



NAÏVE BAYES & KNN

Hosna Habibi

DATA

4177 Sample

	Sex	Length	Diameter	Height	Whole weight	Shucked weight	Viscera weight	Shell_weight	Rings
0	M	0.455	0.365	0.095	0.5140	0.2245	0.1010	0.150	15
1	M	0.350	0.265	0.090	0.2255	0.0995	0.0485	0.070	7
2	F	0.530	0.420	0.135	0.6770	0.2565	0.1415	0.210	9
3	M	0.440	0.365	0.125	0.5160	0.2155	0.1140	0.155	10
4	I	0.330	0.255	0.080	0.2050	0.0895	0.0395	0.055	7

Height Whole weight Shucked weight

T A S K 1

- Target Class: SEX (F,M,I)
- Features: Length, Diameter, Height, Whole Weight, Shucked Weight, Shell Weight, Rings

0.080

0.2050

0.0895

140

0.2245

255

0.0995

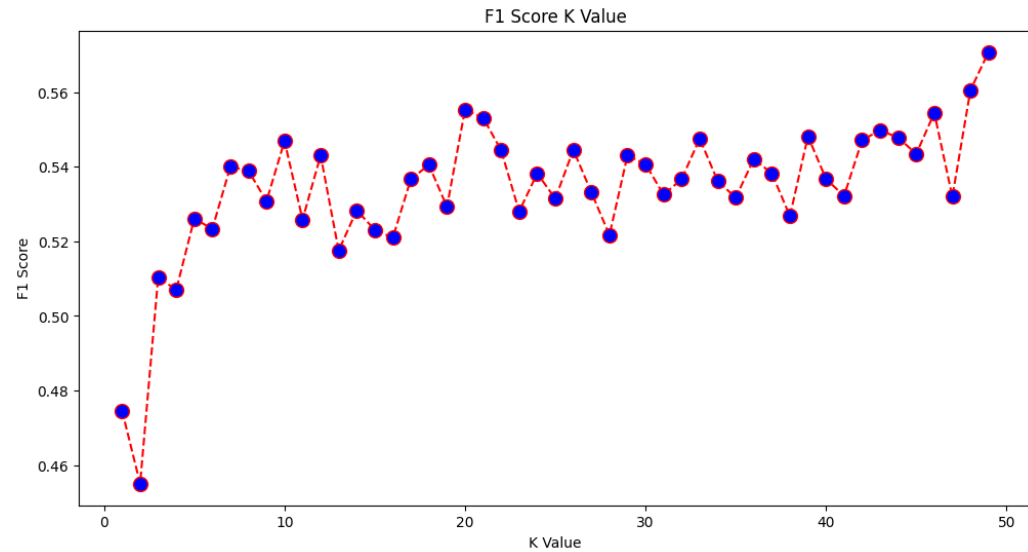
770

0.2565

160

0.2155

K N N



	precision	recall	f1-score	support
0	0.49	0.40	0.44	131
1	0.68	0.81	0.74	126
2	0.52	0.52	0.52	161
accuracy			0.57	418
macro avg	0.56	0.58	0.57	418
weighted avg	0.56	0.57	0.56	418

Best K = 48

K F O L D

📄👉

Fold 1 :					Fold 4 :					Fold 7 :				
	precision	recall	f1-score	support		precision	recall	f1-score	support		precision	recall	f1-score	support
0	0.45	0.32	0.37	164	0	0.37	0.39	0.38	97	0	0.41	0.25	0.31	113
1	0.42	0.85	0.56	78	1	0.87	0.69	0.77	197	1	0.87	0.87	0.87	171
2	0.47	0.38	0.42	176	2	0.43	0.55	0.48	124	2	0.48	0.63	0.54	134
accuracy			0.44	418	accuracy			0.58	418	accuracy			0.63	418
macro avg	0.44	0.51	0.45	418	macro avg	0.56	0.54	0.54	418	macro avg	0.59	0.58	0.57	418
weighted avg	0.45	0.44	0.43	418	weighted avg	0.62	0.58	0.59	418	weighted avg	0.62	0.63	0.61	418
-----					-----					-----				
Fold 2 :					Fold 5 :					Fold 8 :				
	precision	recall	f1-score	support		precision	recall	f1-score	support		precision	recall	f1-score	support
0	0.39	0.29	0.33	144	0	0.39	0.39	0.39	121	0	0.46	0.36	0.41	160
1	0.44	0.51	0.47	114	1	0.73	0.73	0.73	132	1	0.59	0.69	0.64	91
2	0.38	0.42	0.40	160	2	0.49	0.49	0.49	165	2	0.47	0.52	0.50	166
accuracy			0.40	418	accuracy			0.54	418	accuracy			0.50	417
macro avg	0.40	0.41	0.40	418	macro avg	0.54	0.54	0.54	418	macro avg	0.51	0.53	0.51	417
weighted avg	0.40	0.40	0.40	418	weighted avg	0.54	0.54	0.54	418	weighted avg	0.49	0.50	0.49	417
-----					-----					-----				
Fold 3 :					Fold 6 :					Fold 9 :				
	precision	recall	f1-score	support		precision	recall	f1-score	support		precision	recall	f1-score	support
0	0.45	0.42	0.43	113	0	0.44	0.37	0.40	158	0	0.35	0.34	0.34	111
1	0.78	0.97	0.86	163	1	0.44	0.62	0.52	93	1	0.81	0.78	0.80	169
2	0.53	0.42	0.47	142	2	0.41	0.38	0.39	167	2	0.43	0.45	0.44	137
accuracy			0.63	418	accuracy			0.43	418	accuracy			0.56	417
macro avg	0.59	0.60	0.59	418	macro avg	0.43	0.46	0.44	418	macro avg	0.53	0.53	0.53	417
weighted avg	0.61	0.63	0.61	418	weighted avg	0.43	0.43	0.42	418	weighted avg	0.56	0.56	0.56	417
-----					-----					-----				

