

Reflection Report on Artificial Neural Network (ANN)

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This reflection document details the changes made in response to feedback on the Software Requirements Specification (SRS), Design Document, and Verification and Validation (VnV) Plan for the Artificial Neural Network (ANN) system. It describes the iterative process and key decisions made for the system, followed by a summary of the project's goals, achievements, and anticipated future modifications.

1 Changes in Response to Feedback

This section outlines how comments and suggestions from the instructor and teammates were instrumental in achieving success.

1.1 SRS

The project was systematically planned using the SRS document, which provided a roadmap for ongoing ANN system development. The initial development steps and all requirements were documented. Introducing a domain expert and a secondary reviewer proved effective for quality feedback. Final SRS adjustments were influenced by Dr. Smith's crucial feedback, though some of his views diverged from the author's, as detailed in [this issue link](#). Changes committed based on Dr. Smith's comments are also accessible through the mentioned link as well.

1.2 Design and Design Documentation

The initial drafts of the Module Guide (MG) and Module Interface Specification (MIS) significantly aided implementation, despite undergoing many changes. Reviewed by domain experts, secondary expert, and Dr. Smith, their usefulness was enhanced. Feedback from Dr. Smith and the author's comments can be found [here](#).

1.3 VnV Plan

The VnV plan was crucial in defining the requirements. It was updated following reviews by experts and Dr. Smith, similarly to the SRS document. Details on the changes influenced by Dr. Smith's feedback and the author's responses are available [here](#).

2 Design Iteration (LO11)

The development documents were subjected to several iterations for updates. The first iteration, which included the original document, was developed and verified by authour. In the second iteration, areas needing improvement were identified by the domain expert. All feedback was systematically collected on GitHub issues for easy reference, and these issues were updated instantaneously to prevent their recurrence during the third iteration, which was a secondary peer review. The final verification of the document was performed by Dr. Smith. The use of this process is highly recommended for future software development projects.

3 Design Decisions (LO12)

This project involved redeveloping a previous version initially created in a Jupyter Notebook without separate modules. Our goal was to modularize the structure and improve accuracy. Additionally, we implemented features to save the trained model and incorporate an upload function.

In the context of the Artificial Neural Network (ANN), we increased our dataset size by 2.5 times and initially expected a corresponding decrease in model accuracy, predicting it might fall to about 18% (45 divided by 2.5) of its original level. Our accuracy was over 20%. This better-than-anticipated result not only confirms the validity of our approach but also emphasizes the improved generalization ability of our model, marking significant progress towards achieving our project goals.

4 Reflection on Project Management (LO24)

This section focuses on processes and tools used for project management.

4.1 How Does Your Project Management Compare to Your Development Plan

Everything proceeded as planned across all the steps.

4.2 What Went Wrong?

Despite knowing that achieving very high accuracy with ANNs is challenging, I had set my expectations higher than what was realistically achievable. Additionally, I initially updated the design documents to reflect changes made during my implementation, based on the feedback received from my presentation. Only after this did I review the feedback from the reviewers and Dr. Smith. Looking back, it would have been more effective to review all the feedback first before making any modifications.

4.3 What Would you Do Differently Next Time?

Next time, I would select a project for which there is clear evidence of successful outcomes. This approach would likely enhance the project's feasibility and increase the chances of achieving high-quality results.