Model Development Phase Template

Date	20 July 2024
Team ID	SWTID1720082030
Project Title	Hydration Essentials: Classifying Water Bottle Images
Maximum Marks	5 Marks

Model Selection Report

We have considered various models for the task , like CNN with SDG, CNN with adam optimizer 2 fully connected layers,CNN with batch normalisation and dropout(Adam), CNN with optimiser adam fully connected layers. Factors such as performance, complexity, and computational requirements will be considered to determine the most suitable model for the task at hand.

Model Selection Report:

Model	Description	**Performance Metric (e.g., Accuracy, F1 Score)**
CNN (optimiser: Adam, batch normalisation and dropout)	The code defines a CNN for image classification using convolutional and pooling layers. Batch normalization stabilizes training and dropout prevents overfitting. The model uses the Adam optimizer for efficient learning.	Accuracy= 79.68%

CNN (optimizer : Adam, 2 fully connected layers)	The code defines a CNN architecture for image classification. It consists of multiple convolutional and max pooling layers to extract image features. The extracted features are flattened and fed into two fully connected (dense) layers. The Adam optimizer is used to update the network's parameters during training. The final output layer uses a softmax activation function for multi-class	Accuracy=100%
CNN (optimiser: adam with 3 fully connected layers)	The code defines a CNN architecture for image classification. It uses convolutional and pooling layers to extract features, followed by dense layers for classification. The Adam optimizer is used to efficiently train the	Accuracy=93.75%
CNN (with optimiser: SDG, 3 layers)	CNN architecture using Stochastic Gradient Descent (SGD) optimizer. Employs convolutional layers for feature extraction, pooling layers for dimensionality reduction, and fully connected layers for classification.	Accuracy=100%