

Max(Overlap = 0.1 ~ 0.9)

Max	P = 10				P = 30				P = 50			
Dataset	K = 3	K = 6	K = 9		K = 3	K = 6	K = 9		K = 3	K = 6	K = 9	
HRSS	87.13	92.00	93.69	93.94	78.33	83.78	86.85	88.82	70.10	81.26	83.23	83.45
MI-F	50.34	50.69	51.79	50.01	46.54	44.95	46.53	44.89	47.19	43.78	41.90	41.27
MI-V	77.15	77.66	85.70	85.38	64.10	67.18	70.72	71.83	59.85	64.64	66.68	67.43
OPTDIGITS	94.57	99.63	99.54	99.03	68.44	66.37	80.97	86.43	50.49	56.78	67.35	68.79
PENDIGITS	99.56	99.95	99.94	99.86	53.95	76.11	90.73	92.34	25.20	46.19	78.16	73.54
SATELLITE	51.05	68.73	76.33	73.95	45.64	63.48	67.14	64.34	49.94	57.39	60.39	61.83.
SHUTTLE	39.34	96.93	98.49	99.53	90.22	86.95	87.14	93.44	86.11	86.13	80.18	89.51
THYROID	71.36	87.98	85.19	91.02	70.09	95.25	86.12	87.08	66.38	79.39	85.73	89.15

Overlap = 0

Overlap = 0	P = 10				P = 30				P = 50			
Dataset	K = 3	K = 6	K = 9		K = 3	K = 6	K = 9		K = 3	K = 6	K = 9	
HRSS	87.13	72.86	67.43	63.57	78.33	68.20	64.02	58.84	70.10	63.72	62.66	57.24
MI-F	50.34	46.63	46.41	46.24	46.54	41.06	42.71	43.83	47.19	41.55	42.21	41.47
MI-V	77.15	70.87	69.25	68.80	64.10	63.21	63.82	64.31	59.85	58.99	61.51	61.99
OPTDIGITS	94.57	91.57	88.23	84.05	68.44	70.39	77.13	83.92	50.49	69.92	70.76	70.68
PENDIGITS	99.56	98.14	85.52	78.23	53.95	84.95	77.50	71.03	25.20	77.47	86.28	69.10
SATELLITE	51.05	72.70	84.74	95.39	45.64	69.49	83.59	90.47	49.94	62.99	80.21	86.85
SHUTTLE	39.34	99.83	93.58	98.68	90.22	94.55	76.23	85.12	86.11	86.99	68.33	76.78
THYROID	71.36	89.73	86.74	90.18	70.09	80.55	77.64	80.68	66.38	79.62	85.14	79.25

Balanced\_Kmeans By Oversampling 灰色表示 Kmeans 分群後只有一個特徵單獨一群無法 oversample

	P = 10				P = 30				P = 50			
Dataset	K = 3		K = 6	K = 9	K = 3		K = 6	K = 9	K = 3		K = 6	K = 9
HRSS	87.13				78.33				70.10			
MI-F	50.34				46.54				47.19			
MI-V	77.15				64.10				59.85			
OPTDIGITS	94.57	48.04	46.33	46.33	68.44	41.54	43.11	47.09	50.49	36.50	47.98	39.11
PENDIGITS	99.56	49.84			53.95	50.13			25.20	57.82		
SATELLITE	51.05	32.92	36.72		45.64	52.86	50.58		49.94	57.19	56.56	
SHUTTLE	39.34			72.89	90.22			76.90	86.11			74.97
THYROID	71.36	89.73	86.74	90.18	70.09	80.55	77.64	80.68	66.38	79.62	85.14	79.25

Kmeans Without Balanced

	P = 10				P = 30				P = 50			
Dataset	K = 3		K = 6	K = 9	K = 3		K = 6	K = 9	K = 3		K = 6	K = 9
HRSS	87.13	72.01	63.74	62.48	78.33	67.27	61.21	59.64	70.10	62.44	61.22	57.42
MI-F	50.34	53.17	40.91	48.33	46.54	45.40	41.56	44.41	47.19	41.14	44.20	40.00
MI-V	77.15	58.32	59.61	58.47	64.10	65.18	62.71	65.59	59.85	63.58	47.32	54.26
OPTDIGITS	94.57	92.35	83.87	85.87	68.44	83.23	71.23	71.18	50.49	68.98	71.13	74.38
PENDIGITS	99.56	91.35	84.27	79.58	53.95	81.84	73.88	76.88	25.20	57.82	64.22	70.58
SATELLITE	51.05	68.78	87.63	92.06	45.64	59.78	85.43	88.48	49.94	62.47	73.69	81.01
SHUTTLE	39.34	27.95	91.90	99.43	90.22	94.03	93.09	98.87	86.11	80.48	98.51	81.68
THYROID	71.36	78.80	84.26	82.55	70.09	68.95	81.17	80.17	66.38	72.20	81.59	76.17