K F O L D

Average Accuracy score: 0.5257438068683808

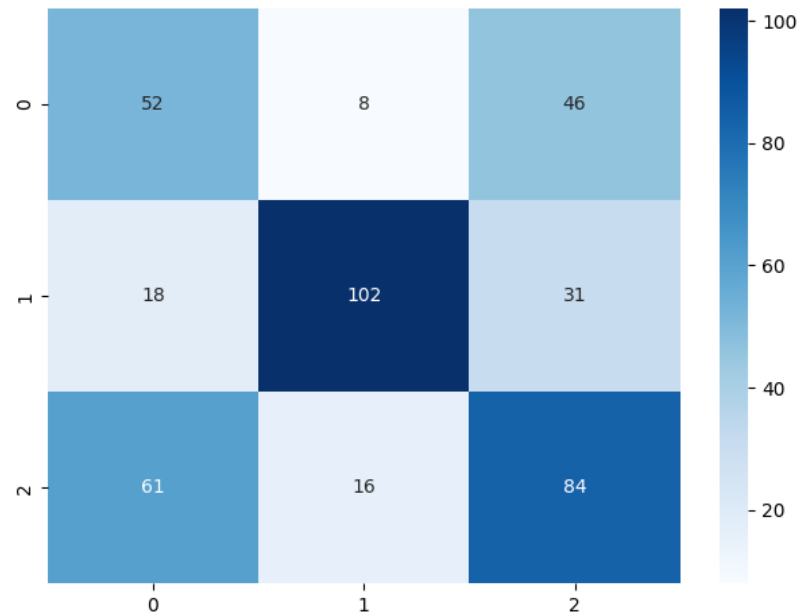
Average Precision score: 0.526666285271771

Average Recall score: 0.5257438068683808

Average f1_score score: 0.5206245145635

Fold 10 :					
	precision	recall	f1-score	support	
0	0.44	0.39	0.41	126	
1	0.72	0.76	0.74	134	
2	0.49	0.51	0.50	157	
accuracy			0.55	417	
macro avg			0.55	417	
weighted avg			0.55	417	

MODEL EVALUATION



	precision	recall	f1-score	support
0	0.49	0.40	0.44	131
1	0.68	0.81	0.74	126
2	0.52	0.52	0.52	161
accuracy			0.57	418
macro avg	0.56	0.58	0.57	418
weighted avg	0.56	0.57	0.56	418

- Test score 0.569377990430622

NAÏVE BAYES (KFOLD)

) Fold 1 :					
	precision	recall	f1-score	support	
0	0.48	0.53	0.51	164	
1	0.41	1.00	0.59	78	
2	0.44	0.12	0.19	176	
accuracy			0.45	418	
macro avg	0.45	0.55	0.43	418	
weighted avg	0.45	0.45	0.39	418	

Fold 2 :					
	precision	recall	f1-score	support	
0	0.52	0.38	0.44	144	
1	0.39	0.75	0.51	114	
2	0.42	0.26	0.32	160	
accuracy			0.43	418	
macro avg	0.45	0.46	0.42	418	
weighted avg	0.45	0.43	0.41	418	

Fold 3 :					
	precision	recall	f1-score	support	
0	0.48	0.75	0.58	113	
1	0.81	0.98	0.89	163	
2	0.58	0.18	0.27	142	
accuracy			0.65	418	
macro avg	0.62	0.64	0.58	418	
weighted avg	0.64	0.65	0.60	418	

) Fold 4 :					
	precision	recall	f1-score	support	
0	0.39	0.75	0.51	97	
1	0.87	0.67	0.76	197	
2	0.28	0.18	0.22	124	
accuracy			0.54	418	
macro avg	0.51	0.53	0.50	418	
weighted avg	0.58	0.54	0.54	418	

Fold 5 :					
	precision	recall	f1-score	support	
0	0.40	0.83	0.54	121	
1	0.77	0.74	0.76	132	
2	0.44	0.10	0.17	165	
accuracy			0.51	418	
macro avg	0.53	0.56	0.49	418	
weighted avg	0.53	0.51	0.46	418	

Fold 6 :					
	precision	recall	f1-score	support	
0	0.47	0.46	0.46	158	
1	0.36	0.81	0.50	93	
2	0.46	0.16	0.23	167	
accuracy			0.41	418	
macro avg	0.43	0.47	0.40	418	
weighted avg	0.44	0.41	0.38	418	

) Fold 7 :					
	precision	recall	f1-score	support	
0	0.44	0.74	0.55	113	
1	0.87	0.85	0.86	171	
2	0.35	0.16	0.22	134	
accuracy			0.60	418	
macro avg	0.56	0.59	0.55	418	
weighted avg	0.59	0.60	0.57	418	

