AI Lab 2

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Task 1

1.1 a)

	Algorithm	Accuracy (%)	Correct	Time (s)
Own KNN_Regressor_fast	euclidean	0.8525	341	4.76143
Own KNN_Regressor	euclidean	0.8525	341	54.7676
Sklearn	euclidean	0.8525	341	0.0145493

1.2 b)

	Score	Time (s)
SVC	0.9475	0.230703
Decision Tree	0.8800	0.005497
Random Forest	0.9100	0.013979

1.3 c)

Classifier	Neighbors	Distance Measure	Score
KNN	2	Manhattan	0.68 (+/-0.45)
KNN	3	Manhattan	0.73 (+/-0.45)
KNN	4	Manhattan	0.73 (+/-0.47)
KNN	5	Manhattan	0.73 (+/-0.45)
KNN	6	Manhattan	0.74 (+/-0.45)
KNN	7	Manhattan	0.74 (+/-0.45)
KNN	8	Manhattan	0.71 (+/-0.47)
KNN	9	Manhattan	0.71 (+/-0.47)
KNN	10	Manhattan	0.70 (+/-0.48)
KNN	11	Manhattan	0.73 (+/-0.48)
KNN	12	Manhattan	0.71 (+/-0.47)
KNN	2	Euclidean	0.69 (+/-0.44)
KNN	3	Euclidean	0.70 (+/-0.45)
KNN	4	Euclidean	0.70 (+/-0.44)
KNN	5	Euclidean	0.71 (+/-0.48)
KNN	6	Euclidean	0.69 (+/-0.49)
KNN	7	Euclidean	0.70 (+/-0.50)
KNN	8	Euclidean	0.68 (+/-0.48)
KNN	9	Euclidean	0.68 (+/-0.48)
KNN	10	Euclidean	0.68 (+/-0.49)
KNN	11	Euclidean	0.67 (+/-0.48)
KNN	12	Euclidean	0.68 (+/-0.49)
KNN	2	Minkowski p=$2^{1.5}$	0.69 (+/-0.45)
KNN	3	Minkowski p=$2^{1.5}$	0.68 (+/-0.47)
KNN	4	Minkowski p=$2^{1.5}$	0.69 (+/-0.45)
KNN	5	Minkowski p=$2^{1.5}$	0.70 (+/-0.49)
KNN	6	Minkowski p=$2^{1.5}$	0.69 (+/-0.47)
KNN	7	Minkowski p=$2^{1.5}$	0.70 (+/-0.47)
KNN	8	Minkowski p=$2^{1.5}$	0.67 (+/-0.48)
KNN	9	Minkowski p=$2^{1.5}$	0.67 (+/-0.48)
KNN	10	Minkowski p=$2^{1.5}$	0.68 (+/-0.48)
KNN	11	Minkowski p=$2^{1.5}$	0.67 (+/-0.47)
KNN	12	Minkowski p=$2^{1.5}$	0.68 (+/-0.47)

1.4 e)

	Algorithm	Score	Time (s)
Own KNN_Regressor_fast	euclidean	0.753293	4.68343
Own KNN_Regressor	euclidean	0.753293	41.3229
Sklearn	euclidean	0.753293	0.00122619

1.5 f)

	Score	Time (s)
SVR	0.882675	5.843504
Decision Tree Regressor	0.829021	0.004186
Random Forest Regressor	0.856708	0.011647

1.6 g)

Classifier	Neighbors	Distance Measure	Score
KNN	2	Manhattan	0.37 (+/-1.57)
KNN	3	Manhattan	0.42 (+/-1.42)
KNN	4	Manhattan	0.41 (+/-1.41)
KNN	5	Manhattan	0.44 (+/-1.34)
KNN	6	Manhattan	0.43 (+/-1.35)
KNN	7	Manhattan	0.43 (+/-1.40)
KNN	8	Manhattan	0.43 (+/-1.32)
KNN	9	Manhattan	0.43 (+/-1.32)
KNN	10	Manhattan	0.43 (+/-1.34)
KNN	11	Manhattan	0.42 (+/-1.32)
KNN	12	Manhattan	0.41 (+/-1.28)
KNN	2	Euclidean	0.33 (+/-1.71)
KNN	3	Euclidean	0.34 (+/-1.53)
KNN	4	Euclidean	0.38 (+/-1.44)
KNN	5	Euclidean	0.38 (+/-1.38)
KNN	6	Euclidean	0.38 (+/-1.42)
KNN	7	Euclidean	0.36 (+/-1.46)
KNN	8	Euclidean	0.33 (+/-1.46)
KNN	9	Euclidean	0.33 (+/-1.41)
KNN	10	Euclidean	0.32 (+/-1.44)
KNN	11	Euclidean	0.30 (+/-1.45)
KNN	12	Euclidean	0.29 (+/-1.51)
KNN	2	Minkowski p=$2^{1.5}$	0.31 (+/-1.67)
KNN	3	Minkowski p=$2^{1.5}$	0.35 (+/-1.53)
KNN	4	Minkowski p=$2^{1.5}$	0.36 (+/-1.43)
KNN	5	Minkowski p=$2^{1.5}$	0.36 (+/-1.41)
KNN	6	Minkowski p=$2^{1.5}$	0.35 (+/-1.44)
KNN	7	Minkowski p=$2^{1.5}$	0.32 (+/-1.48)
KNN	8	Minkowski p=$2^{1.5}$	0.31 (+/-1.46)
KNN	9	Minkowski p=$2^{1.5}$	0.30 (+/-1.44)
KNN	10	Minkowski p=$2^{1.5}$	0.29 (+/-1.44)
KNN	11	Minkowski p=$2^{1.5}$	0.26 (+/-1.52)
KNN	12	Minkowski p=$2^{1.5}$	0.25 (+/-1.57)