BENGALI FOOD RECOGNITION

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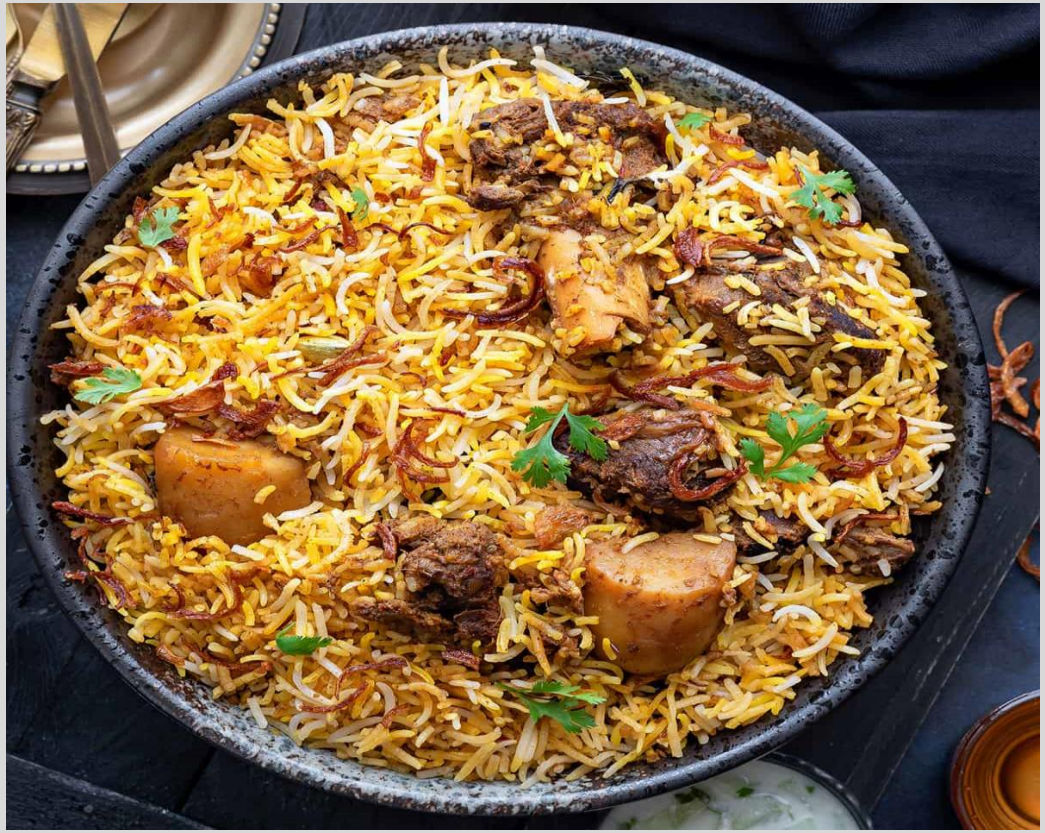
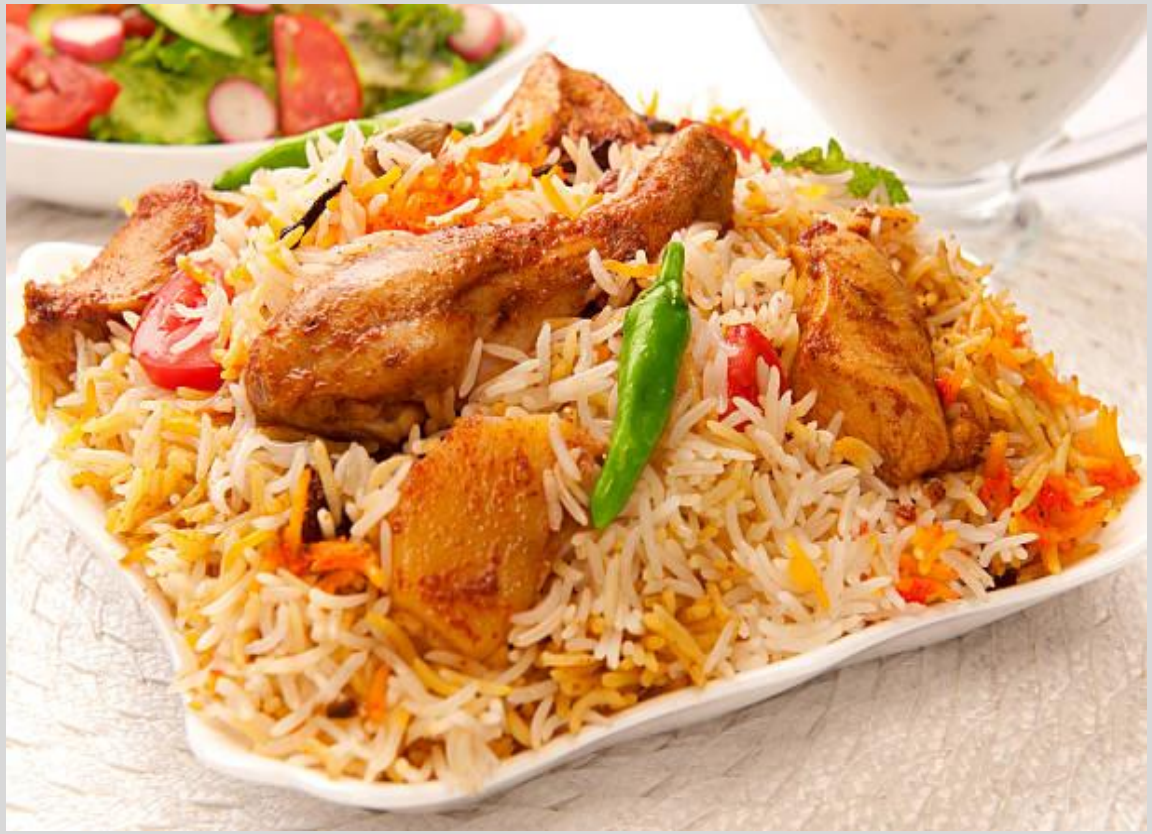
Problem

