Pseudocode

Part 1.

Initialize name variables.

Create Matrices

Initialize mat1 and mat2 off name variables

Write for loops to add proper number to 2d list

Write list to file

Hard code other list size variables.

Create matrices

Initialize off others off list size variables.

Write list to file

Part 2.

Create function that takes 2 files and adds them together

Open files that are passed to func.

Place values in 2d list

Put into variables row and column size of list

If rows and columns are not the same for both matrices do not add

Else initialize sum 2d list

Go through list and add the same position coordinates to each other and place in sum list

Create function to prompt for file name

Get files

Preform function

Create write file.

Part 3.

Create function that takes 2 files and multiply them together

Open files that are passed to func.

Place values in 2d list

Put into variables row and column size of list

If column1 and row2 are not the same for both matrices do not multiply

Else initialize multiply 2d list

Create temp list to hold transverse of file 2

Use nested for loops to flip rows and columns of file2

For nested loops of row(file1) and columns(file2) create temp arrays that hold values of rows and columns respectively

For those arrays preform the dot product and place it in multiply 2d list

Return mult. 2d list

Create function to prompt for file name

Get files

Preform function

Create write file

Part 4.

Same function to get matrices as part 2 and 3.

Instead import numpy

In for loops that do addition or multiplication make single call to add files or multiply using dot respectively

Print return arrays to file

Part 5.

Initialize vectors and print to files

Transpose both files

Use same loop for part 3 multiplication, but only return a single value from the computation

Print returned value to file

Part 6.

Read in file and initialize vectors

Use transpose loops created in part 3

Print returned vector to file

Part 7.

Initialize vectors

Use numpy dot product and transpose func.

Print returns of call to file.