Fold 8 :					
	precision	recall	f1-score	support	
0	0.50	0.68	0.58	160	
1	0.49	0.78	0.60	91	
2	0.51	0.16	0.25	166	
accuracy			0.50	417	
macro avg	0.50	0.54	0.47	417	
weighted avg	0.50	0.50	0.45	417	

Fold 9 :					
	precision	recall	f1-score	support	
0	0.44	0.74	0.55	111	
1	0.76	0.80	0.78	169	
2	0.46	0.18	0.26	137	
accuracy			0.58	417	
macro avg	0.56	0.58	0.53	417	
weighted avg	0.58	0.58	0.55	417	

K F O L D

Average Accuracy score: 0.5183223755923491

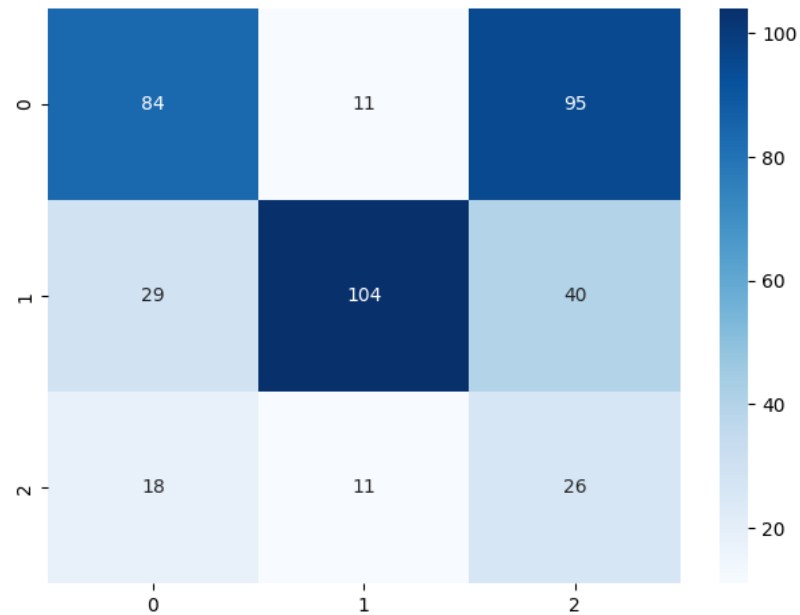
Average Precision score: 0.5250662853998318

Average Recall score: 0.5183223755923491

Average f1_score score: 0.48236509050621673

```
-----  
Fold 10 :  
          precision    recall  f1-score   support  
  
     0         0.46      0.70      0.55        126  
     1         0.64      0.74      0.69        134  
     2         0.36      0.16      0.22        157  
  
   accuracy                   0.51        417  
  macro avg         0.49      0.53      0.49        417  
 weighted avg         0.48      0.51      0.47        417
```

MODEL EVALUATION



	precision	recall	f1-score	support
0	0.44	0.64	0.52	131
1	0.60	0.83	0.70	126
2	0.47	0.16	0.24	161
accuracy			0.51	418
macro avg	0.51	0.54	0.49	418
weighted avg	0.50	0.51	0.47	418

- Test score 0.5119617224880383

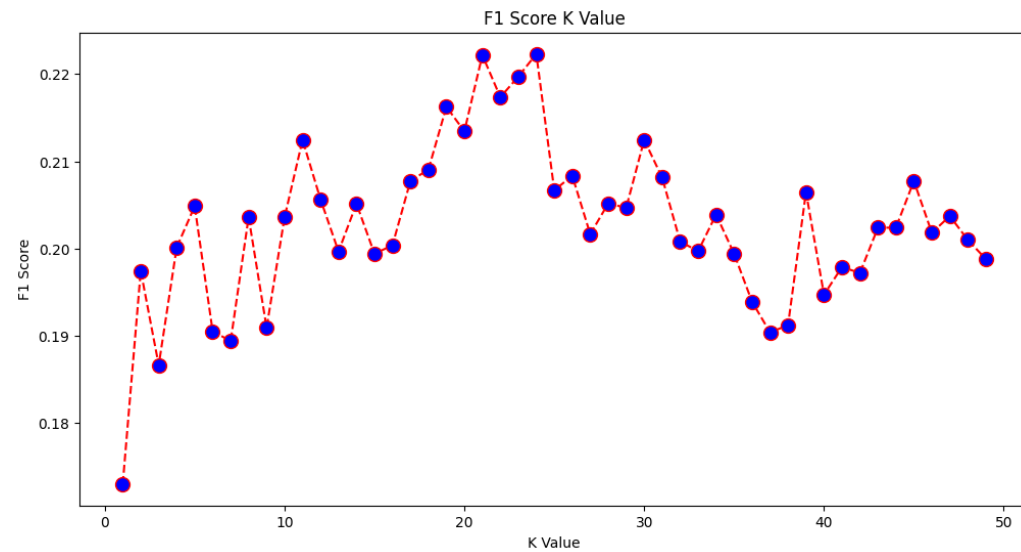
ch	Diameter	Height	Whole weight	Shucked w
55			0.5140	
50			0.2255	
30			0.6770	
40			0.5160	
30	0.255	0.080	0.2050	

