Design Plan for Predicting IMDb Scores using Gradient Boosting:

1. Data Collection and Preprocessing:
   - Gather IMDb dataset including features like movie genre, director, actors, budget, release date, etc.
   - Handle missing data, encode categorical variables, and normalise numerical features
2. Feature Selection:
   - Analyze feature importance to select relevant features for the model.
3. Model Selection:
   - Choose Gradient Boosting algorithms such as XGBoost, LightGBM, or CatBoost due to their effectiveness in handling complex relationships in data.
4. Data Splitting:
   - Split the dataset into training and testing sets (typically 80-20 or 70-30 ratio).
5. Model Training:
   - Train the Gradient Boosting model on the training dataset.
   - Tune hyperparameters using techniques like Grid Search or Random Search for better accuracy.
6. Evaluation:
   - Evaluate the model using metrics like Mean Absolute Error (MAE), Mean Squared Error (MSE), or Root Mean Squared Error (RMSE).
   - Validate the model on the test dataset to ensure its generalizability.
7. Optimization:
   - Fine-tune the model further if necessary for better accuracy.
8. Prediction:
   - Use the trained model to predict IMDb scores for new or unseen data.

Design Plan for Predicting IMDb Scores using Neural Networks:

1. Data Collection and Preprocessing
2. Feature Selection
3. Model Selection
   - Choose a neural network architecture suitable for regression tasks, like feedforward neural networks or recurrent neural networks (RNNs).
4.Data Splitting
5. Model Design and Training
   - Design the neural network architecture with appropriate input, hidden, and output layers.

- Choose activation functions, loss functions (mean squared error for regression), and optimizer (e.g., Adam, RMSprop).
- Train the neural network on the training dataset.

6.Evaluation

- Evaluate the neural network model using the same metrics as Gradient Boosting models.
- Validate the model on the test dataset.

7. Optimization

- Experiment with different architectures, activation functions, and regularisation techniques to optimise the neural network.
- Adjust hyperparameters like learning rate and batch size for better performance.

8.Prediction

- Use the trained neural network to predict IMDb scores for new or unseen data.