**Capstone Project Submission**

**Instructions:**

i) Please fill in all the required information.

ii) Avoid grammatical errors.

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| **Team Member’s Name, Email and Contribution:** |
| RAHUL SINGH WALDIA  [rahulwaldia2@gmail.ciom](mailto:rahulwaldia2@gmail.ciom)   1. TRAINING DATA 2. BUILDING MODEL 3. TESTING THE MODEL 4. REFINING THE MODEL |
| **Please paste the GitHub Repo link.** |
| Github Link:- <https://github.com/Link/to/Repo> |
| **Please write a short summary of your Capstone project and its components. Describe the problem statement, your approaches and your conclusions. (200-400 words)** |
| A Facial expression is the visible manifestation of the affective state, cognitive activity, intention, personality and psychopathology of a person and plays a communicative role in interpersonal relations. Automatic recognition of facial expressions can be an important component of natural human-machine interfaces; it may also be used in behavioral science and in clinical practice. An automatic Facial Expression Recognition system needs to performdetection and location of faces in a cluttered scene, facial feature extraction, and facial  expression classification. Facial expression recognition system is implemented using Convolution Neural Network (CNN). CNN model of the project is based on LeNet Architecture. Kaggle facial expression dataset with seven facial expression labels as happy, sad, surprise, fear, anger, disgust, and neutral is used in this project. The system achieved 56.77 % accuracy and 0.57 precision on testing dataset. In this project, a LeNet architecture based six layer convolution neural network is implemented to classify human facial expressions i.e. happy, sad, surprise, fear, anger, disgust, and neutral. The system has been evaluated using Accuracy, Precision, Recall and F1-score. The classifier achieved accuracy of 56.77 % , precision of 0.57, recall 0.57 and F1-score 0.57. In the future work, the model can be extended to color images. This will allow to investigate  the efficacy of pre-trained models such as AlexNet[11] or VGGNet [12] for facial emotion recognition. |