T A S K 2

- Target Class: Rings
- Features: Sex, Length, Diameter, Height, Whole Weight, Shucked Weight, Shell Weight,

K N N

- Best K=23



	precision	recall	f1-score	support
3	0.00	0.00	0.00	2
4	0.25	0.50	0.33	4
5	0.17	0.12	0.14	8
6	0.28	0.33	0.30	24
7	0.28	0.28	0.28	39
8	0.17	0.29	0.22	49
9	0.25	0.24	0.24	74
10	0.27	0.41	0.33	71
11	0.22	0.26	0.24	43
12	0.50	0.15	0.23	33
13	0.00	0.00	0.00	16
14	0.00	0.00	0.00	15
15	0.00	0.00	0.00	12
16	0.33	0.12	0.18	8
17	0.00	0.00	0.00	5
18	0.00	0.00	0.00	7
19	0.00	0.00	0.00	3
20	0.00	0.00	0.00	2
21	0.00	0.00	0.00	3
accuracy			0.24	418
macro avg	0.14	0.14	0.13	418
weighted avg	0.23	0.24	0.22	418

K F O L D

Fold 1 :					Fold 2 :					Fold 3 :				
	precision	recall	f1-score	support		precision	recall	f1-score	support		precision	recall	f1-score	support
1	0.00	0.00	0.00	1	2	0.00	0.00	0.00	1	3	0.00	0.00	0.00	2
3	0.00	0.00	0.00	3	3	0.00	0.00	0.00	3	4	0.60	0.30	0.40	10
4	0.42	0.62	0.50	8	4	0.27	0.43	0.33	7	5	0.35	0.27	0.31	22
5	0.50	0.46	0.48	13	5	0.18	0.25	0.21	12	6	0.42	0.26	0.32	57
6	0.24	0.67	0.36	12	6	0.19	0.35	0.25	23	7	0.37	0.41	0.39	64
7	0.25	0.17	0.20	35	7	0.16	0.23	0.19	31	8	0.36	0.27	0.31	81
8	0.20	0.25	0.23	36	8	0.05	0.21	0.09	14	9	0.31	0.43	0.36	76
9	0.14	0.31	0.19	49	9	0.08	0.23	0.12	35	10	0.30	0.40	0.34	50
10	0.14	0.27	0.18	55	10	0.08	0.15	0.10	47	11	0.24	0.32	0.28	37
11	0.03	0.03	0.03	32	11	0.04	0.02	0.03	47	12	0.29	0.14	0.19	14
12	0.10	0.05	0.07	38	12	0.17	0.08	0.11	36	14	0.00	0.00	0.00	2
13	0.21	0.11	0.14	28	13	0.07	0.02	0.03	43	15	0.00	0.00	0.00	1
14	0.00	0.00	0.00	28	14	0.25	0.05	0.08	20	17	0.00	0.00	0.00	2
15	0.00	0.00	0.00	23	15	0.00	0.00	0.00	28	accuracy			0.33	418
16	0.00	0.00	0.00	16	16	0.00	0.00	0.00	13	macro avg			0.25	418
17	0.00	0.00	0.00	6	17	0.00	0.00	0.00	20	weighted avg			0.34	418
18	0.00	0.00	0.00	7	18	0.00	0.00	0.00	11					
19	0.00	0.00	0.00	8	19	0.00	0.00	0.00	9					
20	0.00	0.00	0.00	10	20	0.00	0.00	0.00	6					
21	0.00	0.00	0.00	3	21	0.00	0.00	0.00	6					
22	0.00	0.00	0.00	4	22	0.00	0.00	0.00	2					
23	0.00	0.00	0.00	2	23	0.00	0.00	0.00	3					
26	0.00	0.00	0.00	1	29	0.00	0.00	0.00	1					
accuracy				0.17	418	accuracy				0.11	418			
macro avg				0.10	418	macro avg				0.07	418			
weighted avg				0.13	418	weighted avg				0.09	418			

K F O L D

Fold 3 :

	precision	recall	f1-score	support
3	0.00	0.00	0.00	2
4	0.60	0.30	0.40	10
5	0.35	0.27	0.31	22
6	0.42	0.26	0.32	57
7	0.37	0.41	0.39	64
8	0.36	0.27	0.31	81
9	0.31	0.43	0.36	76
10	0.30	0.40	0.34	50
11	0.24	0.32	0.28	37
12	0.29	0.14	0.19	14
14	0.00	0.00	0.00	2
15	0.00	0.00	0.00	1
17	0.00	0.00	0.00	2
accuracy			0.33	418
macro avg	0.25	0.22	0.22	418
weighted avg	0.34	0.33	0.33	418

Fold 4 :

	precision	recall	f1-score	support
3	0.00	0.00	0.00	1
4	0.00	0.00	0.00	1
5	0.25	0.11	0.15	9
6	0.20	0.22	0.21	18
7	0.32	0.38	0.35	42
8	0.34	0.38	0.36	89
9	0.34	0.36	0.35	101
10	0.40	0.36	0.38	91
11	0.37	0.44	0.40	39
12	0.00	0.00	0.00	18
13	0.00	0.00	0.00	6
14	0.00	0.00	0.00	2
15	0.00	0.00	0.00	1
accuracy			0.34	418
macro avg	0.17	0.17	0.17	418
weighted avg	0.32	0.34	0.33	418

