Exercise   *Computer Vision (CSCI 4220U)*

Please hand in this paper to the instructor before the end of the lecture.

Name: _____

Student number: _____   Date: _____

Q. Write down the steps that you'll follow to show the the following 2D filter is separable

$$\begin{pmatrix} 1 & 3 & 1 \\ 3 & 9 & 3 \\ 1 & 3 & 1 \end{pmatrix}.$$

Optional Q. If the above 2D filter is separable, can you write down the vertical and horizontal components. How would you prove that you've arrive dat the correct result? *Note: you may need to use numpy to perform SVD to compute the horizontal and vertical components.*