	AbNormal
Normal	57	0
AbNormal	0	305

	Tuberclosis	Cancer
Tuberclosis	54	0
Cancer	63	188

confusion matrix of valid data in epoch 6:

	Normal	AbNormal

	Normal	AbNormal
Normal	7	1
AbNormal	3	39

	Tuberclosis	Cancer
Tuberclosis	6	1
Cancer	9	26

in model Normal/AbNormal Epoch:6/20 in Fold3: Training Loss:0.015, Valid Loss:0.187   Training Acc 100.00 %, Valid Acc 92.00 %

=====================================

in model TB/Cancer Epoch:6/20 in Fold3: Training Loss:0.039, Valid Loss:0.495   Training Acc 79.34 %, Valid Acc 76.19 %

=====================================

confusion matrix of train data in epoch 7:

	Normal	AbNormal
Normal	57	0
AbNormal	1	304

	Tuberclosis	Cancer
Tuberclosis	54	0
Cancer	21	230

confusion matrix of valid data in epoch 7:

	Normal	AbNormal
Normal	8	0
AbNormal	3	39

	Tuberclosis	Cancer
Tuberclosis	6	1
Cancer	7	28

in model Normal/AbNormal Epoch:7/20 in Fold3: Training Loss:0.013, Valid Loss:0.168   Training Acc 99.72 %, Valid Acc 94.00 %

=====================================

in model TB/Cancer Epoch:7/20 in Fold3: Training Loss:0.026, Valid Loss:0.535   Training Acc 93.11 %, Valid Acc 80.95 %

=====================================

confusion matrix of train data in epoch 8:

	Normal	AbNormal
Normal	57	0

AbNormal   0   305

       Tuberclosis Cancer

Tuberclosis   54   0

Cancer   13   238

confusion matrix of valid data in epoch 8:

      Normal AbNormal

Normal   8   0

AbNormal   3   39

       Tuberclosis Cancer

Tuberclosis   6   1

Cancer   6   29

in model Normal/AbNormal Epoch:8/20 in Fold3: Training Loss:0.013, Valid Loss:0.181   Training Acc 100.00 %, Valid Acc 94.00 %

=======================================

in model TB/Cancer Epoch:8/20 in Fold3: Training Loss:0.022, Valid Loss:0.512   Training Acc 95.74 %, Valid Acc 83.33 %

=======================================

confusion matrix of train data in epoch 9:

      Normal AbNormal

Normal   57   0

AbNormal   0   305

       Tuberclosis Cancer

Tuberclosis   54   0

Cancer   3   248

confusion matrix of valid data in epoch 9:

      Normal AbNormal

Normal   8   0

AbNormal   4   38

       Tuberclosis Cancer

Tuberclosis   6   1

Cancer   4   31

in model Normal/AbNormal Epoch:9/20 in Fold3: Training Loss:0.012, Valid Loss:0.185   Training Acc 100.00 %, Valid Acc 92.00 %

======================================

in model TB/Cancer Epoch:9/20 in Fold3: Training Loss:0.018, Valid Loss:0.516   Training Acc 99.02 %, Valid Acc 88.10 %

======================================

confusion matrix of train data in epoch 10:

	Normal	AbNormal
Normal	57	0
AbNormal	0	305

	Tuberclosis	Cancer
Tuberclosis	54	0
Cancer	3	248

confusion matrix of valid data in epoch 10:

	Normal	AbNormal
Normal	8	0
AbNormal	2	40

	Tuberclosis	Cancer
Tuberclosis	6	1
Cancer	4	31

in model Normal/AbNormal Epoch:10/20 in Fold3: Training Loss:0.008, Valid Loss:0.140   Training Acc 100.00 %, Valid Acc 96.00 %

======================================

in model TB/Cancer Epoch:10/20 in Fold3: Training Loss:0.015, Valid Loss:0.550   Training Acc 99.02 %, Valid Acc 88.10 %

======================================

confusion matrix of train data in epoch 11:

	Normal	AbNormal
Normal	57	0
AbNormal	0	305

	Tuberclosis	Cancer
Tuberclosis	54	0
Cancer	1	250

confusion matrix of valid data in epoch 11:

	Normal	AbNormal
Normal	8	0
AbNormal	2	40

	Tuberclosis	Cancer
Tuberclosis	6	1
Cancer	4	31

in model Normal/AbNormal Epoch:11/20 in Fold3: Training Loss:0.006, Valid Loss:0.139   Training Acc 100.00 %, Valid Acc 96.00 %

=====================================

in model TB/Cancer Epoch:11/20 in Fold3: Training Loss:0.013, Valid Loss:0.529   Training Acc 99.67 %, Valid Acc 88.10 %

=====================================

confusion matrix of train data in epoch 12:

	Normal	AbNormal
Normal	57	0
AbNormal	0	305

	Tuberclosis	Cancer
Tuberclosis	54	0
Cancer	0	251

confusion matrix of valid data in epoch 12:

	Normal	AbNormal
Normal	8	0
AbNormal	3	39

	Tuberclosis	Cancer
Tuberclosis	6	1
Cancer	4	31

in model Normal/AbNormal Epoch:12/20 in Fold3: Training Loss:0.005, Valid Loss:0.154   Training Acc 100.00 %, Valid Acc 94.00 %

=====================================

in model TB/Cancer Epoch:12/20 in Fold3: Training Loss:0.010, Valid Loss:0.555   Training Acc 100.00 %, Valid Acc 88.10 %

=====================================

confusion matrix of train data in epoch 13:

	Normal	AbNormal
Normal	57	0
AbNormal	0	305

	Tuberclosis	Cancer
Tuberclosis	54	0
Cancer	0	251

confusion matrix of valid data in epoch 13:

