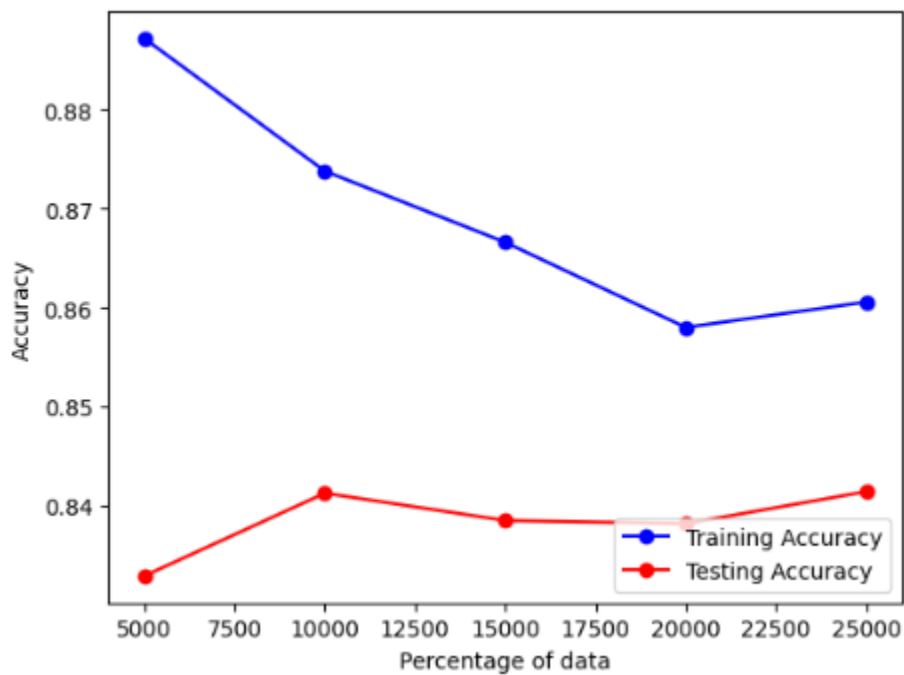


Ντέιβιντ Ισουφάι 3210056

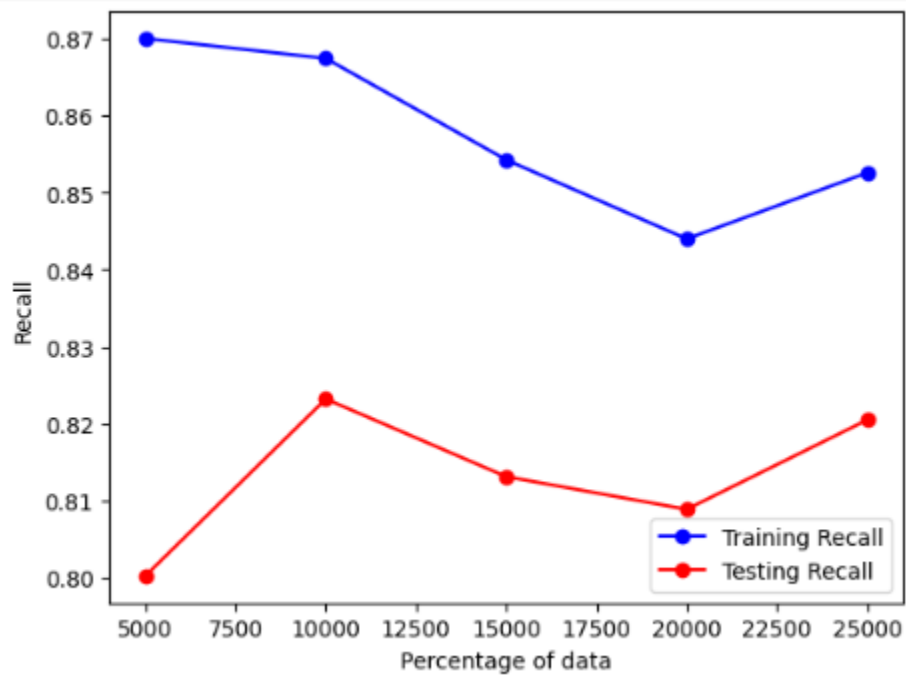
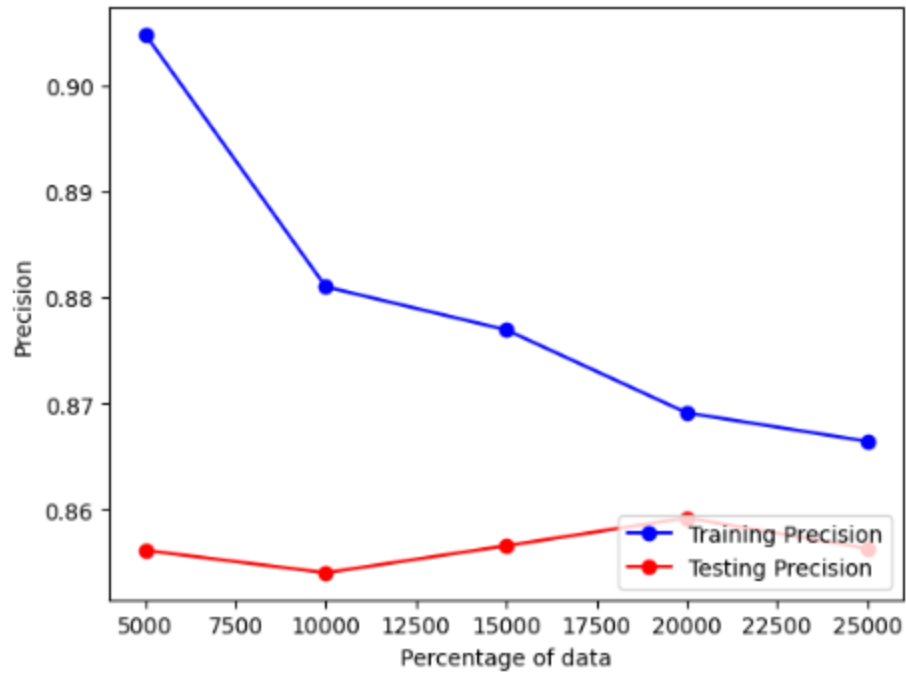
Χρήστος Πέκος 3180153

