1 SVD and PCA [35 Points]

Problem A [3 points]:

> **Solution A:**

Problem B [4 points]:

> **Solution B:**

Problem C [5 points]:

> **Solution C:**

Problem D [3 points]:

> **Solution D:**

Problem E [3 points]: .

> **Solution E:**

Problem F [3 points]:

Solution F:

Problem G [4 points]:

> **Solution G:**

Problem H [4 points]:

> **Solution H:**

Problem I [4 points]:

> **Solution I:**

Problem J [2 points]:

> **Solution J:**

2 Matrix Factorization [30 Points]

Problem A [5 points]:

> **Solution A:**

Problem B [5 points]:

> **Solution B:**

Problem C [10 points]:

> **Solution C:** *See 2D.py and prob2utils.py for the solution code.*

Problem D [5 points]:

> **Solution D:**

Problem E [5 points]:

Solution E:

3   Word2Vec Principles [35 Points]

Problem A [5 points]:

Solution A:

Problem B [10 points]:

> **Solution B:**

Problem C [3 points]:

Solution C:

Problem D [10 points]:

> **Solution D:** *See solution code in P3C.py*

Problem E [2 points]:

> **Solution E:**

Problem F [2 points]:

> **Solution F:**

Problem G [1 points]:

> **Solution G:**

Problem H [2 points]:

> **Solution H:**