	Normal	AbNormal
Normal	8	0
AbNormal	3	39

	Tuberclosis	Cancer
Tuberclosis	6	1
Cancer	4	31

in model Normal/AbNormal Epoch:13/20 in Fold3: Training Loss:0.004, Valid Loss:0.161   Training Acc 100.00 %, Valid Acc 94.00 %

=======================================

in model TB/Cancer Epoch:13/20 in Fold3: Training Loss:0.009, Valid Loss:0.602   Training Acc 100.00 %, Valid Acc 88.10 %

=======================================

confusion matrix of train data in epoch 14:

	Normal	AbNormal
Normal	57	0
AbNormal	0	305

	Tuberclosis	Cancer
Tuberclosis	54	0
Cancer	0	251

confusion matrix of valid data in epoch 14:

	Normal	AbNormal
Normal	8	0
AbNormal	3	39

	Tuberclosis	Cancer
Tuberclosis	6	1
Cancer	4	31

in model Normal/AbNormal Epoch:14/20 in Fold3: Training Loss:0.004, Valid Loss:0.170   Training Acc 100.00 %, Valid Acc 94.00 %

==

in model TB/Cancer Epoch:14/20 in Fold3: Training Loss:0.008, Valid Loss:0.625   Training Acc 100.00 %, Valid Acc 88.10 %

==

confusion matrix of train data in epoch 15:

	Normal	AbNormal
Normal	57	0
AbNormal	0	305

	Tuberclosis	Cancer
Tuberclosis	54	0
Cancer	0	251

confusion matrix of valid data in epoch 15:

	Normal	AbNormal
Normal	8	0
AbNormal	3	39

	Tuberclosis	Cancer
Tuberclosis	6	1
Cancer	4	31

in model Normal/AbNormal Epoch:15/20 in Fold3: Training Loss:0.003, Valid Loss:0.176   Training Acc 100.00 %, Valid Acc 94.00 %

==

in model TB/Cancer Epoch:15/20 in Fold3: Training Loss:0.007, Valid Loss:0.657   Training Acc 100.00 %, Valid Acc 88.10 %

==

confusion matrix of train data in epoch 16:

	Normal	AbNormal
Normal	57	0
AbNormal	0	305

	Tuberclosis	Cancer
Tuberclosis	54	0
Cancer	0	251

confusion matrix of valid data in epoch 16:

	Normal	AbNormal
Normal	8	0
AbNormal	3	39

	Tuberclosis	Cancer
Tuberclosis	6	1
Cancer	4	31

in model Normal/AbNormal Epoch:16/20 in Fold3: Training Loss:0.003, Valid Loss:0.181   Training Acc 100.00 %, Valid Acc 94.00 %

=======================================

in model TB/Cancer Epoch:16/20 in Fold3: Training Loss:0.006, Valid Loss:0.687   Training Acc 100.00 %, Valid Acc 88.10 %

=======================================

confusion matrix of train data in epoch 17:

	Normal	AbNormal
Normal	57	0
AbNormal	0	305

	Tuberclosis	Cancer
Tuberclosis	54	0
Cancer	0	251

confusion matrix of valid data in epoch 17:

	Normal	AbNormal
Normal	8	0
AbNormal	3	39

	Tuberclosis	Cancer
Tuberclosis	6	1
Cancer	4	31

in model Normal/AbNormal Epoch:17/20 in Fold3: Training Loss:0.003, Valid Loss:0.185   Training Acc 100.00 %, Valid Acc 94.00 %

=======================================

in model TB/Cancer Epoch:17/20 in Fold3: Training Loss:0.006, Valid Loss:0.714   Training Acc 100.00 %, Valid Acc 88.10 %

=======================================

confusion matrix of train data in epoch 18:

	Normal	AbNormal
Normal	57	0
AbNormal	0	305

	Tuberclosis	Cancer
Tuberclosis	54	0
Cancer	0	251

confusion matrix of valid data in epoch 18:

	Normal	AbNormal
Normal	8	0
AbNormal	3	39

	Tuberclosis	Cancer
Tuberclosis	5	2
Cancer	4	31

in model Normal/AbNormal Epoch:18/20 in Fold3: Training Loss:0.002, Valid Loss:0.189 Training Acc 100.00 %, Valid Acc 94.00 %

=====================================

in model TB/Cancer Epoch:18/20 in Fold3: Training Loss:0.005, Valid Loss:0.743 Training Acc 100.00 %, Valid Acc 85.71 %

=====================================

confusion matrix of train data in epoch 19:

	Normal	AbNormal
Normal	57	0
AbNormal	0	305

	Tuberclosis	Cancer
Tuberclosis	54	0
Cancer	0	251

confusion matrix of valid data in epoch 19:

	Normal	AbNormal
Normal	8	0
AbNormal	3	39

	Tuberclosis	Cancer
Tuberclosis	5	2

Cancer   3   32

in model Normal/AbNormal Epoch:19/20 in Fold3: Training Loss:0.002, Valid Loss:0.192   Training Acc 100.00 %, Valid Acc 94.00 %

======================================

in model TB/Cancer Epoch:19/20 in Fold3: Training Loss:0.005, Valid Loss:0.766   Training Acc 100.00 %, Valid Acc 88.10 %

======================================

confusion matrix of train data in epoch 20:

	Normal	AbNormal
Normal	57	0
AbNormal	0	305

	Tuberclosis	Cancer
Tuberclosis	54	0
Cancer	0	251

confusion matrix of valid data in epoch 20:

	Normal	AbNormal
Normal	8	0
AbNormal	3	39

	Tuberclosis	Cancer
Tuberclosis	5	2
Cancer	3	32

in model Normal/AbNormal Epoch:20/20 in Fold3: Training Loss:0.002, Valid Loss:0.195   Training Acc 100.00 %, Valid Acc 94.00 %

======================================

in model TB/Cancer Epoch:20/20 in Fold3: Training Loss:0.004, Valid Loss:0.796   Training Acc 100.00 %, Valid Acc 88.10 %

======================================

best accuracy of valid dataset in fold 3 is 92.05 % in epoch: 10

* * * * * * * * * *
_ _ _ _ _ _ _ _ _ _

	Normal	AbNormal
Normal	15	1
AbNormal	0	87

	Tuberclosis	Cancer

Tuberclosis   14   1

Cancer   8   64

in Fold3: Test correct1: 102, Test correct2: 78

in Fold3: Test acc1:99.029 %, Test loss1 0.03, Test acc2:89.655 %, Test loss2 0.44

Fold 4

_-_-_-_-_-_-_-_-_-_-_-_-_-_-_-_'

confusion matrix of train data in epoch 1:

        Normal AbNormal

Normal   41   16

AbNormal   12   293

          Tuberclosis Cancer

Tuberclosis   39   15

Cancer   196   55

confusion matrix of valid data in epoch 1:

        Normal AbNormal

Normal   8   0

AbNormal   6   36

          Tuberclosis Cancer

Tuberclosis   7   0

Cancer   35   0

in model Normal/AbNormal Epoch:1/20 in Fold4: Training Loss:0.369, Valid Loss:0.541   Training Acc 92.27 %, Valid Acc 88.00 %

=======================================

in model TB/Cancer Epoch:1/20 in Fold4: Training Loss:0.834, Valid Loss:0.917   Training Acc 30.82 %, Valid Acc 16.67 %

=======================================

confusion matrix of train data in epoch 2:

        Normal AbNormal

Normal   55   2

AbNormal   3   302

          Tuberclosis Cancer

Tuberclosis   54   0

Cancer   251   0

confusion matrix of valid data in epoch 2:

	Normal	AbNormal
Normal	7	1
AbNormal	0	42

	Tuberclosis	Cancer
Tuberclosis	7	0
Cancer	35	0

in model Normal/AbNormal Epoch:2/20 in Fold4: Training Loss:0.100, Valid Loss:0.145   Training Acc 98.62 %, Valid Acc 98.00 %

=======================================

in model TB/Cancer Epoch:2/20 in Fold4: Training Loss:0.215, Valid Loss:0.644   Training Acc 17.70 %, Valid Acc 16.67 %

=======================================

confusion matrix of train data in epoch 3:

	Normal	AbNormal
Normal	57	0
AbNormal	0	305

	Tuberclosis	Cancer
Tuberclosis	54	0
Cancer	249	2

confusion matrix of valid data in epoch 3:

	Normal	AbNormal
Normal	7	1
AbNormal	0	42

	Tuberclosis	Cancer
Tuberclosis	7	0
Cancer	34	1

in model Normal/AbNormal Epoch:3/20 in Fold4: Training Loss:0.040, Valid Loss:0.095   Training Acc 100.00 %, Valid Acc 98.00 %

=======================================

in model TB/Cancer Epoch:3/20 in Fold4: Training Loss:0.142, Valid Loss:0.569   Training Acc 18.36 %, Valid Acc 19.05 %

=======================================

confusion matrix of train data in epoch 4:

	Normal	AbNormal
Normal	57	0
AbNormal	0	305

	Tuberclosis	Cancer
Tuberclosis	54	0
Cancer	216	35

confusion matrix of valid data in epoch 4:

	Normal	AbNormal
Normal	6	2
AbNormal	0	42

	Tuberclosis	Cancer
Tuberclosis	7	0
Cancer	31	4

in model Normal/AbNormal Epoch:4/20 in Fold4: Training Loss:0.024, Valid Loss:0.074   Training Acc 100.00 %, Valid Acc 96.00 %

=======================================

in model TB/Cancer Epoch:4/20 in Fold4: Training Loss:0.094, Valid Loss:0.537   Training Acc 29.18 %, Valid Acc 26.19 %

=======================================

confusion matrix of train data in epoch 5:

	Normal	AbNormal
Normal	57	0
AbNormal	0	305

	Tuberclosis	Cancer
Tuberclosis	54	0
Cancer	123	128

confusion matrix of valid data in epoch 5:

	Normal	AbNormal
Normal	7	1
AbNormal	0	42

	Tuberclosis	Cancer
Tuberclosis	7	0
Cancer	15	20

in model Normal/AbNormal Epoch:5/20 in Fold4: Training Loss:0.020, Valid Loss:0.075   Training Acc 100.00 %, Valid Acc 98.00 %

======================================

in model TB/Cancer Epoch:5/20 in Fold4: Training Loss:0.057, Valid Loss:0.479   Training Acc 59.67 %, Valid Acc 64.29 %

======================================

confusion matrix of train data in epoch 6:

	Normal	AbNormal
Normal	57	0
AbNormal	0	305

	Tuberclosis	Cancer
Tuberclosis	54	0
Cancer	45	206

confusion matrix of valid data in epoch 6:

	Normal	AbNormal
Normal	6	2
AbNormal	0	42

	Tuberclosis	Cancer
Tuberclosis	6	1
Cancer	9	26

in model Normal/AbNormal Epoch:6/20 in Fold4: Training Loss:0.015, Valid Loss:0.073   Training Acc 100.00 %, Valid Acc 96.00 %

======================================

in model TB/Cancer Epoch:6/20 in Fold4: Training Loss:0.037, Valid Loss:0.461   Training Acc 85.25 %, Valid Acc 76.19 %