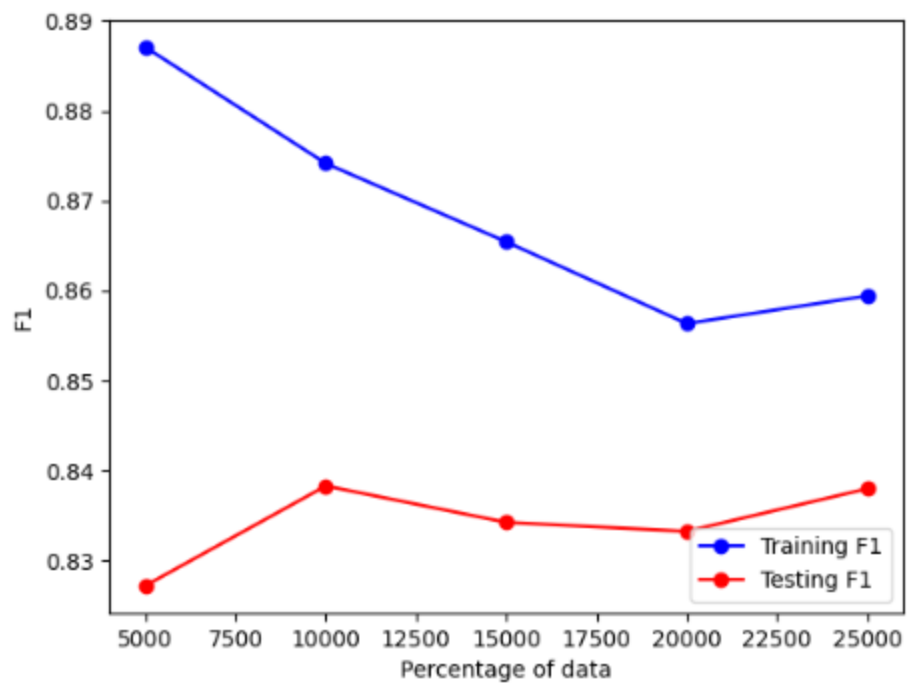
### ΔΙΑΓΡΑΜΜΑΤΑ BAYES

Στα παρακάτω διαγράμματα, βλέπουμε τις αποδόσεις της υλοποίησης μας του Αλγορίθμου naïve Bayes, συγκρίνοντας πάντα το στάδιο της εκπαίδευσης με το στάδιο του testing.



Εδώ, βλέπουμε το πως αλλάζει η ακρίβεια ανάλογα με τον όγκο που παρέχουμε στον αλγόριθμο, τόσο στο στάδιο της εκπαίδευσης όσο και στο στάδιο του testing.

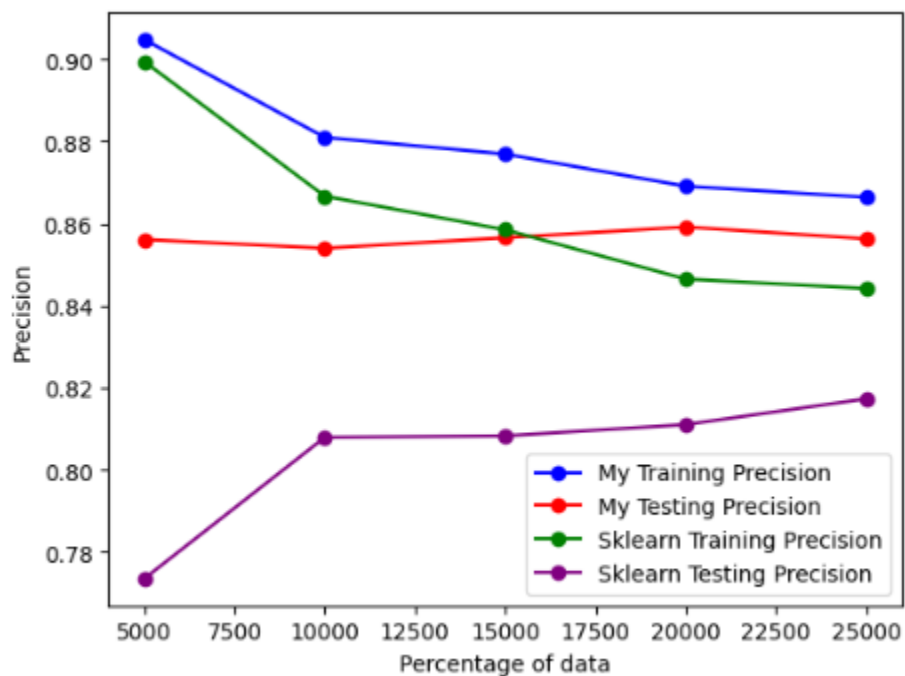
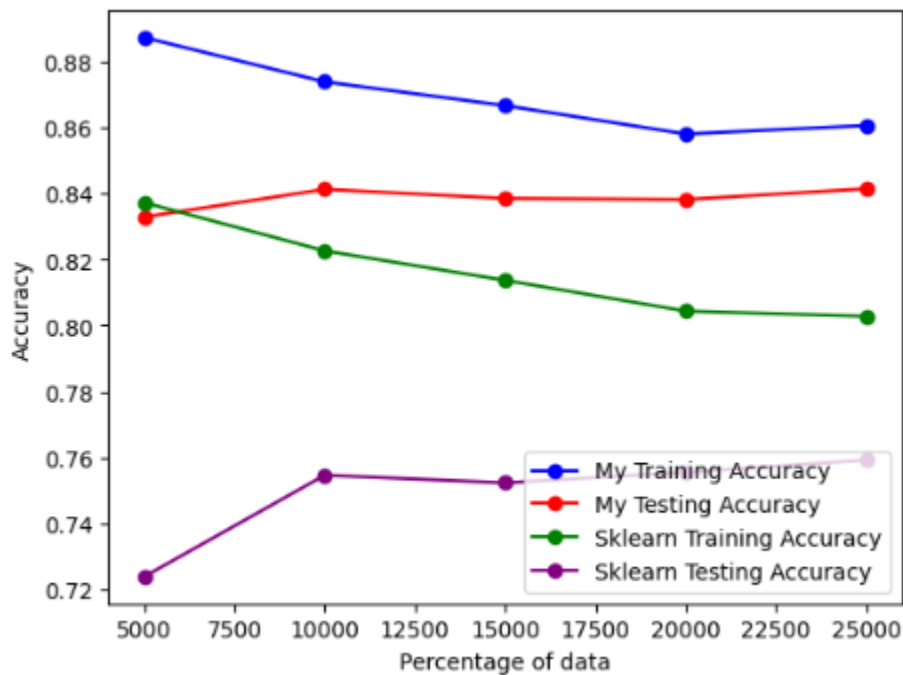