Fold 5 :

	precision	recall	f1-score	support
4	0.50	0.67	0.57	3
5	0.27	0.43	0.33	7
6	0.44	0.35	0.39	20
7	0.38	0.32	0.34	38
8	0.40	0.41	0.40	56
9	0.32	0.38	0.34	88
10	0.29	0.42	0.34	84
11	0.27	0.24	0.26	70
12	0.38	0.09	0.15	33
13	0.00	0.00	0.00	12
14	0.00	0.00	0.00	4
15	0.00	0.00	0.00	2
16	0.00	0.00	0.00	1
accuracy			0.32	418
macro avg	0.25	0.25	0.24	418
weighted avg	0.32	0.32	0.31	418

Fold 6 :

	precision	recall	f1-score	support
3	0.00	0.00	0.00	2
4	0.43	1.00	0.60	3
5	0.35	0.54	0.42	13
6	0.36	0.33	0.35	24
7	0.16	0.18	0.17	28
8	0.13	0.23	0.17	30
9	0.10	0.24	0.14	42
10	0.09	0.26	0.13	43
11	0.14	0.14	0.14	35
12	0.17	0.05	0.08	37
13	0.22	0.05	0.08	39
14	0.00	0.00	0.00	34
15	0.00	0.00	0.00	20
16	0.00	0.00	0.00	15
17	0.00	0.00	0.00	19
18	0.00	0.00	0.00	12
19	0.00	0.00	0.00	7
20	0.00	0.00	0.00	5
21	0.00	0.00	0.00	3
23	0.00	0.00	0.00	4
25	0.00	0.00	0.00	1
27	0.00	0.00	0.00	2
accuracy			0.14	418
macro avg	0.10	0.14	0.10	418
weighted avg	0.12	0.14	0.12	418

Fold 7 :

	precision	recall	f1-score	support
3	0.00	0.00	0.00	1
4	0.67	0.22	0.33	9
5	0.36	0.45	0.40	11
6	0.31	0.28	0.29	29
7	0.46	0.38	0.42	58
8	0.48	0.44	0.46	91
9	0.37	0.44	0.40	93
10	0.33	0.32	0.32	66
11	0.20	0.32	0.24	38
12	0.11	0.09	0.10	11
13	0.00	0.00	0.00	9
14	0.00	0.00	0.00	1
15	0.00	0.00	0.00	1
accuracy			0.36	418
macro avg	0.25	0.23	0.23	418
weighted avg	0.37	0.36	0.36	418

K F O L D

Average Accuracy score: 0.2556894197560612

Average Precision score: 0.24523634603844607

Average Recall score: 0.2556894197560612

Average f1_score score: 0.23845617036967598

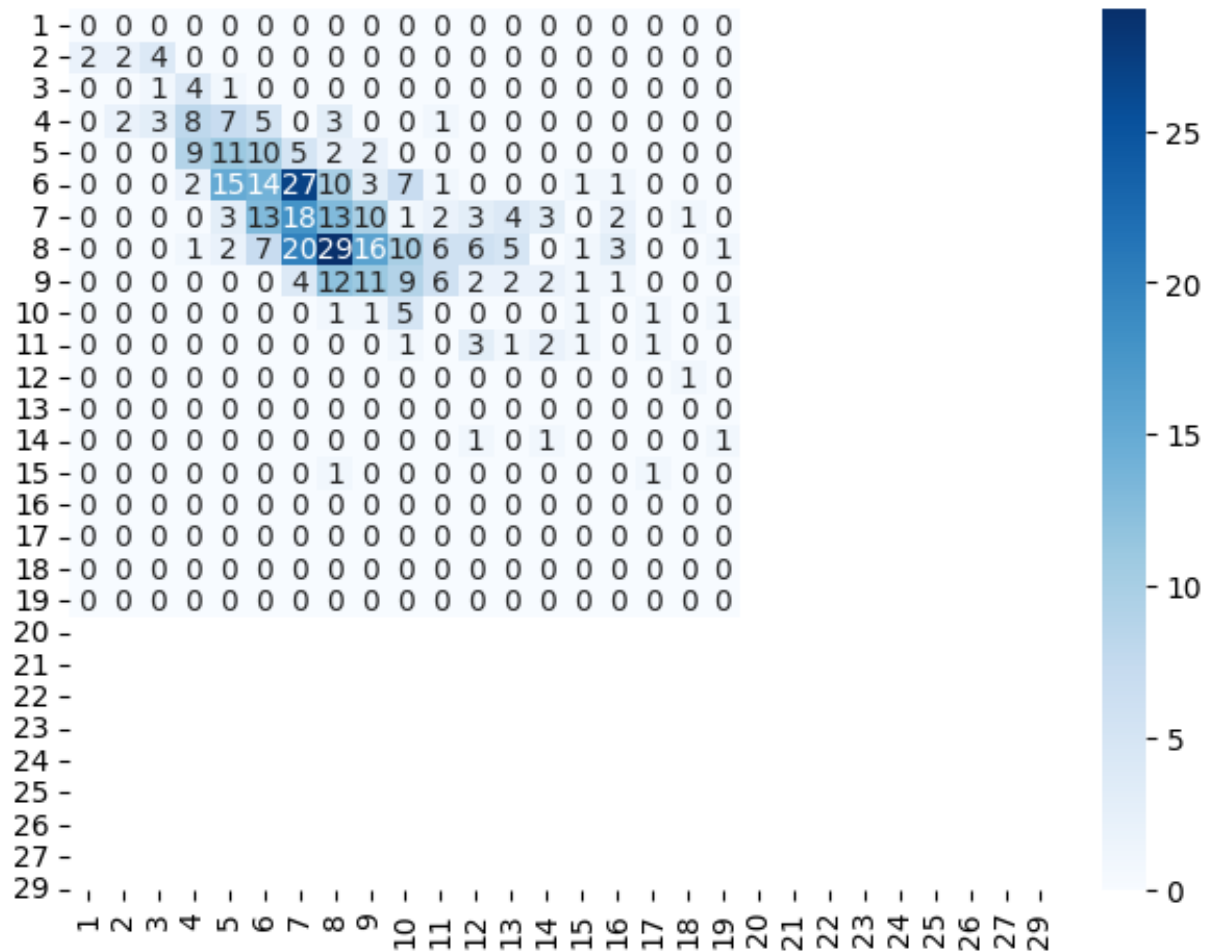
Fold 10 :				
	precision	recall	f1-score	support
3	0.00	0.00	0.00	1
4	0.67	0.57	0.62	7
5	0.20	0.33	0.25	6
6	0.37	0.21	0.27	33
7	0.22	0.30	0.25	30
8	0.43	0.40	0.41	60
9	0.22	0.39	0.28	67
10	0.28	0.39	0.33	72
11	0.36	0.28	0.31	61
12	0.36	0.16	0.22	25
13	0.22	0.11	0.14	19
14	0.00	0.00	0.00	11
15	0.00	0.00	0.00	8
16	0.00	0.00	0.00	8
17	0.00	0.00	0.00	2
18	0.00	0.00	0.00	2
19	0.00	0.00	0.00	2
20	0.00	0.00	0.00	2
21	0.00	0.00	0.00	1
accuracy			0.29	417
macro avg	0.18	0.17	0.16	417
weighted avg	0.29	0.29	0.28	417