======================================

confusion matrix of train data in epoch 7:

	Normal	AbNormal
Normal	57	0
AbNormal	0	305

	Tuberclosis	Cancer
Tuberclosis	54	0
Cancer	16	235

confusion matrix of valid data in epoch 7:

	Normal	AbNormal
Normal	6	2
AbNormal	0	42

	Tuberclosis	Cancer
Tuberclosis	6	1
Cancer	6	29

in model Normal/AbNormal Epoch:7/20 in Fold4: Training Loss:0.012, Valid Loss:0.079   Training Acc 100.00 %, Valid Acc 96.00 %

=======================================

in model TB/Cancer Epoch:7/20 in Fold4: Training Loss:0.026, Valid Loss:0.487   Training Acc 94.75 %, Valid Acc 83.33 %

=======================================

confusion matrix of train data in epoch 8:

	Normal	AbNormal
Normal	57	0
AbNormal	0	305

	Tuberclosis	Cancer
Tuberclosis	54	0
Cancer	7	244

confusion matrix of valid data in epoch 8:

	Normal	AbNormal
Normal	6	2
AbNormal	0	42

	Tuberclosis	Cancer
Tuberclosis	6	1
Cancer	4	31

in model Normal/AbNormal Epoch:8/20 in Fold4: Training Loss:0.010, Valid Loss:0.074   Training Acc 100.00 %, Valid Acc 96.00 %

=======================================

in model TB/Cancer Epoch:8/20 in Fold4: Training Loss:0.021, Valid Loss:0.517   Training Acc 97.70 %, Valid Acc 88.10 %

=======================================

confusion matrix of train data in epoch 9:

      Normal AbNormal

Normal   57   0

AbNormal   0   305

      Tuberclosis Cancer

Tuberclosis   54   0

Cancer   1   250

confusion matrix of valid data in epoch 9:

      Normal AbNormal

Normal   7   1

AbNormal   0   42

      Tuberclosis Cancer

Tuberclosis   6   1

Cancer   2   33

in model Normal/AbNormal Epoch:9/20 in Fold4: Training Loss:0.008, Valid Loss:0.061   Training Acc 100.00 %, Valid Acc 98.00 %

==

in model TB/Cancer Epoch:9/20 in Fold4: Training Loss:0.017, Valid Loss:0.563   Training Acc 99.67 %, Valid Acc 92.86 %

==

confusion matrix of train data in epoch 10:

      Normal AbNormal

Normal   57   0

AbNormal   0   305

      Tuberclosis Cancer

Tuberclosis   54   0

Cancer   1   250

confusion matrix of valid data in epoch 10:

      Normal AbNormal

Normal   7   1

AbNormal   0   42

      Tuberclosis Cancer

Tuberclosis   6   1

Cancer   2   33

in model Normal/AbNormal Epoch:10/20 in Fold4: Training Loss:0.007, Valid Loss:0.059   Training Acc 100.00 %, Valid Acc 98.00 %

=======================================

in model TB/Cancer Epoch:10/20 in Fold4: Training Loss:0.014, Valid Loss:0.603   Training Acc 99.67 %, Valid Acc 92.86 %

=======================================

confusion matrix of train data in epoch 11:

	Normal	AbNormal
Normal	57	0
AbNormal	0	305

	Tuberclosis	Cancer
Tuberclosis	54	0
Cancer	0	251

confusion matrix of valid data in epoch 11:

	Normal	AbNormal
Normal	7	1
AbNormal	0	42

	Tuberclosis	Cancer
Tuberclosis	6	1
Cancer	2	33

in model Normal/AbNormal Epoch:11/20 in Fold4: Training Loss:0.005, Valid Loss:0.059   Training Acc 100.00 %, Valid Acc 98.00 %

=======================================

in model TB/Cancer Epoch:11/20 in Fold4: Training Loss:0.012, Valid Loss:0.636   Training Acc 100.00 %, Valid Acc 92.86 %

=======================================

confusion matrix of train data in epoch 12:

	Normal	AbNormal
Normal	57	0
AbNormal	0	305

	Tuberclosis	Cancer
Tuberclosis	54	0

Cancer   0   251

confusion matrix of valid data in epoch 12:

	Normal	AbNormal
Normal	7	1
AbNormal	0	42

	Tuberclosis	Cancer
Tuberclosis	6	1
Cancer	2	33

in model Normal/AbNormal Epoch:12/20 in Fold4: Training Loss:0.004, Valid Loss:0.058   Training Acc 100.00 %, Valid Acc 98.00 %

=======================================

in model TB/Cancer Epoch:12/20 in Fold4: Training Loss:0.010, Valid Loss:0.648   Training Acc 100.00 %, Valid Acc 92.86 %

=======================================

confusion matrix of train data in epoch 13:

	Normal	AbNormal
Normal	57	0
AbNormal	0	305

	Tuberclosis	Cancer
Tuberclosis	54	0
Cancer	0	251

confusion matrix of valid data in epoch 13:

	Normal	AbNormal
Normal	7	1
AbNormal	0	42

	Tuberclosis	Cancer
Tuberclosis	4	3
Cancer	2	33

in model Normal/AbNormal Epoch:13/20 in Fold4: Training Loss:0.004, Valid Loss:0.053   Training Acc 100.00 %, Valid Acc 98.00 %

=======================================

in model TB/Cancer Epoch:13/20 in Fold4: Training Loss:0.009, Valid Loss:0.689   Training Acc 100.00 %, Valid Acc 88.10 %

=======================================

confusion matrix of train data in epoch 14:

	Normal	AbNormal
Normal	57	0
AbNormal	0	305

	Tuberclosis	Cancer
Tuberclosis	54	0
Cancer	0	251

confusion matrix of valid data in epoch 14:

	Normal	AbNormal
Normal	7	1
AbNormal	0	42

	Tuberclosis	Cancer
Tuberclosis	4	3
Cancer	2	33

in model Normal/AbNormal Epoch:14/20 in Fold4: Training Loss:0.003, Valid Loss:0.056   Training Acc 100.00 %, Valid Acc 98.00 %

=======================================

in model TB/Cancer Epoch:14/20 in Fold4: Training Loss:0.008, Valid Loss:0.724   Training Acc 100.00 %, Valid Acc 88.10 %

=======================================

confusion matrix of train data in epoch 15:

	Normal	AbNormal
Normal	57	0
AbNormal	0	305

	Tuberclosis	Cancer
Tuberclosis	54	0
Cancer	0	251

confusion matrix of valid data in epoch 15:

	Normal	AbNormal
Normal	7	1
AbNormal	0	42

	Tuberclosis	Cancer

Tuberclosis   4   3

Cancer   2   33

in model Normal/AbNormal Epoch:15/20 in Fold4: Training Loss:0.003, Valid Loss:0.051   Training Acc 100.00 %, Valid Acc 98.00 %

=======================================
in model TB/Cancer Epoch:15/20 in Fold4: Training Loss:0.007, Valid Loss:0.770   Training Acc 100.00 %, Valid Acc 88.10 %

=======================================
confusion matrix of train data in epoch 16:

	Normal	AbNormal
Normal	57	0
AbNormal	0	305

	Tuberclosis	Cancer
Tuberclosis	54	0
Cancer	0	251

confusion matrix of valid data in epoch 16:

	Normal	AbNormal
Normal	7	1
AbNormal	0	42

	Tuberclosis	Cancer
Tuberclosis	4	3
Cancer	2	33

in model Normal/AbNormal Epoch:16/20 in Fold4: Training Loss:0.003, Valid Loss:0.047   Training Acc 100.00 %, Valid Acc 98.00 %

=======================================
in model TB/Cancer Epoch:16/20 in Fold4: Training Loss:0.006, Valid Loss:0.795   Training Acc 100.00 %, Valid Acc 88.10 %

=======================================
confusion matrix of train data in epoch 17:

	Normal	AbNormal
Normal	57	0
AbNormal	0	305

	Tuberclosis	Cancer

Tuberclosis   54   0

Cancer   0   251

confusion matrix of valid data in epoch 17:

        Normal AbNormal

Normal   7   1

AbNormal   0   42

        Tuberclosis Cancer

Tuberclosis   3   4

Cancer   2   33

in model Normal/AbNormal Epoch:17/20 in Fold4: Training Loss:0.003, Valid Loss:0.050   Training Acc 100.00 %, Valid Acc 98.00 %

=======================================

in model TB/Cancer Epoch:17/20 in Fold4: Training Loss:0.006, Valid Loss:0.834   Training Acc 100.00 %, Valid Acc 85.71 %

=======================================

confusion matrix of train data in epoch 18:

        Normal AbNormal

Normal   57   0

AbNormal   0   305

        Tuberclosis Cancer

Tuberclosis   54   0

Cancer   0   251

confusion matrix of valid data in epoch 18:

        Normal AbNormal

Normal   7   1

AbNormal   0   42

        Tuberclosis Cancer

Tuberclosis   3   4

Cancer   2   33

in model Normal/AbNormal Epoch:18/20 in Fold4: Training Loss:0.002, Valid Loss:0.046   Training Acc 100.00 %, Valid Acc 98.00 %

=======================================

in model TB/Cancer Epoch:18/20 in Fold4: Training Loss:0.005, Valid Loss:0.865   Training Acc 100.00 %, Valid Acc 85.71 %

=======================================

confusion matrix of train data in epoch 19:

	Normal	AbNormal
Normal	57	0
AbNormal	0	305

	Tuberclosis	Cancer
Tuberclosis	54	0
Cancer	0	251

confusion matrix of valid data in epoch 19:

	Normal	AbNormal
Normal	7	1
AbNormal	0	42

	Tuberclosis	Cancer
Tuberclosis	3	4
Cancer	1	34

in model Normal/AbNormal Epoch:19/20 in Fold4: Training Loss:0.002, Valid Loss:0.044   Training Acc 100.00 %, Valid Acc 98.00 %

=======================================

in model TB/Cancer Epoch:19/20 in Fold4: Training Loss:0.005, Valid Loss:0.890   Training Acc 100.00 %, Valid Acc 88.10 %

=======================================

confusion matrix of train data in epoch 20:

	Normal	AbNormal
Normal	57	0
AbNormal	0	305

	Tuberclosis	Cancer
Tuberclosis	54	0
Cancer	0	251

confusion matrix of valid data in epoch 20:

	Normal	AbNormal
Normal	7	1
AbNormal	0	42

	Tuberclosis	Cancer
Tuberclosis	3	4
Cancer	1	34

in model Normal/AbNormal Epoch:20/20 in Fold4: Training Loss:0.002, Valid Loss:0.042   Training Acc 100.00 %, Valid Acc 98.00 %

=======================================

in model TB/Cancer Epoch:20/20 in Fold4: Training Loss:0.004, Valid Loss:0.927   Training Acc 100.00 %, Valid Acc 88.10 %

=======================================

best accuracy of valid dataset in fold 4 is 95.43 % in epoch: 9

* * * * * * * * * *
‾_ _ _ _ _ _ _ _ _ _

	Normal	AbNormal
Normal	16	0
AbNormal	3	84

	Tuberclosis	Cancer
Tuberclosis	14	1
Cancer	6	66

in Fold4: Test correct1: 100, Test correct2: 80

in Fold4: Test acc1:97.087 %, Test loss1 0.07, Test acc2:91.954 %, Test loss2 0.40

