Capstone Project

Live Class Monitoring System (Face Emotion Recognition)

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Introduction

- Facial Emotion Recognition is a way of identifying the current emotional state of an individual to observer.

- Facial expressions can display personal emotions and indicate an individual's intentions within a social situation.

- Facial expressions and other gestures convey nonverbal communication cues that play an important role in interpersonal relations.

- **Product Development:** Observing users interaction while interacting with a brand or a product helps the company to assess the effectiveness of any business product.

Problem Statement

- Indian education system is moving towards e-learning platforms.
- Digital learning is going to increase in future , but there are some challenges
- In physical class teacher can access the faces and emotions of each student but in digital class its not possible.
- Lack of surveillance, Lack of attention
- We will solve the above-mentioned challenge by applying deep learning algorithms to live video data. The solution to this problem is by recognizing facial emotions.

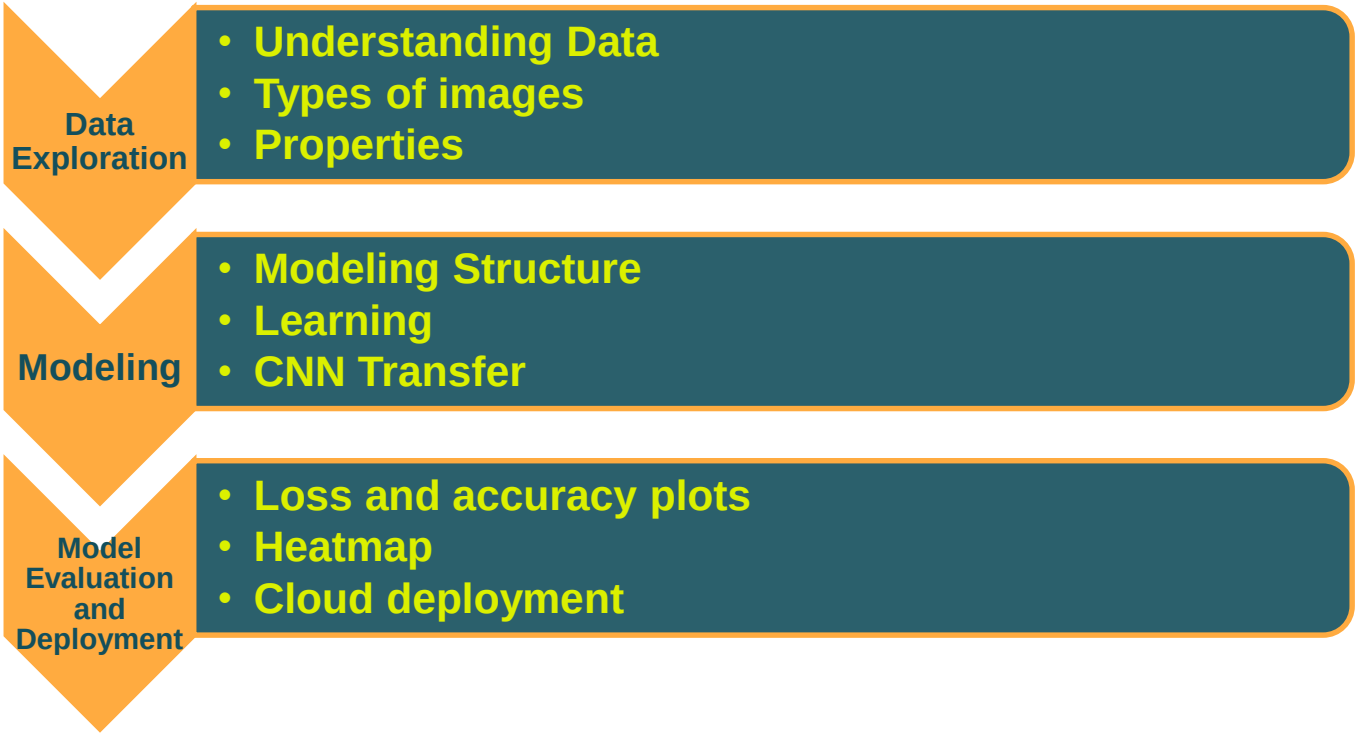
Data Summary

- The model is trained on the FER-2013 dataset .This dataset consists of 35887 grayscale, 48x48 sized face images with 7 emotions -angry, disgusted, fear, happy, neutral, sad and surprised.

- Link of Dataset -**https://www.kaggle.com/msambare/fer2013**

Label	Emotion	No. of images for Training	No. of images for Testing
0	Angry	3995	958
1	Disgust	436	111
2	Fear	4097	1024
3	Happy	7215	1774
4	Sad	4830	1247
5	Surprised	3171	831
6	Neutral	4965	1233

Pipeline


Data Exploration
• Understanding Data
• Types of images
• Properties
Modeling
• Modeling Structure
• Learning
• CNN Transfer
Model Evaluation and Deployment
• Loss and accuracy plots
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• Cloud deployment