- Detecting food type from food images
  - Especially Bengali Food
    - Biryani
    - Illish
    - Mishti
    - Pitha
    - Ruti
- For future automated restaurants



Dataset

- 5 types of Bengali Food – 4554 images
  - Biryani – 832 images
  - Illish – 535 images
  - Mishti – 1147 images
  - Pitha – 1052 images
  - Ruti – 988 images

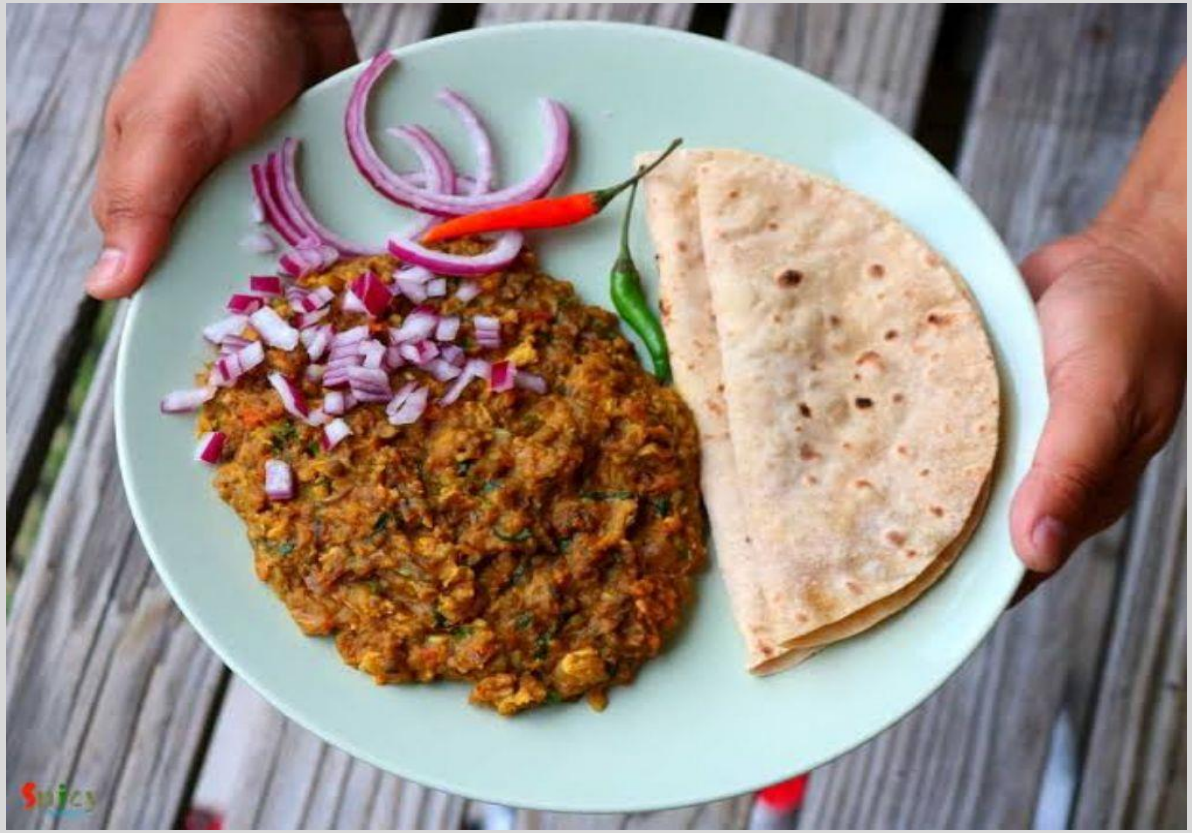


Architecture

```
Model: "sequential"
_________________________________________________________________
 Layer (type)                Output Shape              Param #
=================================================================
 conv2d (Conv2D)             (None, 64, 64, 32)        896

 dropout (Dropout)           (None, 64, 64, 32)        0

 conv2d_1 (Conv2D)           (None, 64, 64, 32)        9248

 max_pooling2d (MaxPooling2D  (None, 21, 21, 32)       0
 )

 flatten (Flatten)           (None, 14112)             0

