**Self Evaluation:**

In this assignment and the related two assignments, I began by reproducing a Feedforward Artificial Neural Network (ANN) using TensorFlow and Keras, aimed at predicting diabetes based on structured medical data such as pregnancies, glucose levels, and BMI. The ANN model architecture included two hidden layers with variable units using ReLU activation, and a sigmoid activation function for binary classification. To improve the model’s performance, I integrated Batch Normalization for generalization and Dropout layers to prevent overfitting. Additionally, I developed a Deep Belief Network (DBN) with Restricted Boltzmann Machine (RBM) pre-training, which facilitated unsupervised feature extraction before training the neural network. While the DBN model achieved moderate accuracy (69.48%), the optimized ANN performed better, reaching an accuracy of 81.81%. These models were trained using the structured PIMA dataset, which includes important health indicators relevant to diabetes prediction. Although I initially attempted to incorporate time series data, I was unable to fully implement it at this stage. However, I managed to switch to a more comprehensive structured dataset, providing richer information for further model improvements. Then, I incorporated the deep learning model into a triangle model framework, comprising three key components: Keras for model development, Streamlit for building an interactive user interface, and MongoDB for data storage. During this setup, we faced certain difficulties in connecting all the three components but we got rid of those by helping each other eventually. This setup facilitated real-time user interaction, where health data inputs were processed by the model, and predictions were stored in the database for subsequent analysis. While the integration worked smoothly for structured data, the model had limitations, particularly in handling multi-modal data, which was essential for more comprehensive diabetes prediction. Therefore, after evaluating the performance, we decided to proceed with Ashna’s model, which demonstrated superior accuracy, better support for multi-modality, and a well-structured deep learning architecture, making it a more viable solution for the project’s goals. Along with this, I also contributed to the technical report by updating our problem statement and objectives as per the developments and changes in the project we have made. I have also worked on drafting the interview questions which focuses on the challenges and feedback of the project. Along with that, I participated in drafting the PPT and gave suggestions in finalizing that. In the coming assignments, we decided to go with a more cohesive plan to increase our specific contributions towards the project.

**Peer Evaluation:**

**Ashna Ali:** As a team leader, she did well on communicating how the tasks need to be divided among the team members. She also coordinated and communicated regularly to know where we have reached in developing our models. Coming to technical collaboration, the efforts she kept in developing the model and the incorporation of multi-modularity to the dataset was impressive. We have decided to go on with her model mainly because it is better in terms of accuracy and diversity in the data. She also helped us in clearing any of the issues we faced while building the triangle model as far as she knows about them. She also ensured that we did our tasks well within the deadline and was ready to help us in whatever way she was able to do so.Overall, she did a good job in making the project move forward along with the team!

**Venkat Sai:** He did a good job in finding the different variety of datasets in the earlier stages. Those datasets were very much helpful to incorporate the time series data in the model. He faced some issues more than I have faced while connecting the three ends in the triangle model, but he cleared those issues with the help of other team members and from the other sources. In terms of communicating, Venkat did pretty well when we had a meeting. He explained his thoughts on how the final frontend application looks and also the features we need to incorporate them. He gave us the idea of creating a model with minor modifications based on the gender to give more personalized results.

**Sai Kiran:** He actively collaborated during our discussions on the project and worked along with Venkat as he also faced similar kinds of issues with the triangle model. He communicated all his thoughts and the doubts he had to almost every thing which we propose and this made us think and change our approach as needed. Coming to technical collaborations, he and Venkat have developed a model together and are also able to achieve a good amount of accuracy but they don't have any time series data which makes that almost similar to mine.