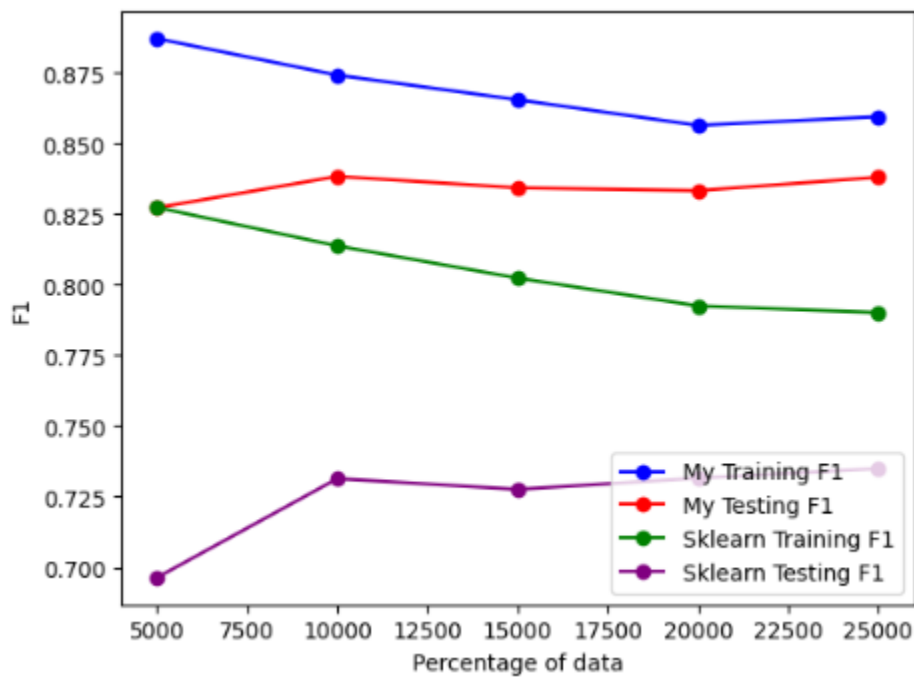
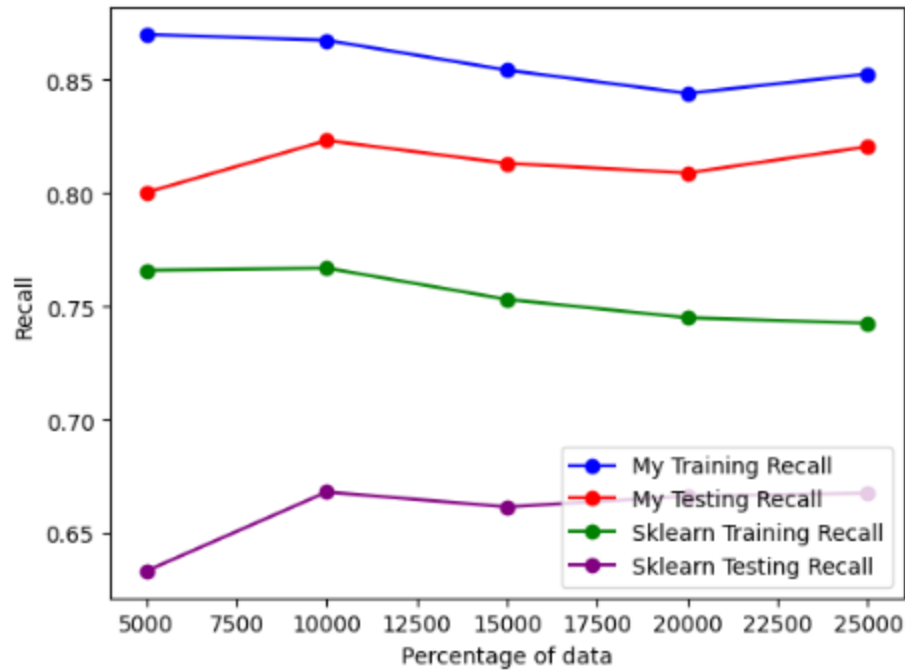


percentage of data

	Train Accuracy	Test Accuracy	Train Precision	Test Precision	Train Recall	Test Recall	Train F1-score	Test F1-score
5000	0.8872	0.83288	0.90482	0.856128	0.869992	0.80024	0.887064	0.827241
10000	0.8738	0.84124	0.881005	0.854013	0.867406	0.8232	0.874152	0.838323
15000	0.8666	0.83848	0.876942	0.856565	0.854241	0.81312	0.865443	0.834277
20000	0.858	0.83816	0.86911	0.859194	0.843984	0.80888	0.856363	0.833278
25000	0.86056	0.8414	0.866423	0.856308	0.85256	0.82048	0.859435	0.838011

