By construction $\mathbf{Y}^T\mathbf{Y}$ equals the covariance matrix of $\mathbf{X}$. From section 5 we know that the principal components of $\mathbf{X}$ are the eigenvectors of $\mathbf{C_X}$. If we calculate the *SVD* of $\mathbf{Y}$, the columns of matrix $\mathbf{V}$ contain the eigenvectors of $\mathbf{Y}^T\mathbf{Y} = \mathbf{C_X}$. *Therefore, the columns of* $\mathbf{V}$ *are the principal components of* $\mathbf{X}$. This second algorithm is encapsulated in Matlab code included in Appendix B.