You work for an AI company currently working on implementing a deep learning application to predict house prices in a neighbourhood based on historical data. You have been instructed to submit a report on how Linear Algebra are used in the deep learning for feedforward to obtaining prediction error.

Your report must:

1. Outline what a ‘vector’ is and provide an example of how vectors can represent data in a deep learning.
2. Outline the purpose of vector transpose and provide an example of how it can be used in deep learning.
3. Outline how to calculate the magnitude and direction of a vector and provide an example of how this information can be useful in the context of deep learning.
4. Explain with an example the use of vector addition and multiplication in the context of deep learning.
5. Describe how vectors can be used in programming with Python, including examples of relevant libraries and functions.
6. Give examples of linear combination and span, and explain how they can be used in deep learning.
7. Describe the concept of linear dependency and provide an example of how it can be helpful in deep learning.
8. Outline what a matrix means and provide an example of how matrices can be used in the context of deep learning.
9. Explain how to apply matrix arithmetic to perform matrix addition, scalar multiplication of a matrix, and matrix multiplication, providing examples of how these operations can be helpful in the context of deep learning.
10. Explain how the feedforward process uses linear algebra, providing relevant equations and operations examples.

**Note:**

For 1 to 10 Must give relevant example for each point, supported by print-screen of code

For 4, must provide two or more examples within the explanation.

For 6. must provide two or more examples for each term.

For 10. Must provide an explanation, own FeedForward Network (FNN) architecture, matrix representation of the FNN, and arithmetic representation of the FNN