Στα παρακάτω διαγράμματα, συγκρίνουμε την ικανότητα του αλγορίθμου μας, με βάση μια υλοποίηση από την βιβλιοθήκη Sklearn, συγκρίνοντας τα ίδια δεδομένα που είδαμε παραπάνω

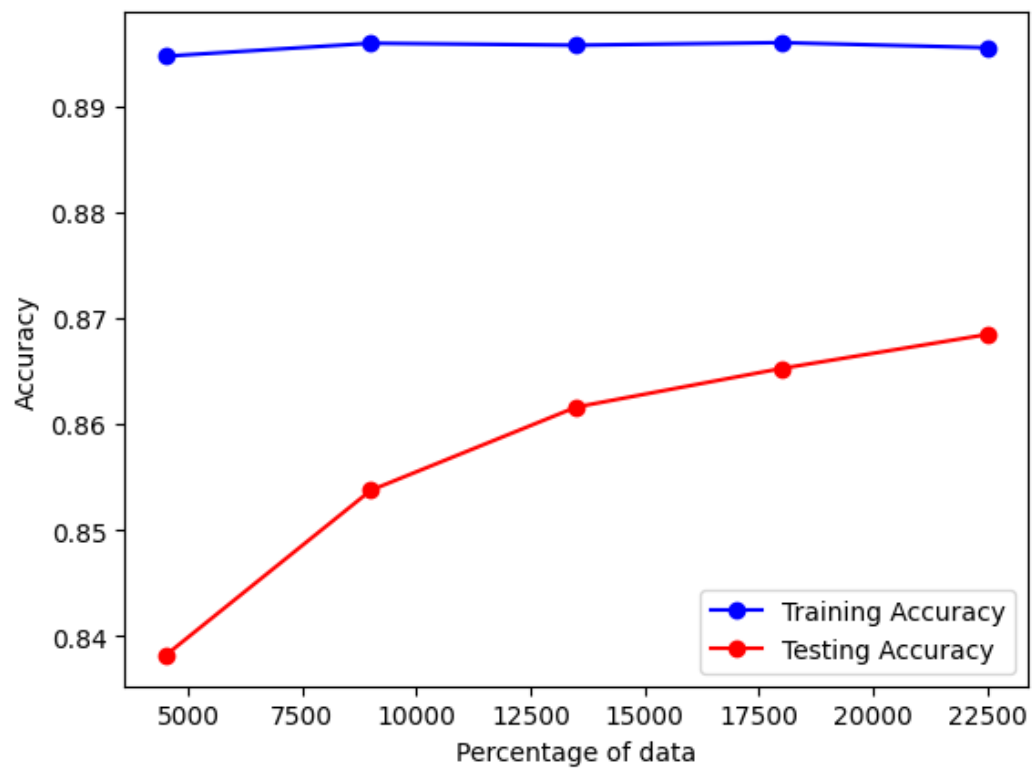


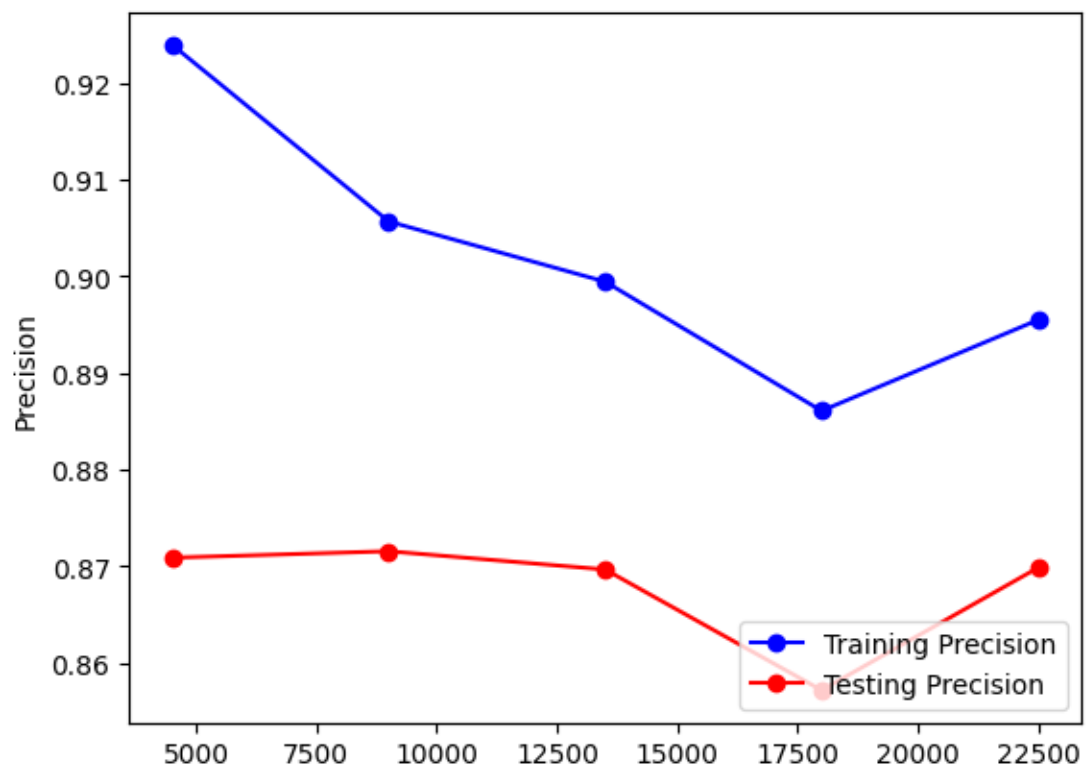


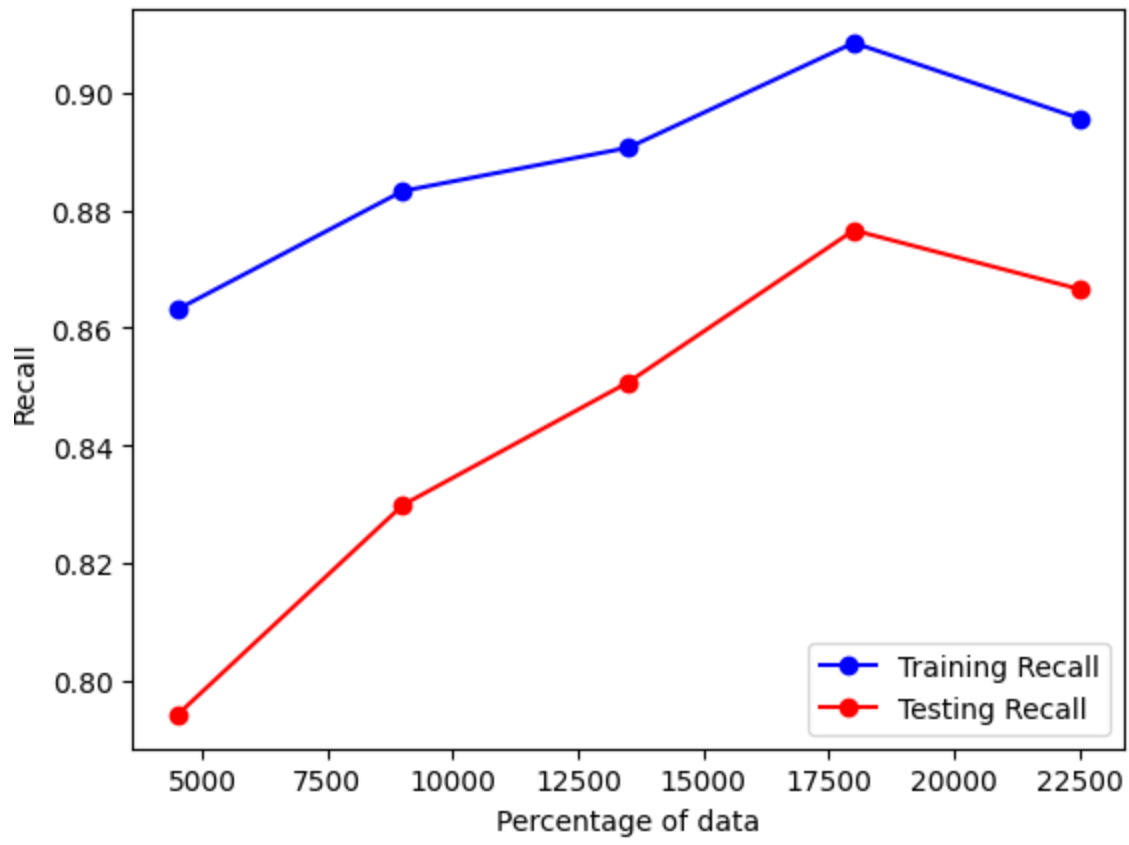
	My Train Accuracy	Sklearn Train Accuracy	My Test Accuracy	Sklearn Test Accuracy	My Train Precision	Sklearn Train Precision	My Test Precision	Sklearn Test Precision	My Train Recall	Sklearn Train Recall	My Test Recall	Sklearn Test Recall	My Train F1-score	Sklearn Train F1-score
5000	0.8872	0.8372	0.8328	0.72392	0.88482	0.89446	0.85128	0.77554	0.86992	0.76587	0.88824	0.6332	0.887804	0.827323
10000	0.8738	0.8226	0.84124	0.75464	0.881805	0.86696	0.85483	0.80793	0.867486	0.765871	0.8232	0.6688	0.874252	0.833734
15000	0.8666	0.81367	0.83848	0.75232	0.876942	0.85895	0.85055	0.80889	0.854241	0.753886	0.81312	0.6632	0.865443	0.802348
20000	0.858	0.80435	0.83816	0.75552	0.86911	0.84511	0.85184	0.81863	0.843584	0.744951	0.80888	0.66024	0.855363	0.792513
25000	0.8685	0.80276	0.8414	0.7592	0.865423	0.844282	0.856388	0.817336	0.85256	0.74256	0.82848	0.6676	0.859435	0.798126

My Test F1-score	Sklearn Test F1-score
0.827241	0.696375
0.838323	0.731389
0.834277	0.727585
0.833278	0.731553
0.838011	0.734919