Fold 9 :				
	precision	recall	f1-score	support
3	0.00	0.00	0.00	2
4	0.40	0.40	0.40	5
5	0.36	0.33	0.35	12
6	0.46	0.41	0.44	29
7	0.23	0.33	0.27	43
8	0.34	0.34	0.34	71
9	0.32	0.36	0.34	78
10	0.23	0.28	0.25	72
11	0.34	0.38	0.36	53
12	0.29	0.12	0.17	16
13	1.00	0.06	0.11	18
14	0.00	0.00	0.00	4
15	0.00	0.00	0.00	2
16	0.00	0.00	0.00	2
17	0.00	0.00	0.00	2
18	0.00	0.00	0.00	3
19	0.00	0.00	0.00	4
20	0.00	0.00	0.00	1
accuracy			0.30	417
macro avg	0.22	0.17	0.17	417
weighted avg	0.32	0.30	0.29	417

MODEL EVALUATION

Test score

0.23923444976076555



NAÏVE BAYES (KFOLD)

Fold 1 :					Fold 2 :					Fold 3 :				
	precision	recall	f1-score	support		precision	recall	f1-score	support		precision	recall	f1-score	support
1	0.00	0.00	0.00	1	2	0.00	0.00	0.00	1	3	0.25	0.50	0.33	2
3	0.29	0.67	0.40	3	3	0.21	1.00	0.35	3	4	0.31	0.40	0.35	10
4	0.29	0.50	0.36	8	4	0.00	0.00	0.00	7	5	0.40	0.45	0.43	22
5	0.14	0.31	0.20	13	5	0.17	0.42	0.24	12	6	0.40	0.39	0.39	57
6	0.12	0.42	0.19	12	6	0.17	0.39	0.24	23	7	0.52	0.38	0.44	64
7	0.14	0.23	0.17	35	7	0.07	0.19	0.10	31	8	0.42	0.27	0.33	81
8	0.13	0.19	0.16	36	8	0.01	0.07	0.02	14	9	0.39	0.30	0.34	76
9	0.10	0.18	0.13	49	9	0.03	0.09	0.05	35	10	0.20	0.20	0.20	50
10	0.07	0.04	0.05	55	10	0.06	0.04	0.05	47	11	0.26	0.73	0.38	37
11	0.06	0.09	0.07	32	11	0.09	0.04	0.06	47	12	0.00	0.00	0.00	14
12	0.00	0.00	0.00	38	12	0.00	0.00	0.00	36	14	0.00	0.00	0.00	2
13	0.00	0.00	0.00	28	13	0.00	0.00	0.00	43	15	0.00	0.00	0.00	1
14	0.00	0.00	0.00	28	14	0.00	0.00	0.00	20	17	0.00	0.00	0.00	2
15	0.00	0.00	0.00	23	15	0.00	0.00	0.00	28	24	0.00	0.00	0.00	0
16	0.00	0.00	0.00	16	16	0.00	0.00	0.00	13	27	0.00	0.00	0.00	0
17	0.00	0.00	0.00	6	17	0.33	0.05	0.09	20					
18	0.00	0.00	0.00	7	18	0.00	0.00	0.00	11	accuracy			0.34	418
19	0.00	0.00	0.00	8	19	0.00	0.00	0.00	9	macro avg	0.21	0.24	0.21	418
20	0.04	0.10	0.05	10	20	0.00	0.00	0.00	6	weighted avg	0.36	0.34	0.34	418
21	0.00	0.00	0.00	3	21	0.00	0.00	0.00	6					
22	0.00	0.00	0.00	4	22	0.00	0.00	0.00	2					
23	0.00	0.00	0.00	2	23	0.00	0.00	0.00	3					
24	0.00	0.00	0.00	0	29	0.00	0.00	0.00	1					
26	0.00	0.00	0.00	1										
27	0.00	0.00	0.00	0										
accuracy			0.11	418	accuracy			0.08	418					
macro avg	0.05	0.11	0.07	418	macro avg	0.05	0.10	0.05	418					
weighted avg	0.06	0.11	0.08	418	weighted avg	0.06	0.08	0.05	418					

