**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:** |
| Name: Shashank Bhatia  Email: [shashankbhatia15@gmail.com](mailto:shashankbhatia15@gmail.com)  Contribution:   1. Shashank Bhatia  * EDA * IMAGE AUGMENTATION * MODEL DEFINITION * MODEL TUNING * PACKAGING * DEPLOYMENT |
| **Please paste the GitHub Repo link.** |
| Github Link:-  <https://github.com/shashankbhatia15/NETFLIX-MOVIES-AND-TV-SHOWS-CLUSTERING.git>  Streamlit link:- |
| **Please write a short summary of your Capstone project and its components. Describe the problem statement, your approaches and your conclusions. (200-400 words)** |
| Emotion recognition is the process of identifying human emotion. It is widely being used in multiple industries for market research, instead of filling long surveys the organizations are simply capturing the images of participants at different time intervals.  It is also being used to make AI more emotionally intelligent, another use case is to help blind people read facial expressions or to monitoring signs of attention while driving in an effort to enhance driver safety.  In our case, we are solving a problem for teaching entities to keep an eye on students while they’re learning online. Recognizing the emotions will let them know how students are feeling about the content and if any of them need extra attention, which is not possible manually.  I started off with EDA on the dataset to see what all classes of expressions my dataset contains and how many instances are there for each emotion in test and validation set.  Next I performed Image augmentation using imagedatagenerator and used techniques such as shearing, rotation, brightness, rescale, etc.  After this I defined my CNN model with 4 convolutional layers and 2 fully connected layers ending with an output layer with SoftMax activation function.  After getting my base model and output I started experimenting with various input factors such as batch size, learning rate, optimizers, etc and fine tuned the model along the way.  The challenges I faced during the project was limited computational power which led to usage of small dataset, which was a disadvantage for a data hungry model.  I got 67.3% accuracy on validation set and 5 out of 7 correct predictions on the test set.  I packaged the model next according to industry standards and used the best model to recognize the emotions in real time using webcam.  In the end, I deployed the model on streamlit as a web application. |