Part1 : Output

```
Clustering results using dot product kernel:
     4
     4
     4
     1
     3
     2
     1
     1
     1
     1
     1
     1
     1
     1
     1
     1
     1
     1
     1
     1
     1
     4
     1
     1
     1
     1

Clustering results using polynomial kernel (degree 2):
     4
     1
     4
     1
     3
     2
     1
     4
     1
     1
     1
     1
     1
     1
     1
     1
     1
     1
     1
     1
     1
     4
     1
     1
     1
     1
```

** Analysis of Diagonal Sub-Matrices (assuming class labels in file names) **
  - Class 1:
      Mean similarity: 788266
      Standard deviation of similarity: 0
      Jaccard similarity matrix (upper triangle):
    0

  - Class 2:
      Mean similarity: 13413901.4082
      Standard deviation of similarity: 89544382.1049
      Jaccard similarity matrix (upper triangle):
    0
    1
    1
    1
    1
    1
    1
    0
    1
    1
    1
    1
    1
    0
    1
    1
    1
    1
    0
    1
    1
    1
    0
    1
    1
    0
    1
    0

  - Class 3:
      Mean similarity: 626.16
      Standard deviation of similarity: 2104.5498
      Jaccard similarity matrix (upper triangle):
    0
    1
    1
    1
    1
    1
    1
    1
    1
    1
    1
    0
    1
    1
    1

```
1
1
1
1
1
0
1
1
1
1
1
1
1
0
1
1
1
1
1
1
0
1
1
1
1
1
0
1
1
1
1
0
1
1
1
0
1
1
0
1
0
```

- Class 4:
    Mean similarity: NaN
    Standard deviation of similarity: NaN
    Jaccard similarity matrix (upper triangle):
- Class 5:
    Mean similarity: NaN
    Standard deviation of similarity: NaN
    Jaccard similarity matrix (upper triangle):

Silhouette Score Distribution (Dot Product Kernel) | Silhouette Score Distribution (Polynomial Kernel)

Part2 : Output

```
Clustering results using dot product kernel:
    4
    1
    4
    1
    3
    2
    1
    1
    1
    1
    1
    1
    1
    1
    1
    1
    1
    1
    1
    1
    1
    1
    1
    1
```

```
        1
        1
        1

Clustering results using polynomial kernel (degree 2):
        4
        1
        4
        1
        3
        2
        1
        1
        1
        1
        1
        1
        1
        1
        1
        1
        1
        1
        1
        1
        1
        1
        1
        1
        1
        1

Average Silhouette Score using dot product kernel clustering:
     0.9468

Average Silhouette Score using polynomial kernel clustering:
     0.9796

** Analysis of Diagonal Sub-Matrices (assuming class labels in file names) **
   - Class 1:
       Mean similarity: 1628396237
       Standard deviation of similarity: 0
       Jaccard similarity matrix (upper triangle):
       0

   - Class 2:
       Mean similarity: 3554904633.9184
       Standard deviation of similarity: 13264137683.8259
       Jaccard similarity matrix (upper triangle):
       0
       1
       1
       1
       1
       1
       1
       0
       1
```