Overlap : 0.1 ~ 0.9 取最大值

P = 10	K= 3				K = 6				K = 9			
Dataset	Origin	Overlap	Random	Kmeans	Origin	Overlap	Random	Kmeans	Origin	Overlap	Random	Kmeans
HRSS	87.13	92.00	72.86	72.01	87.13	93.69	67.43	63.74	87.13	93.94	63.57	62.48
MI-F	50.34	50.69	46.63	53.17	50.34	51.79	46.41	40.91	50.34	50.01	46.24	48.33
MI-V	77.15	77.66	70.87	58.32	77.15	85.70	69.25	59.61	77.15	85.38	68.80	58.47
OPTDIGITS	94.57	99.63	91.57	92.35	94.57	99.54	88.23	83.87	94.57	99.03	84.05	85.87
PENDIGITS	99.56	99.95	98.14	91.35	99.56	99.94	85.52	84.27	99.56	99.86	78.23	79.58
SATELLITE	51.05	68.73	72.70	68.78	51.05	76.33	84.74	87.63	51.05	73.95	95.39	92.06
SHUTTLE	39.34	96.93	99.83	27.95	39.34	98.49	93.58	91.90	39.34	99.53	98.68	99.43
THYROID	71.36	87.98	89.73	78.80	71.36	85.19	86.74	84.26	71.36	91.02	90.18	82.55
P = 30	K= 3				K = 6				K = 9			
Dataset	Origin	Overlap	Random	Kmeans	Origin	Overlap	Random	Kmeans	Origin	Overlap	Random	Kmeans
HRSS	78.33	83.78	68.20	67.27	78.33	86.85	64.02	61.21	78.33	88.82	58.84	59.64
MI-F	46.54	44.95	41.06	45.40	46.54	46.53	42.71	41.56	46.54	44.89	43.83	44.41
MI-V	64.10	67.18	63.21	65.18	64.10	70.72	63.82	62.71	64.10	71.83	64.31	65.59
OPTDIGITS	68.44	66.37	70.39	83.23	68.44	80.97	77.13	71.23	68.44	86.43	83.92	71.18
PENDIGITS	53.95	76.11	84.95	81.84	53.95	90.73	77.50	73.88	53.95	92.34	71.03	76.88
SATELLITE	45.64	63.48	69.49	59.78	45.64	67.14	83.59	85.43	45.64	64.34	90.47	88.48
SHUTTLE	90.22	86.95	94.55	94.03	90.22	87.14	76.23	93.09	90.22	93.44	85.12	98.87
THYROID	70.09	95.25	80.55	68.95	70.09	86.12	77.64	81.17	70.09	87.08	80.68	80.17
P = 50	K= 3				K = 6				K = 9			
Dataset	Origin	Overlap	Random	Kmeans	Origin	Overlap	Random	Kmeans	Origin	Overlap	Random	Kmeans
HRSS	70.10	81.26	63.72	62.44	70.10	83.23	62.66	61.22	70.10	83.45	57.24	57.42
MI-F	47.19	43.78	41.55	41.14	47.19	41.90	42.21	44.20	47.19	41.27	41.47	40.00
MI-V	59.85	64.64	58.99	63.58	59.85	66.68	61.51	47.32	59.85	67.43	61.99	54.26
OPTDIGITS	50.49	56.78	69.92	68.98	50.49	67.35	70.76	71.13	50.49	68.79	70.68	74.38
PENDIGITS	25.20	46.19	77.47	57.82	25.20	78.16	86.28	64.22	25.20	73.54	69.10	70.58
SATELLITE	49.94	57.39	62.99	62.47	49.94	60.39	80.21	73.69	49.94	61.83	86.85	81.01
SHUTTLE	86.11	86.13	86.99	80.48	86.11	80.18	68.33	98.51	86.11	89.51	76.78	81.68
THYROID	66.38	79.39	79.62	72.20	66.38	85.73	85.14	81.59	66.38	89.15	79.25	76.17

