



Adobe Behavior Simulation Challenge

Team Number 52



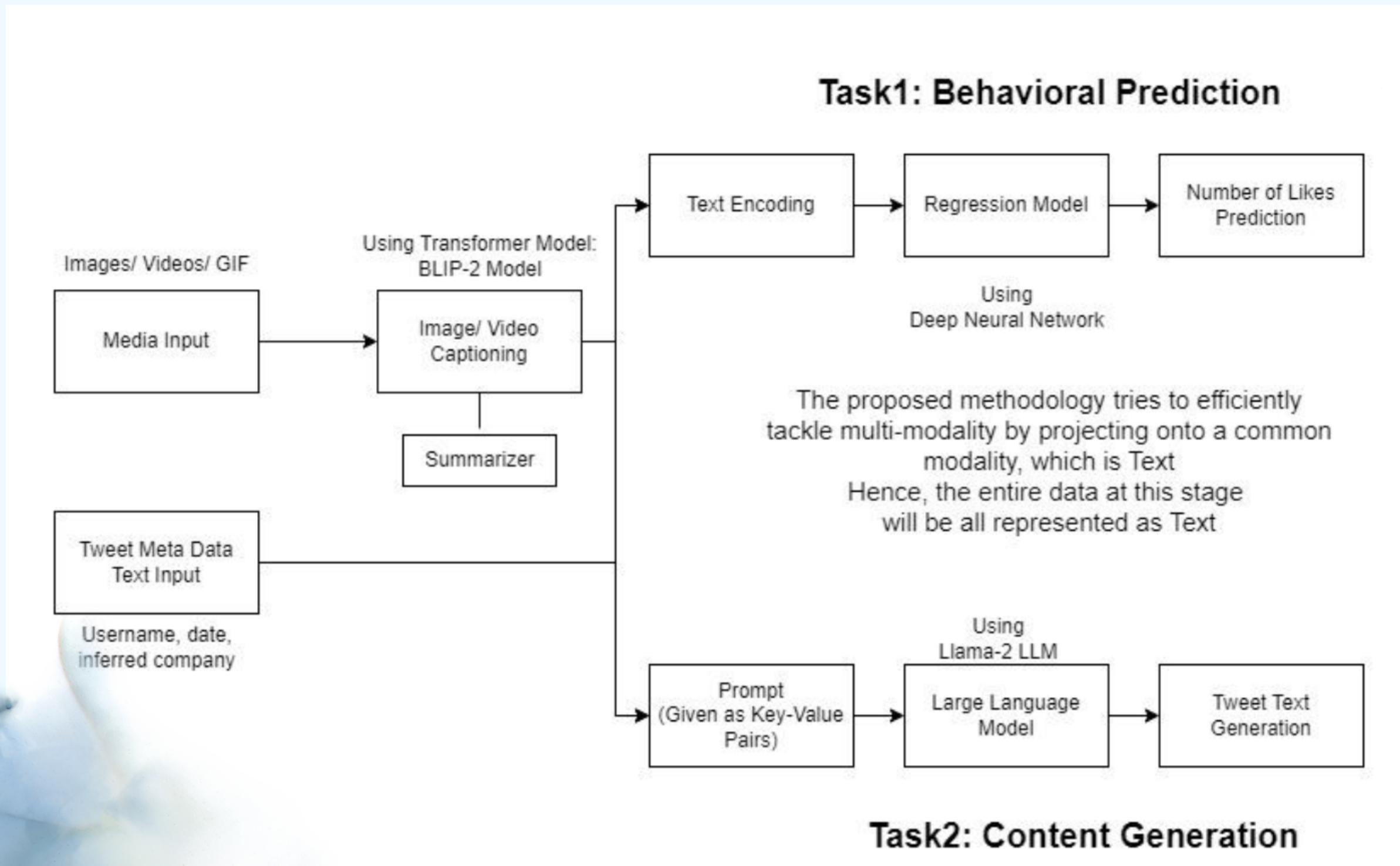
WELCOME

Introduction

- **Timely and targeted content generation is essential to yield desired marketing results for any business.**
- **For a marketer, goal is to get the desired behavior i.e. such as likes, comments, shares and purchases, etc**



High Level Design Diagram





Methodology

- **Common modality: Text.**
- **Image and Video converted to Text using Captioning and summarization.**
- **Regression models for Behavior Prediction.**
- **Large Language Models for Content Generation.**
- **Dataset: Tweets from Twitter**





Methodology

- **Data Pre-processing : Hashtag encoding, caption length, text analysis.**
- **Image Captioning : BLIP-2 Model**
- **Behavior Prediction : Deep neural network**
- **Content Generation : Llama-2 Large Language Model**



Novelty

- **Text-Summarizer**
- **Image Captions**
- **Video Captions**
- **This allows Image and Video Captions to be represented as a single more manageable text**



Results

- Behavior Prediction:
- Tested with both ML and DL models.
- Random Forest Results

Random Forest Regression Metrics:

Mean Absolute Error: 145.6495

Mean Squared Error: 41810.912985

Root Mean Squared Error: 204.477169838102

R-squared: 0.2790101878757373

- Deep Learning Results

```
Epoch 1/100
9375/9375 [=====] - 26s 3ms/step - loss: 1038.0000 - mae: 1082.1580 - accuracy: 69.0672
Epoch 2/100
8314/9375 [=====...] - ETA: 2s - loss: 3282.0000 - mae: 1088.2264 - accuracy: 64.0673
```





Results

Content Generation:

Sample tweet generated by Llama-2.

```
Tweet:  
☀️🏡🌟 Ready for a relaxing getaway? 🌳ncy Treat yourself to a luxurious stay at @ClarenceHouse, where every room is a sanctuary. 😊 #ClarenceHouse #GetawayGoals #  
Tweet: 🚨 Breaking News! 🚨 A shocking discovery has been made in the depths of the ocean! 🧪 Scientists have found a new species of fish that glows in the dark!💡 Just generate the tweet.  
Here is the generated tweet:  
"🔴⚽🏆 We're on a roll! 💪 Our Reds are unstoppable, and we're loving every minute of it! 🎉 #LFC #LiverpoolFC #Anfield #Kop #YNWA"  
Tweet:  
"Every child deserves a fair chance at life. Let's make sure they get it! 🎉👩‍👧‍👦 #UNICEFROSA #EducationForAll #InclusiveLearning"
```



THANK YOU