1
1
1
1
0
1
1
1
1
0
1
1
1
0
1
1
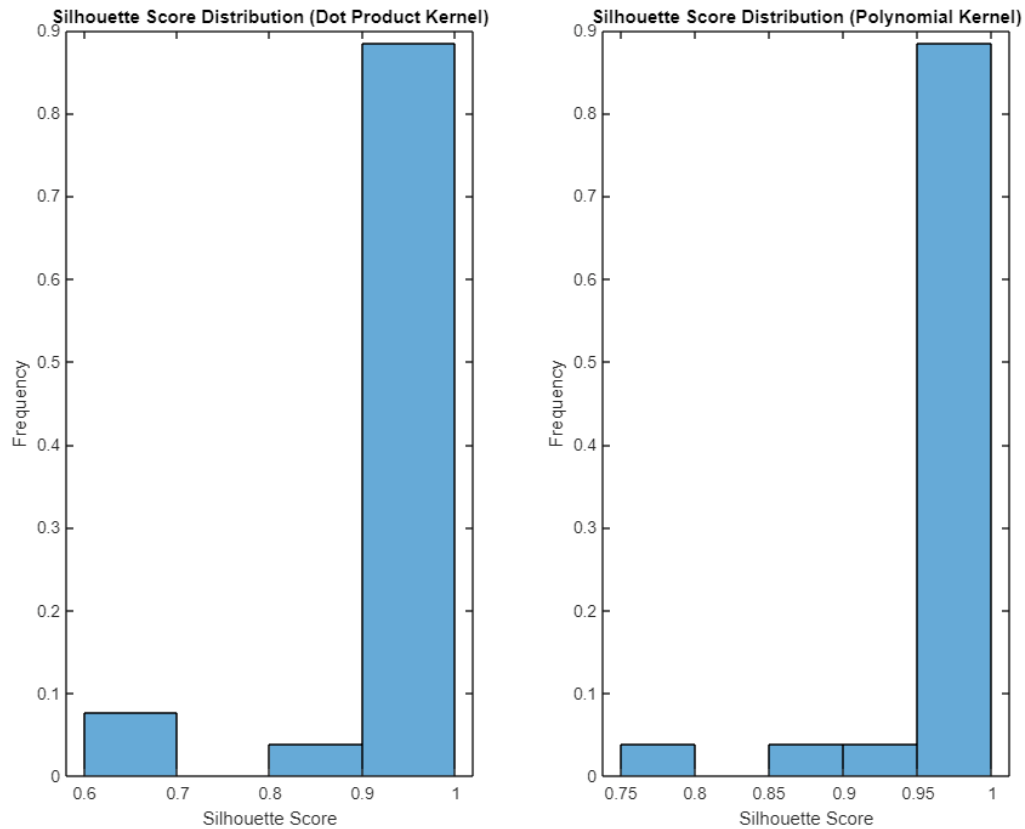0
1
0

- Class 3:
    Mean similarity: 16998816.5
    Standard deviation of similarity: 19601707.4591
    Jaccard similarity matrix (upper triangle):
0
1
1
1
1
1
1
1
1
1
0
1
1
1
1
1
1
1
1
0
1
1
1
1
1
1
1
0
1
1
1
1
1
1

```
0
1
1
1
1
1
0
1
1
1
1
0
1
1
1
0
1
1
0
1
0
```

- Class 4:
    Mean similarity: NaN
    Standard deviation of similarity: NaN
    Jaccard similarity matrix (upper triangle):
- Class 5:
    Mean similarity: NaN
    Standard deviation of similarity: NaN
    Jaccard similarity matrix (upper triangle):

Part-3 Output :

Average Silhouette Score using dot product kernel clustering:
    0.9584

Average Silhouette Score using polynomial kernel clustering:
    0.9936

Analysis of Diagonal Sub-Matrices

  - Class 1:
     Mean similarity: 8344622
     Standard deviation of similarity: 0
  - Class 2:
     Mean similarity: 8492560.449
     Standard deviation of similarity: 47034316.1578
  - Class 3:
     Mean similarity: 100930.95
     Standard deviation of similarity: 54276.7063
  - Class 4:
     Mean similarity: NaN
     Standard deviation of similarity: NaN
  - Class 5:
     Mean similarity: NaN
     Standard deviation of similarity: NaN

Part-4.1 Output:

Average Silhouette Score using dot product kernel clustering:

```
    -0.8844

Average Silhouette Score using polynomial kernel clustering:
    0.0385



** Analysis of Diagonal Sub-Matrices (assuming class labels in file names) **
  - Class 1:
      Mean similarity: 788266
      Standard deviation of similarity: 0
  - Class 2:
      Mean similarity: 13413901.4082
      Standard deviation of similarity: 89544382.1049
  - Class 3:
      Mean similarity: 626.16
      Standard deviation of similarity: 2104.5498
  - Class 4:
      Mean similarity: NaN
      Standard deviation of similarity: NaN
  - Class 5:
      Mean similarity: NaN
      Standard deviation of similarity: NaN


Part-4.2 Output:

Average Silhouette Score using dot product kernel clustering:
    -0.8449

Average Silhouette Score using polynomial kernel clustering:
    0.0373


** Analysis of Diagonal Sub-Matrices (assuming class labels in file names) **
  - Class 1:
      Mean similarity: 1628396237
      Standard deviation of similarity: 0
  - Class 2:
      Mean similarity: 3554904633.9184
      Standard deviation of similarity: 13264137683.8259
  - Class 3:
      Mean similarity: 16998816.5
      Standard deviation of similarity: 19601707.4591
  - Class 4:
      Mean similarity: NaN
      Standard deviation of similarity: NaN
  - Class 5:
      Mean similarity: NaN
      Standard deviation of similarity: NaN




Part-4.3 Output:

Average Silhouette Score using dot product kernel clustering:
    0.9921
```

Average Silhouette Score using polynomial kernel clustering:
    0.9997

** Analysis of Diagonal Sub-Matrices (assuming class labels in file names) **
  - Class 1:
      Mean similarity: 44688507
      Standard deviation of similarity: 0
  - Class 2:
      Mean similarity: 93199874.6122
      Standard deviation of similarity: 314712372.0399
  - Class 3:
      Mean similarity: 443357.08
      Standard deviation of similarity: 340203.1419
  - Class 4:
      Mean similarity: NaN
      Standard deviation of similarity: NaN
  - Class 5:
      Mean similarity: NaN
      Standard deviation of similarity: NaN