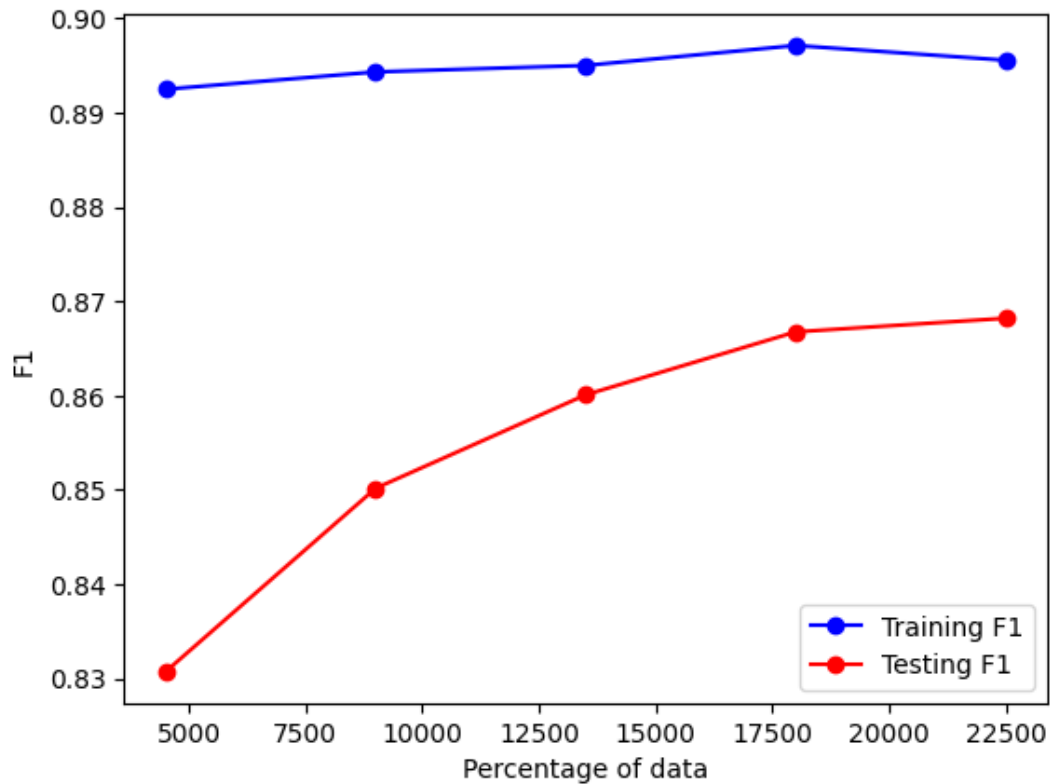
## ΔΙΑΓΡΑΜΜΑΤΑ LOGISTIC REGGRESION





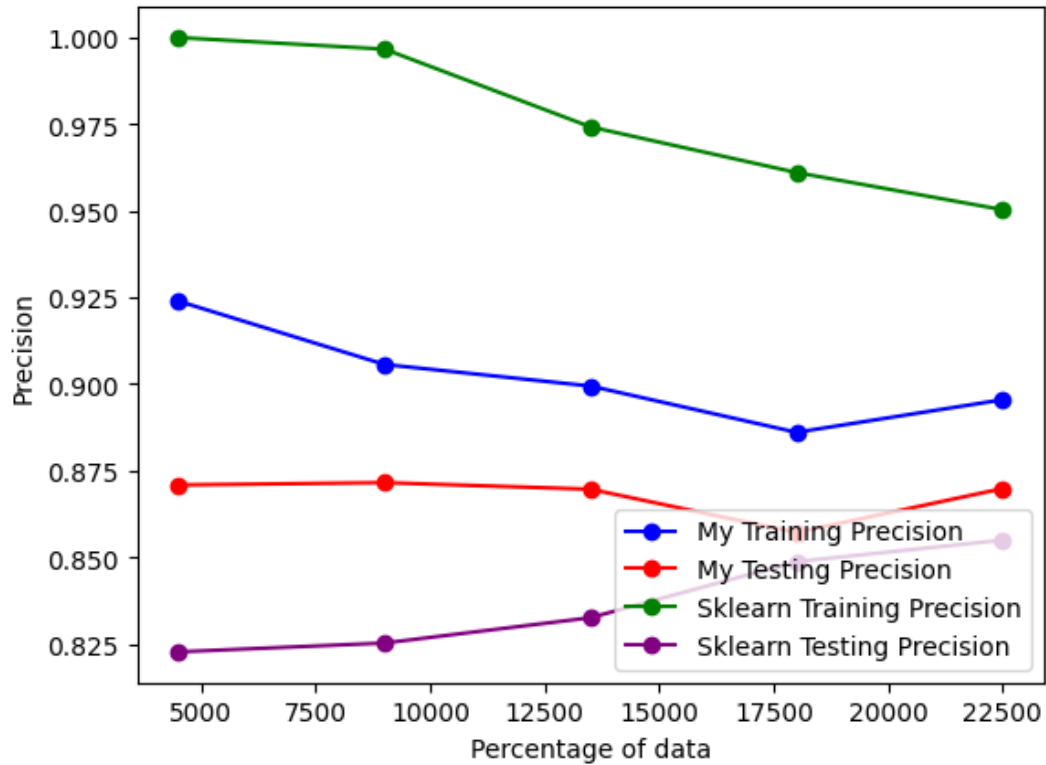
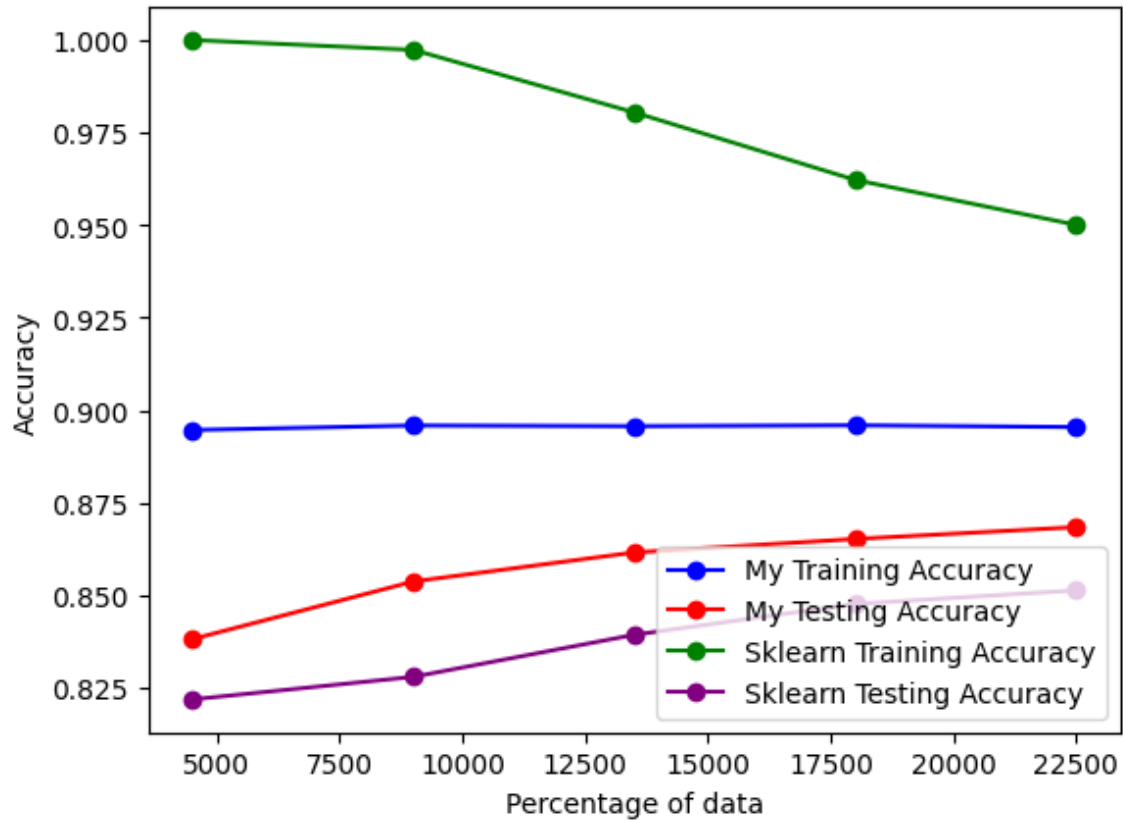