NAÏVE BAYES (KFOLD)

Fold 4 :

	precision	recall	f1-score	support
3	1.00	1.00	1.00	1
4	0.50	1.00	0.67	1
5	0.44	0.44	0.44	9
6	0.14	0.28	0.19	18
7	0.21	0.26	0.23	42
8	0.37	0.27	0.31	89
9	0.35	0.40	0.37	101
10	0.43	0.20	0.27	91
11	0.27	0.64	0.38	39
12	0.00	0.00	0.00	18
13	0.00	0.00	0.00	6
14	0.00	0.00	0.00	2
15	0.00	0.00	0.00	1
17	0.00	0.00	0.00	0
accuracy			0.31	418
macro avg	0.27	0.32	0.28	418
weighted avg	0.32	0.31	0.30	418

Fold 7 :

	precision	recall	f1-score	support
3	0.50	1.00	0.67	1
4	0.78	0.78	0.78	9
5	0.27	0.55	0.36	11
6	0.31	0.31	0.31	29
7	0.42	0.43	0.43	58
8	0.51	0.25	0.34	91
9	0.34	0.34	0.34	93
10	0.33	0.29	0.31	66
11	0.25	0.63	0.36	38
12	0.00	0.00	0.00	11
13	0.00	0.00	0.00	9
14	0.00	0.00	0.00	1
15	0.00	0.00	0.00	1
24	0.00	0.00	0.00	0
27	0.00	0.00	0.00	0
accuracy			0.35	418
macro avg	0.25	0.31	0.26	418
weighted avg	0.37	0.35	0.34	418

Fold 5 :

	precision	recall	f1-score	support
3	0.00	0.00	0.00	0
4	0.20	0.33	0.25	3
5	0.20	0.57	0.30	7
6	0.39	0.35	0.37	20
7	0.38	0.39	0.39	38
8	0.35	0.36	0.35	56
9	0.44	0.32	0.37	88
10	0.34	0.20	0.25	84
11	0.29	0.63	0.39	70
12	0.00	0.00	0.00	33
13	0.00	0.00	0.00	12
14	0.00	0.00	0.00	4
15	0.00	0.00	0.00	2
16	0.00	0.00	0.00	1
17	0.00	0.00	0.00	0
20	0.00	0.00	0.00	0
24	0.00	0.00	0.00	0
27	0.00	0.00	0.00	0
accuracy			0.33	418
macro avg	0.14	0.18	0.15	418
weighted avg	0.31	0.33	0.30	418

Fold 8 :

	precision	recall	f1-score	support
3	0.00	0.00	0.00	0
4	0.25	0.50	0.33	4
5	0.36	0.50	0.42	10
6	0.24	0.36	0.29	14
7	0.14	0.41	0.21	22
8	0.12	0.15	0.13	40
9	0.21	0.27	0.24	60
10	0.16	0.17	0.16	54
11	0.28	0.41	0.34	75
12	0.00	0.00	0.00	39
13	0.00	0.00	0.00	29
14	0.00	0.00	0.00	20
15	0.00	0.00	0.00	17
16	0.00	0.00	0.00	12
17	0.25	0.14	0.18	7
18	0.00	0.00	0.00	7
19	0.00	0.00	0.00	2
20	0.00	0.00	0.00	2
21	0.00	0.00	0.00	1
24	0.00	0.00	0.00	2
27	0.00	0.00	0.00	0
accuracy			0.20	417
macro avg	0.10	0.14	0.11	417
weighted avg	0.14	0.20	0.16	417

Fold 6 :

	precision	recall	f1-score	support
3	0.20	1.00	0.33	2
4	0.00	0.00	0.00	3
5	0.19	0.38	0.25	13
6	0.12	0.21	0.15	24
7	0.14	0.36	0.21	28
8	0.11	0.27	0.15	30
9	0.06	0.12	0.08	42
10	0.06	0.07	0.07	43
11	0.09	0.11	0.10	35
12	0.00	0.00	0.00	37
13	0.00	0.00	0.00	39
14	0.00	0.00	0.00	34
15	0.00	0.00	0.00	20
16	0.17	0.07	0.10	15
17	0.00	0.00	0.00	19
18	0.00	0.00	0.00	12
19	0.00	0.00	0.00	7
20	0.00	0.00	0.00	5
21	0.00	0.00	0.00	3
23	0.00	0.00	0.00	4
25	0.00	0.00	0.00	1
27	0.00	0.00	0.00	2
accuracy			0.10	418
macro avg	0.05	0.12	0.07	418
weighted avg	0.06	0.10	0.07	418

