

Assignment: Breast Cancer with Neural Network

Dear Trainees,

As part of our internship program, I am assigning you a task to help solidify your understanding of the concepts we have covered in our sessions, I am assigning a practical task to help you apply what you have learned.

Tasks: Building a Neural Network (NN) model for Breast Cancer Classification using a real-world dataset. Your goal is to preprocess the data, develop a deep learning model, and evaluate its performance.

Assignment Steps:

1. Import Dataset

- Load the **Breast Cancer Dataset.csv** file

2. Data Preprocessing

- Handle missing values (if any).
- Encode categorical variables (e.g., diagnosis labels: benign/malignant).
- Scale numerical features for better model performance.
- Identify and address any class imbalance (if applicable).

3. Model Development

- Build a **Neural Network (NN) model** (Sequential) using TensorFlow/Keras.
- Use an appropriate architecture (e.g., multiple dense layers with activation functions like ReLU and softmax).
- Train the model and evaluate its performance using accuracy, validation, loss function.
- ~~Experiment with different hyperparameters to improve accuracy (e.g., number of layers, neurons, dropout, batch size, learning rate).~~
- Build Predictive model

4. Submit Your Work

Upload your project (dataset, code) to GitHub in repo named "**Breast-Cancer-Classification-System-with-Neural-Network**"

Deliverables:

- Proper data preprocessing and feature engineering.
- No Need for visualizations.
- Model accuracy of at least **85%**
- Clean and well-documented code
- Correct submission on GitHub

 **Submit your assignment by Thursday 27/03/2025 Until 12:00PM**

Additional Notes:

- If you have any questions or need clarification, feel free to reach out to me.
- This assignment is an opportunity to practice and apply your knowledge, so make the most of it.

Best regards,

DS. Tariq