(Ερωτηση2)
Step-7:

	User Agerage (UA)	Business Average (BA)	Singular Value Decomposition (SVD)	User-Based Collaborative Filtering (UCF)	Item-Based Collaborative Filtering (ICF)
best RMSE achieved	1.0474	1.0055	0..350	0.5944	1.58
k	-	-	100	12	1

Based on the Root Mean Squared Error (RMSE):

the Singular Value Decomposition (SVD) algorithm (with k = 100) has the lowest RMSE ,followed by User-Based Collaborative Filtering (UCF) algorithm,
Then Business Average (UB) and User Average (UA) algorithms and lastly, the Item-Based Collaborative Filtering (ICF) algorithm (with k = 1).

In terms of computational cost and scalability:

SVD algorithm can be computationally expensive, especially when working with large datasets. This is because the SVD algorithm involves matrix factorization, which can be computationally intensive. However, once the factorization is done, it can be used to make predictions quickly and with low computational cost.
In contrast, User-Based Collaborative Filtering (UCF) algorithm can be relatively less computationally intensive, but it may have scalability issues when working with large datasets. It is because the algorithm needs to compare each user with all other users in the dataset, which can become computationally expensive as the number of users increases.
On the other hand, Item-Based Collaborative Filtering (ICF) algorithm is computationally more efficient than UCF, as it only needs to compare each item with a limited number of other items in the dataset, which makes it more scalable.By running the algorithm with more ks the RMSE remains the same since the amount of similar businesses are low thus making the prediction more dependable on the average of the user u.
Its worth knowing that with these implementations on this specific dataset UCF and ICF took the longest .
When discussing the User Average (UA) and Business Average (UB) algorithms we can say that they are simple they don't need much computational power (if computational sources are limited) and can be the baseline for making comparisons with other algorithms