Project Design Phase-I

Solution Architecture

Date	19 September 2022
Team ID	8.2
Project Name	Password strength classifier
Maximum Marks	2 Marks

Solution Architecture:

Data Collection and Preprocessing
- Collect datasets of passwords and associated metadata like strength labels, cracking times, etc.
- Clean and preprocess data - handle missing values, normalize features, encode categorical variables, etc.
- Split data into training, validation, and test sets.

Model Development and Training
- Design and configure the TensorFlow sequential model architecture - number of layers, nodes, activation functions, etc.
- Train model on preprocessed password data for both classification (strength) and regression (cracking time) tasks
- Validate model on holdout data and tune hyperparameters for optimal performance.

Model Deployment
- Package final optimized models and make available via API for integration into applications
- Create web interface/dashboard for direct model access
- Containerize model with Docker for scalable deployment on cloud or local systems

Production Integration
- Integrate API into password checking systems to score and make recommendations
- Integrate web interface into password manager applications or security admin consoles
- Monitor and collect performance metrics, feedback data to improve model

The TensorFlow model at the core enables high accuracy and scalability. The web and API services allow flexible integration into production password systems to operationalize the predictions.

Design Solution Architecture: