Assignment #1 Answers

1. Alice’s 2D Representation: [-0.62562864, -0.295158]

Closest User to Alice in 2D: Bob

Closest User to Alice in 4D: Bob

1. U =

s =

V =

1. ||A-A2|| = 1.327263475418025
2. Epsilon Min X Values # Iterations

0.01 [-0.1373, 0.0602, 0.2578] 471

0.05 [----, Diverged..., ----] 433

0.10 [----, Diverged..., ----] 292

0.15 [----, Diverged..., ----] 248

0.20 [----, Diverged..., ----] 224

0.25 [----, Diverged..., ----] 209

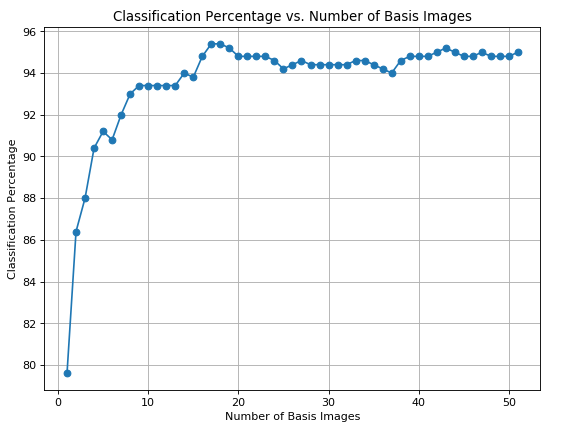
0.50 [----, Diverged..., ----] 173

1. Two linearly Independent Vectors belong to the null space:

Column rank = 2. Since the number of columns is greater than the column rank of A, it is not linearly independent in R3.

Row rank = 2. Since the number of rows is greater than the row rank of A, it is not linearly independent in R4.

Pseduo-inverse of Matrix A =



1. 