

Artificial Intelligence

Assignment III Report

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1) Normal 3-fold Cross-Validation

Validation Set -> K - values	Data fold 1	Data fold 2	Data fold 2
K=1	3.095062638172439 359e-02	4.900515843773 028957e-02	8.1031307550644 57194e-03
K=3	3.242446573323507 636e-02	4.532056005895 357398e-02	8.4714548802946 59873e-03
K=5	3.131908621960206 168e-02	2.984524686809 137892e-02	8.8397790055248 62551e-03
K=7	3.131908621960206 168e-02	2.358142962417 096589e-02	8.8397790055248 62551e-03
K=9	3.205600589535740 480e-02	1.768607221812 822441e-02	9.9447513812154 68852e-03
K=11	3.168754605747973 324e-02	1.584377302873 986662e-02	1.0313075506445 67153e-02
K=13	3.205600589535740 480e-02	1.989683124539 425030e-02	1.0313075506445 67153e-02
K=15	3.205600589535740 480e-02	2.137067059690 493653e-02	1.1418047882136 27957e-02
K=17	3.279292557111274 792e-02	2.321296978629 329433e-02	1.1786372007366 48225e-02
K=19	3.316138540899041 948e-02	2.321296978629 329433e-02	1.1049723756906 07689e-02

Optimal K- value: 11

2) Modified 3-fold Cross-Validation

Validation Set ->	Data fold 1	Data fold 2	Data fold 2
K - values			
K=1	3.316138540899041 861e-03	3.684598378776 713420e-03	3.6832412523020 25702e-04
K=3	2.947678703021370 736e-03	3.684598378776 713420e-03	7.3664825046040 51403e-04
K=5	2.579218865143699 177e-03	3.684598378776 713420e-03	1.1049723756906 07819e-03
K=7	2.210759027266028 052e-03	3.684598378776 713420e-03	1.4732965009208 10281e-03
K=9	1.842299189388356 710e-03	3.684598378776 713420e-03	1.8416206261510 12959e-03
K=11	1.842299189388356 710e-03	3.684598378776 713420e-03	1.8416206261510 12959e-03
K=13	1.842299189388356 710e-03	3.684598378776 713420e-03	1.8416206261510 12959e-03
K=15	1.842299189388356 710e-03	3.684598378776 713420e-03	1.8416206261510 12959e-03
K=17	1.842299189388356 710e-03	3.684598378776 713420e-03	1.8416206261510 12959e-03
K=19	1.842299189388356 710e-03	3.684598378776 713420e-03	1.8416206261510 12959e-03

Optimal K-value: 15

Applying this k-values on test datasets:

On Datatest.txt:

Normal Cross-validation k-value: 11

Accuracy: 96.435272045

Modified Cross-validation k-value: 15

Accuracy: 96.9981238274

On Datatest2.txt:

Normal Cross-validation k-value: 11

Accuracy: 96.6878589007

Modified Cross-validation k-value: 15

Accuracy: 96.780147662