Fold 5

_._._._._._._._._._._._._._._._._._.

confusion matrix of train data in epoch 1:

	Normal	AbNormal
Normal	42	15
AbNormal	9	296

	Tuberclosis	Cancer
Tuberclosis	42	12
Cancer	194	57

confusion matrix of valid data in epoch 1:

	Normal	AbNormal
Normal	8	0
AbNormal	7	35

```
         Tuberclosis  Cancer

Tuberclosis        7     0

Cancer            35     0
```

in model Normal/AbNormal Epoch:1/20 in Fold5: Training Loss:0.366, Valid Loss:0.584   Training Acc 93.37 %, Valid Acc 86.00 %

==

in model TB/Cancer Epoch:1/20 in Fold5: Training Loss:0.820, Valid Loss:0.968   Training Acc 32.46 %, Valid Acc 16.67 %

==

confusion matrix of train data in epoch 2:

```
         Normal  AbNormal

Normal     56      1

AbNormal    2     303

         Tuberclosis  Cancer

Tuberclosis       54     0

Cancer           248     3
```

confusion matrix of valid data in epoch 2:

```
         Normal  AbNormal

Normal      8      0

AbNormal     4      38

         Tuberclosis  Cancer

Tuberclosis        7     0

Cancer            35     0
```

in model Normal/AbNormal Epoch:2/20 in Fold5: Training Loss:0.099, Valid Loss:0.231   Training Acc 99.17 %, Valid Acc 92.00 %

==

in model TB/Cancer Epoch:2/20 in Fold5: Training Loss:0.195, Valid Loss:0.675   Training Acc 18.69 %, Valid Acc 16.67 %

==

confusion matrix of train data in epoch 3:

```
         Normal  AbNormal

Normal     57      0

AbNormal     0     305

         Tuberclosis  Cancer

Tuberclosis       54     0
```

Cancer   226   25

confusion matrix of valid data in epoch 3:

          Normal AbNormal

Normal   7   1

AbNormal   4   38

          Tuberclosis Cancer

Tuberclosis   7   0

Cancer   34   1

in model Normal/AbNormal Epoch:3/20 in Fold5: Training Loss:0.037, Valid Loss:0.198   Training Acc 100.00 %, Valid Acc 90.00 %

=====================================

in model TB/Cancer Epoch:3/20 in Fold5: Training Loss:0.129, Valid Loss:0.620   Training Acc 25.90 %, Valid Acc 19.05 %

=====================================

confusion matrix of train data in epoch 4:

          Normal AbNormal

Normal   57   0

AbNormal   0   305

          Tuberclosis Cancer

Tuberclosis   54   0

Cancer   185   66

confusion matrix of valid data in epoch 4:

          Normal AbNormal

Normal   7   1

AbNormal   5   37

          Tuberclosis Cancer

Tuberclosis   7   0

Cancer   29   6

in model Normal/AbNormal Epoch:4/20 in Fold5: Training Loss:0.023, Valid Loss:0.236   Training Acc 100.00 %, Valid Acc 88.00 %

=====================================

in model TB/Cancer Epoch:4/20 in Fold5: Training Loss:0.084, Valid Loss:0.552   Training Acc 39.34 %, Valid Acc 30.95 %

```
=======================================
```

confusion matrix of train data in epoch 5:

	Normal	AbNormal
Normal	57	0
AbNormal	0	305

	Tuberclosis	Cancer
Tuberclosis	54	0
Cancer	104	147

confusion matrix of valid data in epoch 5:

	Normal	AbNormal
Normal	7	1
AbNormal	4	38

	Tuberclosis	Cancer
Tuberclosis	5	2
Cancer	20	15

in model Normal/AbNormal Epoch:5/20 in Fold5: Training Loss:0.018, Valid Loss:0.238   Training Acc 100.00 %, Valid Acc 90.00 %

```
=======================================
```

in model TB/Cancer Epoch:5/20 in Fold5: Training Loss:0.053, Valid Loss:0.519   Training Acc 65.90 %, Valid Acc 47.62 %

```
=======================================
```

confusion matrix of train data in epoch 6:

	Normal	AbNormal
Normal	57	0
AbNormal	0	305

	Tuberclosis	Cancer
Tuberclosis	54	0
Cancer	68	183

confusion matrix of valid data in epoch 6:

	Normal	AbNormal
Normal	7	1
AbNormal	4	38

	Tuberclosis	Cancer

Tuberclosis	5	2
Cancer	13	22

in model Normal/AbNormal Epoch:6/20 in Fold5: Training Loss:0.017, Valid Loss:0.158   Training Acc 100.00 %, Valid Acc 90.00 %

==

in model TB/Cancer Epoch:6/20 in Fold5: Training Loss:0.036, Valid Loss:0.503   Training Acc 77.70 %, Valid Acc 64.29 %

==

confusion matrix of train data in epoch 7:

	Normal	AbNormal
Normal	57	0
AbNormal	1	304

	Tuberclosis	Cancer
Tuberclosis	54	0
Cancer	33	218

confusion matrix of valid data in epoch 7:

	Normal	AbNormal
Normal	7	1
AbNormal	4	38

	Tuberclosis	Cancer
Tuberclosis	5	2
Cancer	11	24

in model Normal/AbNormal Epoch:7/20 in Fold5: Training Loss:0.015, Valid Loss:0.170   Training Acc 99.72 %, Valid Acc 90.00 %

==

in model TB/Cancer Epoch:7/20 in Fold5: Training Loss:0.026, Valid Loss:0.533   Training Acc 89.18 %, Valid Acc 69.05 %

