AIML 425 Assignment 3

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Statement

The code and report of the Assignment was solely completed by myself (Thompson James). The complete source code can be found here https://gitea.james-server.duckdns.org/james/AIML425_assignment_3, with a link to a colab notebook found here: TODO. A complete run through of the notebook takes about an hour to complete on a university lab machine.

I completed my work using the following tools:

- **Jupyter Notebook [1] and JupyterText [2]:** For interactive development and hosting.
- **LaTeX [?]:** For writing the report.
- **VSCode [3]:** As IDE.
- **JAX [4] and Flax [5]:** For implementing the neural network and training logic.
- **Matplotlib [6] and Pandas [7]:** For data visualization and management.

References

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[2] M. Wouts, "Mwouts/jupytext," Aug. 2025.
[3] "Microsoft/vscode," Microsoft, Jul. 2025.
[4] J. Bradbury, R. Frostig, P. Hawkins, M. J. Johnson, C. Leary, D. Maclaurin, G. Necula, A. Paszke, J. VanderPlas, S. Wanderman-Milne, and Q. Zhang, "JAX: Composable transformations of Python+NumPy programs," 2018.
[5] J. Heek, A. Levskaya, A. Oliver, M. Ritter, B. Rondepierre, A. Steiner, and M. van Zee, "Flax: A neural network library and ecosystem for JAX," 2024.
[6] J. D. Hunter, "Matplotlib: A 2D graphics environment," *Computing in Science & Engineering*, vol. 9, no. 3, pp. 90–95, 2007.
[7] The pandas development team, "Pandas-dev/pandas: Pandas."