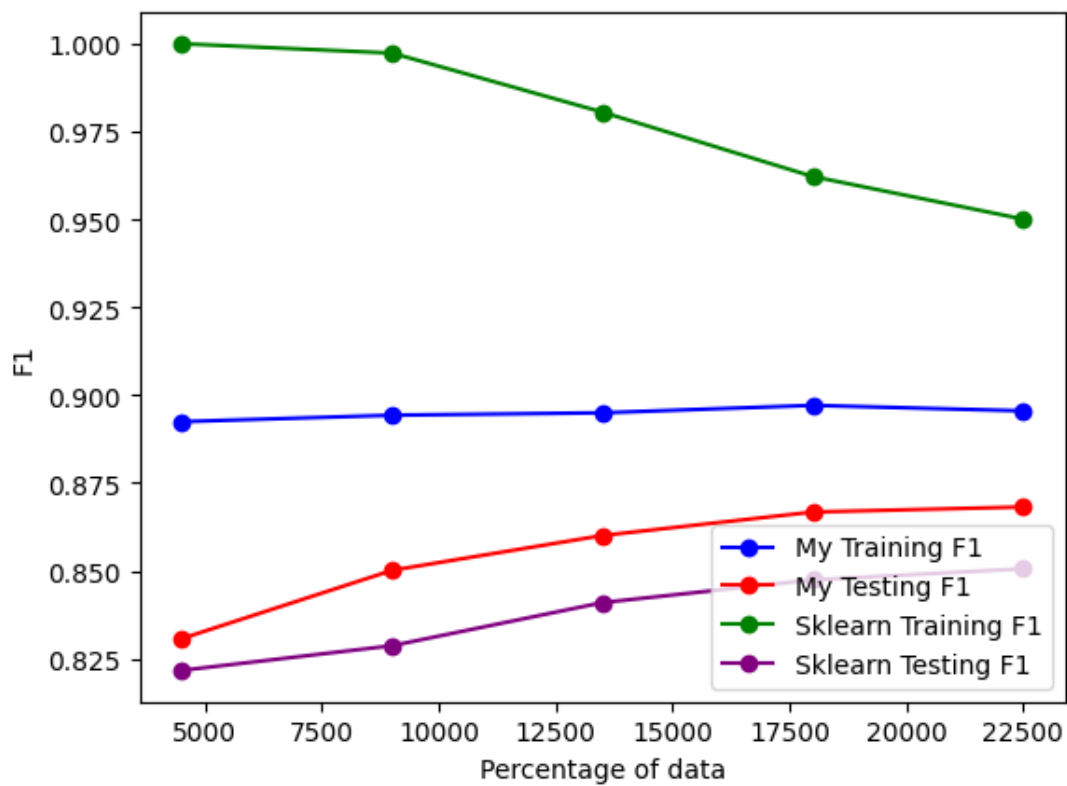
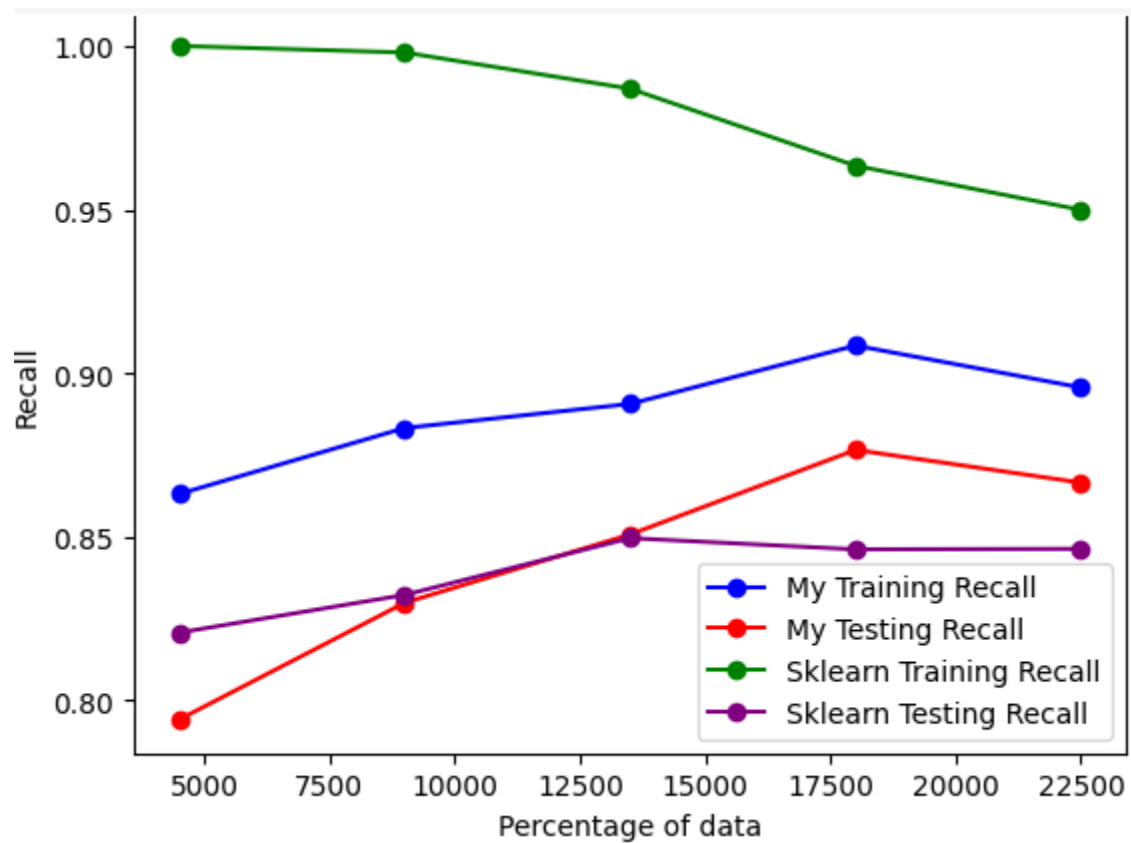




