Image similarity calculator (Using Cosine Similarity)

This is a python based gRPC application where client takes 2 images as input and receives similarity score as a response. Application uses protoc files to communicate.

Server uses Cosine-Similarity algorithm to calculate similarity factor for given images.

Why Cosine-Similarity:

In the vector space model you are comparing two very sparse vectors in very high dimensions. Cosine similarity is calculated using only the dot product and magnitude of each vector, and is therefore affected only by the terms the two vectors have in common, whereas Euclidean has a term for every dimension which is non-zero in either vector. Cosine thus has some meaningful semantics for ranking similar documents, based on mutual term frequency, whereas algo's like Euclidean, Manhattan, etc. does not. Moreover Cosine-Similarity is faster compared to above mentioned methods.

Results with application: (Images in Test_Images Folder):

Case	Similarity Score
Positive1	0.959
Positive2	0.902
Positive3	0.916
Positive4	0.902
Positive5	0.912
Positive6	0.848
Negative1	0.76
Negative2	0.73