NAÏVE BAYES (KFOLD)

Average Accuracy score: 0.23846224455842027

Average Precision score: 0.21833174419731205

Average Recall score: 0.23846224455842027

Average f1_score score: 0.2148453197337902

```
Fold 10 :
precision recall f1-score support
3 0.00 0.00 0.00 1
4 0.12 0.14 0.13 7
5 0.15 0.50 0.23 6
6 0.41 0.39 0.40 33
7 0.25 0.43 0.32 30
8 0.31 0.28 0.30 60
9 0.23 0.34 0.27 67
10 0.20 0.15 0.17 72
11 0.30 0.41 0.35 61
12 0.00 0.00 0.00 25
13 0.00 0.00 0.00 19
14 0.00 0.00 0.00 11
15 0.00 0.00 0.00 8
16 0.00 0.00 0.00 8
17 0.00 0.00 0.00 2
18 0.00 0.00 0.00 2
19 0.00 0.00 0.00 2
20 0.00 0.00 0.00 2
21 0.00 0.00 0.00 1
24 0.00 0.00 0.00 0
27 0.00 0.00 0.00 0

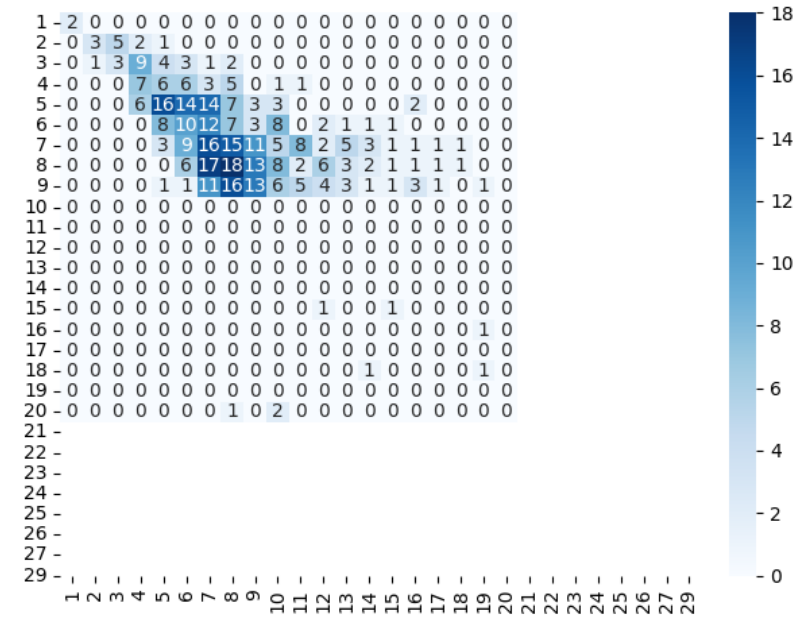
accuracy 0.25 417
macro avg 0.09 0.13 0.10 417
weighted avg 0.21 0.25 0.23 417
```

```
Fold 9 :
precision recall f1-score support
3 0.40 1.00 0.57 2
4 0.50 0.60 0.55 5
5 0.25 0.58 0.35 12
6 0.41 0.45 0.43 29
7 0.28 0.42 0.33 43
8 0.31 0.23 0.26 71
9 0.30 0.26 0.28 78
10 0.32 0.24 0.27 72
11 0.34 0.68 0.45 53
12 0.00 0.00 0.00 16
13 0.00 0.00 0.00 18
14 0.00 0.00 0.00 4
15 0.00 0.00 0.00 2
16 0.00 0.00 0.00 2
17 0.00 0.00 0.00 2
18 0.00 0.00 0.00 3
19 0.00 0.00 0.00 4
20 0.00 0.00 0.00 1
27 0.00 0.00 0.00 0

accuracy 0.32 417
macro avg 0.16 0.23 0.18 417
weighted avg 0.28 0.32 0.28 417
```

MODEL EVALUATION

	precision	recall	f1-score	support
3	1.00	1.00	1.00	2
4	0.27	0.75	0.40	4
5	0.13	0.38	0.19	8
6	0.24	0.29	0.26	24
7	0.25	0.41	0.31	39
8	0.19	0.20	0.20	49
9	0.20	0.22	0.21	74
10	0.23	0.25	0.24	71
11	0.19	0.30	0.24	43
12	0.00	0.00	0.00	33
13	0.00	0.00	0.00	16
14	0.00	0.00	0.00	15
15	0.00	0.00	0.00	12
16	0.00	0.00	0.00	8
17	0.50	0.20	0.29	5
18	0.00	0.00	0.00	7
19	0.00	0.00	0.00	3
20	0.00	0.00	0.00	2
21	0.00	0.00	0.00	3
27	0.00	0.00	0.00	0
accuracy			0.21	418
macro avg	0.16	0.20	0.17	418
weighted avg	0.17	0.21	0.18	418



- Test score 0.21291866028708134