Training ended after 3 epochs  
 With regularization parameter: 0.01 and learning rate: 0.01 the accuracy is: 0.8416  
 Training ended after 5 epochs  
 With regularization parameter: 0.01 and learning rate: 0.001 the accuracy is: 0.8272  
 Training ended after 12 epochs  
 With regularization parameter: 0.01 and learning rate: 0.0001 the accuracy is: 0.8008  
 Training ended after 3 epochs  
 With regularization parameter: 0.001 and learning rate: 0.01 the accuracy is: 0.8656  
 Training ended after 56 epochs  
 With regularization parameter: 0.001 and learning rate: 0.001 the accuracy is: 0.83  
 Training ended after 11 epochs  
 With regularization parameter: 0.001 and learning rate: 0.0001 the accuracy is: 0.8008

	Train Accuracy	Test Accuracy	Train Precision	Test Precision	Train Recall	Test Recall	Train F1-score	Test F1-score
4500	0.894667	0.8382	0.923908	0.870866	0.863098	0.79416	0.892468	0.830746
9000	0.895889	0.85376	0.905643	0.871534	0.883244	0.82984	0.894303	0.850176
13500	0.895704	0.8616	0.899415	0.869643	0.890604	0.85072	0.894988	0.860078
18000	0.895944	0.86524	0.886055	0.857154	0.908433	0.87656	0.897105	0.866748
22500	0.895467	0.86844	0.895461	0.869831	0.895621	0.86656	0.895541	0.868192





	My Train Accuracy	Sklearn Train Accuracy	My Test Accuracy	Sklearn Test Accuracy	My Train Precision	Sklearn Train Precision	My Test Precision
4500	0.894667	1	0.8382	0.82192	0.923908	1	0.870866
9000	0.895889	0.997333	0.85376	0.828	0.905643	0.996662	0.871534
13500	0.895704	0.980444	0.8616	0.83936	0.899415	0.974212	0.869643
18000	0.895944	0.962222	0.86524	0.84768	0.880055	0.961043	0.857154
22500	0.895467	0.950089	0.86844	0.85136	0.895461	0.95032	0.869831

My Test Precision	Sklearn Test Precision	My Train Recall	Sklearn Train Recall	My Test Recall	Sklearn Test Recall	My Train F1-score	Sklearn Train F1-score
0.870866	0.822694	0.863098	1	0.79416	0.82072	0.892468	1
0.871534	0.825242	0.883244	0.997995	0.82984	0.83224	0.894303	0.997328
0.869643	0.832549	0.890604	0.986938	0.85072	0.8496	0.894988	0.980534
0.857154	0.84874	0.908433	0.963396	0.87656	0.84616	0.897105	0.962218
0.869831	0.854938	0.895621	0.949898	0.86656	0.84632	0.895541	0.950109

My Test F1-score	Sklearn Test F1-score
0.830746	0.821706
0.850176	0.828726
0.860078	0.840988
0.866748	0.847448
0.868192	0.850607