1) Given seconstantion loss function

$$L = \sum_{n=1}^{\infty} || x^{(n)} - x^{(n)}||^{2}$$

where

$$x^{(n)} = V(W_{x}^{(n)} + b) + c$$

Since we assume data is mean-centered

$$\sum_{n=1}^{\infty} x^{(n)} = 0$$

$$x^{(n)} = V(W_{x}^{(n)})$$

$$L = \sum_{n=1}^{\infty} || x^{(n)} - VW_{x}^{(n)}||^{2}$$

$$x^{(n)} = V(W_{x}^{(n)})$$

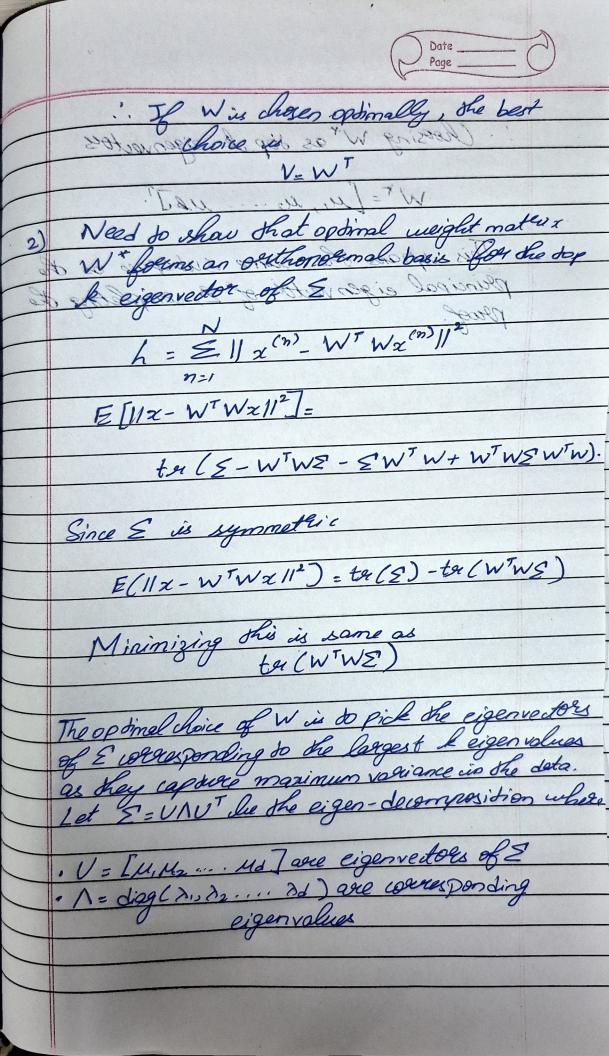
$$x^{(n)} = V(W_{x}^{(n)})$$

$$x^{(n)} = V(W_{x}^{(n)})$$

$$x^{(n)} = \sum_{n=1}^{\infty} (x^{(n)} - VW_{x}^{(n)}) x^{(n)}$$

Having $x^{(n)} = \sum_{n=1}^{\infty} (x^{(n)} - VW_{x}^{(n)}) x^{(n)}$

$$x^{(n)} = \sum_{n=1}^{\infty} (x^{(n)} - VW_{x}^{(n)}) x^{(n)}$$



weiters 2 spans the same subspace of the Vincipal eigen vectors of 2, rug. (11) 1:18