 dense (Dense)               (None, 512)               7225856

 dropout_1 (Dropout)         (None, 512)               0

 dense_1 (Dense)             (None, 5)                 2565

=================================================================
Total params: 7,238,565
Trainable params: 7,238,565
Non-trainable params: 0
```

Architecture

- Batch size : 32
- Input image size : 64 (we also tested 32)
- Epoch : 10
- Learning rate : 0.01
- Decay : 0.002



Accuracy

- Training Set – 59.44%
- Validation Set – 54.61%
- Testing Set – 76.92%

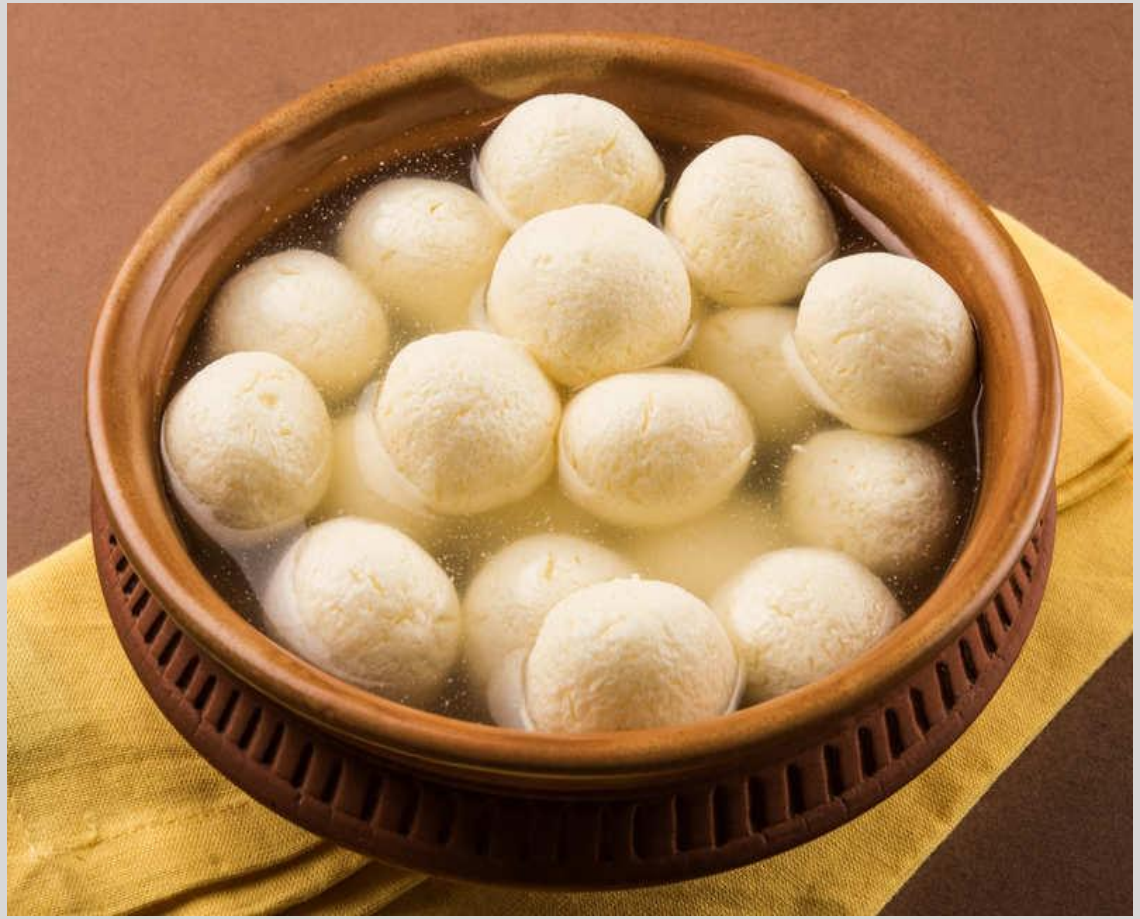
Precision

- Biriyani - 0.25%
- Illish - 0.31%
- Misty - 0.8363%
- Pitha - 0.528%
- Ruti - 0.5378%

*for test set of 455 images out side of train set

Challenges

- Had to prepare the food image dataset from scratch
  - Scraping images from the internet
  - Data cleaning & sanitizing
  - Resizing & cropping all the images
- Computational power



Thank You