==

confusion matrix of train data in epoch 8:

	Normal	AbNormal
Normal	57	0
AbNormal	0	305

	Tuberclosis	Cancer
Tuberclosis	54	0

Cancer   17   234

confusion matrix of valid data in epoch 8:

         Normal AbNormal

Normal   7   1

AbNormal   4   38

          Tuberclosis Cancer

Tuberclosis   5   2

Cancer   11   24

in model Normal/AbNormal Epoch:8/20 in Fold5: Training Loss:0.013, Valid Loss:0.154   Training Acc 100.00 %, Valid Acc 90.00 %

=====================================

in model TB/Cancer Epoch:8/20 in Fold5: Training Loss:0.023, Valid Loss:0.571   Training Acc 94.43 %, Valid Acc 69.05 %

=====================================

confusion matrix of train data in epoch 9:

         Normal AbNormal

Normal   57   0

AbNormal   0   305

          Tuberclosis Cancer

Tuberclosis   54   0

Cancer   14   237

confusion matrix of valid data in epoch 9:

         Normal AbNormal

Normal   7   1

AbNormal   4   38

          Tuberclosis Cancer

Tuberclosis   5   2

Cancer   4   31

in model Normal/AbNormal Epoch:9/20 in Fold5: Training Loss:0.011, Valid Loss:0.156   Training Acc 100.00 %, Valid Acc 90.00 %

=====================================

in model TB/Cancer Epoch:9/20 in Fold5: Training Loss:0.018, Valid Loss:0.566   Training Acc 95.41 %, Valid Acc 85.71 %

=======================================

confusion matrix of train data in epoch 10:

    Normal AbNormal

Normal   57   0

AbNormal   0   305

    Tuberclosis Cancer

Tuberclosis   54   0

Cancer   7   244

confusion matrix of valid data in epoch 10:

    Normal AbNormal

Normal   7   1

AbNormal   1   41

    Tuberclosis Cancer

Tuberclosis   5   2

Cancer   9   26

in model Normal/AbNormal Epoch:10/20 in Fold5: Training Loss:0.010, Valid Loss:0.142   Training Acc 100.00 %, Valid Acc 96.00 %

=======================================

in model TB/Cancer Epoch:10/20 in Fold5: Training Loss:0.017, Valid Loss:0.615   Training Acc 97.70 %, Valid Acc 73.81 %

=======================================

confusion matrix of train data in epoch 11:

    Normal AbNormal

Normal   57   0

AbNormal   0   305

    Tuberclosis Cancer

Tuberclosis   54   0

Cancer   4   247

confusion matrix of valid data in epoch 11:

    Normal AbNormal

Normal   7   1

AbNormal   2   40

    Tuberclosis Cancer

| Tuberclosis | 5 | 2 |
| Cancer | 2 | 33 |

in model Normal/AbNormal Epoch:11/20 in Fold5: Training Loss:0.009, Valid Loss:0.117   Training Acc 100.00 %, Valid Acc 94.00 %

=======================================

in model TB/Cancer Epoch:11/20 in Fold5: Training Loss:0.013, Valid Loss:0.671   Training Acc 98.69 %, Valid Acc 90.48 %

=======================================

confusion matrix of train data in epoch 12:

	Normal	AbNormal
Normal	57	0
AbNormal	0	305

	Tuberclosis	Cancer
Tuberclosis	54	0
Cancer	1	250

confusion matrix of valid data in epoch 12:

	Normal	AbNormal
Normal	7	1
AbNormal	3	39

	Tuberclosis	Cancer
Tuberclosis	5	2
Cancer	3	32

in model Normal/AbNormal Epoch:12/20 in Fold5: Training Loss:0.005, Valid Loss:0.150   Training Acc 100.00 %, Valid Acc 92.00 %

=======================================

in model TB/Cancer Epoch:12/20 in Fold5: Training Loss:0.010, Valid Loss:0.609   Training Acc 99.67 %, Valid Acc 88.10 %

=======================================

confusion matrix of train data in epoch 13:

	Normal	AbNormal
Normal	57	0
AbNormal	0	305

	Tuberclosis	Cancer

Tuberclosis   54   0

Cancer   1   250

confusion matrix of valid data in epoch 13:

        Normal AbNormal

Normal   7   1

AbNormal   3   39

            Tuberclosis Cancer

Tuberclosis   5   2

Cancer   2   33

in model Normal/AbNormal Epoch:13/20 in Fold5: Training Loss:0.004, Valid Loss:0.146   Training Acc 100.00 %, Valid Acc 92.00 %

=======================================

in model TB/Cancer Epoch:13/20 in Fold5: Training Loss:0.009, Valid Loss:0.656   Training Acc 99.67 %, Valid Acc 90.48 %

=======================================

confusion matrix of train data in epoch 14:

        Normal AbNormal

Normal   57   0

AbNormal   0   305

          Tuberclosis Cancer

Tuberclosis   54   0

Cancer   0   251

confusion matrix of valid data in epoch 14:

        Normal AbNormal

Normal   7   1

AbNormal   3   39

            Tuberclosis Cancer

Tuberclosis   5   2

Cancer   2   33

in model Normal/AbNormal Epoch:14/20 in Fold5: Training Loss:0.004, Valid Loss:0.153   Training Acc 100.00 %, Valid Acc 92.00 %

=======================================

in model TB/Cancer Epoch:14/20 in Fold5: Training Loss:0.007, Valid Loss:0.682   Training Acc 100.00 %, Valid Acc 90.48 %

=======================================

confusion matrix of train data in epoch 15:

	Normal	AbNormal
Normal	57	0
AbNormal	0	305

	Tuberclosis	Cancer
Tuberclosis	54	0
Cancer	0	251

confusion matrix of valid data in epoch 15:

	Normal	AbNormal
Normal	7	1
AbNormal	4	38

	Tuberclosis	Cancer
Tuberclosis	5	2
Cancer	2	33

in model Normal/AbNormal Epoch:15/20 in Fold5: Training Loss:0.003, Valid Loss:0.157   Training Acc 100.00 %, Valid Acc 90.00 %

=======================================

in model TB/Cancer Epoch:15/20 in Fold5: Training Loss:0.007, Valid Loss:0.708   Training Acc 100.00 %, Valid Acc 90.48 %

=======================================

confusion matrix of train data in epoch 16:

	Normal	AbNormal
Normal	57	0
AbNormal	0	305

	Tuberclosis	Cancer
Tuberclosis	54	0
Cancer	0	251

confusion matrix of valid data in epoch 16:

	Normal	AbNormal
Normal	7	1
AbNormal	4	38

```
         Tuberclosis  Cancer

Tuberclosis        5     2

Cancer             1     34
```

in model Normal/AbNormal Epoch:16/20 in Fold5: Training Loss:0.003, Valid Loss:0.161   Training Acc 100.00 %, Valid Acc 90.00 %

==

in model TB/Cancer Epoch:16/20 in Fold5: Training Loss:0.006, Valid Loss:0.731   Training Acc 100.00 %, Valid Acc 92.86 %

==

confusion matrix of train data in epoch 17:

```
        Normal  AbNormal

Normal      57     0

AbNormal     0     305

          Tuberclosis  Cancer

Tuberclosis       54     0

Cancer             0     251
```

confusion matrix of valid data in epoch 17:

```
        Normal  AbNormal

Normal       8     0

AbNormal      4     38

          Tuberclosis  Cancer

Tuberclosis        5     2

Cancer             1     34
```

in model Normal/AbNormal Epoch:17/20 in Fold5: Training Loss:0.003, Valid Loss:0.165   Training Acc 100.00 %, Valid Acc 92.00 %

==

in model TB/Cancer Epoch:17/20 in Fold5: Training Loss:0.005, Valid Loss:0.755   Training Acc 100.00 %, Valid Acc 92.86 %

==

confusion matrix of train data in epoch 18:

```
        Normal  AbNormal

Normal      57     0

AbNormal     0     305
```

	Tuberclosis	Cancer
Tuberclosis	54	0
Cancer	0	251

confusion matrix of valid data in epoch 18:

	Normal	AbNormal
Normal	8	0
AbNormal	4	38

	Tuberclosis	Cancer
Tuberclosis	5	2
Cancer	1	34

in model Normal/AbNormal Epoch:18/20 in Fold5: Training Loss:0.002, Valid Loss:0.168   Training Acc 100.00 %, Valid Acc 92.00 %

======================================

in model TB/Cancer Epoch:18/20 in Fold5: Training Loss:0.005, Valid Loss:0.776   Training Acc 100.00 %, Valid Acc 92.86 %

======================================

confusion matrix of train data in epoch 19:

	Normal	AbNormal
Normal	57	0
AbNormal	0	305

	Tuberclosis	Cancer
Tuberclosis	54	0
Cancer	0	251

confusion matrix of valid data in epoch 19:

	Normal	AbNormal
Normal	8	0
AbNormal	4	38

	Tuberclosis	Cancer
Tuberclosis	4	3
Cancer	0	35

in model Normal/AbNormal Epoch:19/20 in Fold5: Training Loss:0.002, Valid Loss:0.171   Training Acc 100.00 %, Valid Acc 92.00 %

=====================================

in model TB/Cancer Epoch:19/20 in Fold5: Training Loss:0.004, Valid Loss:0.798   Training Acc 100.00 %, Valid Acc 92.86 %

=====================================

confusion matrix of train data in epoch 20:

	Normal	AbNormal
Normal	57	0
AbNormal	0	305

	Tuberclosis	Cancer
Tuberclosis	54	0
Cancer	0	251

confusion matrix of valid data in epoch 20:

	Normal	AbNormal
Normal	8	0
AbNormal	4	38

	Tuberclosis	Cancer
Tuberclosis	4	3
Cancer	0	35

in model Normal/AbNormal Epoch:20/20 in Fold5: Training Loss:0.002, Valid Loss:0.174   Training Acc 100.00 %, Valid Acc 92.00 %

=====================================

in model TB/Cancer Epoch:20/20 in Fold5: Training Loss:0.004, Valid Loss:0.817   Training Acc 100.00 %, Valid Acc 92.86 %

=====================================

best accuracy of valid dataset in fold 5 is 92.43 % in epoch: 17

* * * * * * * * * *
_ _ _ _ _ _ _ _ _ _

	Normal	AbNormal
Normal	16	0
AbNormal	0	87

	Tuberclosis	Cancer
Tuberclosis	12	3
Cancer	4	68

in Fold5: Test correct1: 103, Test correct2: 80

in Fold5: Test acc1:100.000 %, Test loss1 0.01, Test acc2:91.954 %, Test loss2 0.43

Total Test Confusion Matrix of model Normal-AbNormal :

	Normal	AbNormal
Normal	78	3
AbNormal	9	425

Total Test Confusion Matrix of model TB-Cancer :

	Tuberclosis	Cancer
Tuberclosis	65	11
Cancer	26	332

Total Test Confusion Matrix:

	Normal	Tuberclosis	Cancer
Normal	78	0	3
Tuberclosis	3	62	11
Cancer	6	25	327

Training complete in 1327.6043992042542s and testing complete in 7.0398499965667725s

Best epoch of each fold is [19, 13, 10, 9, 17]