Food Image Recognition
Project Planning

Team11

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Use Cases

Use Case 1 : Customers

- Customers take pictures of their food, upload the food image to this image classifier, and it will tell them what categories their foods belong to.

Use Case 2 : Restaurants

- Chefs/owners collect categories and images stored in this image classifier, to see the reports of the most frequently liked/visited categories of foods.

Use Case 3 : Businesses

- Businesses/commercials upload a large number of food images to be classified into categories automatically by this image classifier, and save the categories for further use.

Methodology

1. Processing images
   - ❖ Resizing
   - ❖ Rescaling
   - ❖ Standardizing
2. Algorithms of Artificial Intelligence for multiple food image classification
   - ❖ TensorFlow
   - ❖ Convolutional Neural Networks
   - ❖ Inception Model
3. Potential expansion for more food category classification
4. Visualization
   - ❖ Zeppelin/Play

Data Sources

ETH Food-101: https://www.vision.ee.ethz.ch/datasets_extra/food-101

- A dataset of 101 food categories with 101,000 colored images, with a size of 5GB.

Initial Plan: Use 20 categories with 2020 images, with a size of 1GB.

Dataset distribution:

- Training Dataset - 70%
- Test Dataset - 30%

Milestones

11/16

Data cleansing &
Image Processing

11/28

Artificial Intelligence

12/3

Potential Expansion

12/7

Visualization
& Wrap-up

Scala Programming & Repo

- Image processing - Scala
- Neural network (CNN - InceptionV3) in Scala
- Zeppelin, Play - Scala

Repo:

https://github.com/ToughJellyfish/ScalaFoodImgRec

Acceptance Criteria

- Food image recognition >=60%; recall >=50%
- The top probability for food classification: precision >= 60%, recall >=40%
- The probability of getting correct food categories within 5 guesses: precision: >=70%, recall: >=50%

Goals

- With our classification mechanism we aim to help food customers, foodies, app users, and restaurants to classify foods better!
- It’s important to know your food and eat like a boss!
- We’d like to give users the good experience about classifying certain types of food using cutting-edge AI technology, integrating with Scala knowledge!