The first row of the matrix is skipped for column headers, if you don't have column headers delete the skiprows section on line 6.

```
1  from sklearn.metrics.pairwise import cosine_similarity
2  import numpy as np
3
4  def read_matrix_from_file(file_path, columns_to_read):
5      # Read specific columns from the file
6      matrix = np.loadtxt(file_path, usecols=columns_to_read, skiprows=1, delimi
7      # Reshape matrix to make it a 2D array
8      return np.reshape(matrix, (1, -1))
9
10 # Define the columns to read from the CSV files
11 columns_to_read = [4, 5, 6, 7, 8]
```

Change line 11 to specify which columns have data (in order 0 1 2 3 4 5 ... etc)

```
13 # Open the text files containing matrices
14 with open('4ProcPlan1.txt', 'r') as file1, open('4ProcPlan2.txt', 'r') as file2:
15     # Read the entire contents of the files
16     matrix1_list = [read_matrix_from_file(line.strip(), columns_to_read) for line in file1 if line.strip()]
17     matrix2_list = [read_matrix_from_file(line.strip(), columns_to_read) for line in file2 if line.strip()]
18
19 # Calculate cosine similarity for each pair of vectors
20 cos_sim_matrix = np.zeros((len(matrix1_list), len(matrix2_list)))
21 for i, matrix1 in enumerate(matrix1_list):
22     for j, matrix2 in enumerate(matrix2_list):
23         cos_sim = cosine_similarity(matrix1, matrix2)
24         cos_sim_matrix[i, j] = cos_sim[0][0]
25
26 print("Cosine Similarity Matrix:")
27 print(cos_sim_matrix)
```

Change line 14 to be your own text files.

```
C:\Users\Bailey\Downloads\Research\ResearchCoop\ABP-mkt-code\Solutions\UVP\proc_plans\UVP_market_assignments_Coverage_3_BH_proc_plans.csv
C:\Users\Bailey\Downloads\Research\ResearchCoop\ABP-mkt-code\Solutions\UVP\proc_plans\UVP_market_assignments_Coverage_3_MC_proc_plans.csv
C:\Users\Bailey\Downloads\Research\ResearchCoop\ABP-mkt-code\Solutions\UVP\proc_plans\UVP_market_assignments_GNI_3_BH_proc_plans.csv
C:\Users\Bailey\Downloads\Research\ResearchCoop\ABP-mkt-code\Solutions\UVP\proc_plans\UVP_market_assignments_GNI_3_MC_proc_plans.csv
```

The text files should be like this.

```
Cosine Similarity Matrix:
[[1.         0.26151499 0.94037067 0.31971079 0.29922971 0.55030284
  0.22855917 0.58266196]
 [0.26151499 1.         0.24198729 0.74923559 0.38129152 0.50416335
  0.33583592 0.39078646]
 [0.94037067 0.24198729 1.         0.35580532 0.33375935 0.59151927
  0.23304409 0.56686622]
 [0.31971079 0.74923559 0.35580532 1.         0.62961382 0.58709729
  0.34618836 0.4870105 ]
 [0.29922971 0.38129152 0.33375935 0.62961382 1.         0.66195976
  0.36166074 0.6487791 ]
 [0.55030284 0.50416335 0.59151927 0.58709729 0.66195976 1.
  0.39444911 0.77754884]
 [0.22855917 0.33583592 0.23304409 0.34618836 0.36166074 0.39444911
  1.         0.40296417]
 [0.58266196 0.39078646 0.56686622 0.4870105  0.6487791  0.77754884
  0.40296417 1.        ]]
```

You might want save the resulting matrix to a dataframe, I just did mine manually.