COURSE: APPLICATIONS OF ARTIFICIAL INTELLIGENCE (AAI)

Tutorial Session
March 7, 2020

Applications of Artificial Intelligence

- Machine Translation

- Natural Language Processing- Chatbot

- Recommendation Engines

- Image Processing

Demo

- Extracting nutrition information from images of products

Data

High level pipeline

Raw Images → Processing → Image classification → Nutrition Images → Processing → Image segmentation → Nutrition block → Processing → OCR → Text blobs → Processing → NLP (Sequence tagging, text formatting) → Processed text → Information Extraction → Information Table
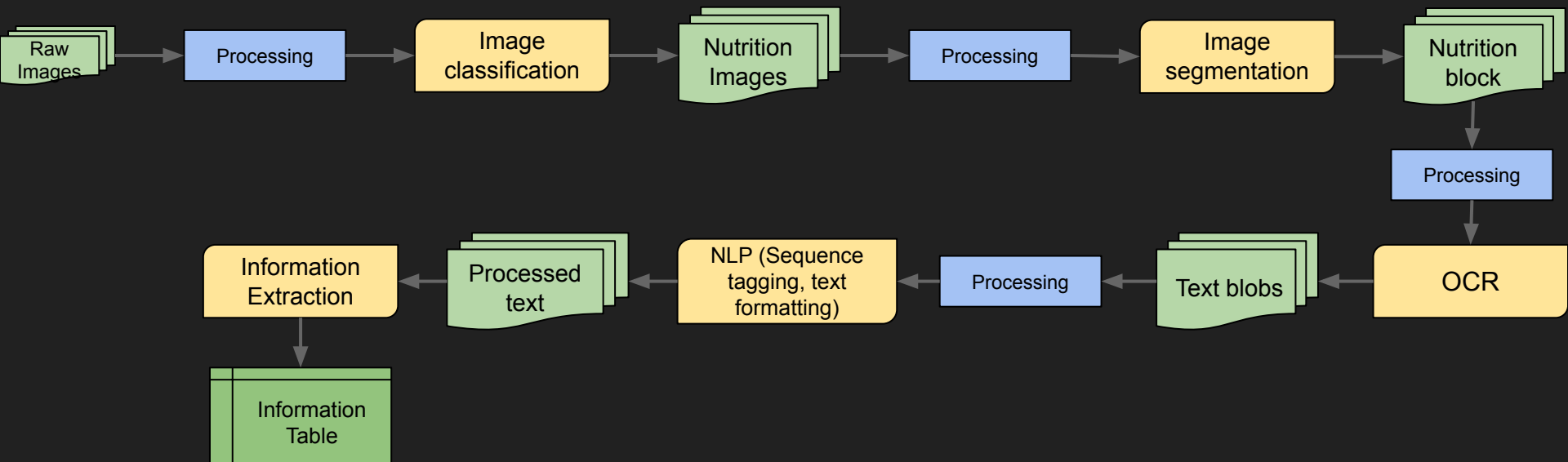
5

Image Classification

- Manual tagging
- Few images
- Transfer learning to the rescue
    - Inception model by Google

Image Segmentation

- Text gets merged
- Nutrition block should be separated out

Segmentation- weak points

- Inclined images
- Crumbled products

OCR- Tesseract + GCP Vision

Nutrition Facts
about 19 servings per container
Serving size 2 pieces (27g)

Amount per serving
Calories 100

% Daily Value*

Total Fat 2g	2%
Saturated Fat 1g	6%
Trans Fat 0g	
Cholesterol 0mg	0%
Sodium 10mg	0%
Total Carbohydrate 22g	8%
Dietary Fiber <1g	2%
Total Sugars 18g	
Includes 18g Added Sugars	35%
Protein <1g	

Vitamin D 0mcg	0%	Calcium 3mg	0%
Iron 1mg	4%	Potassium 30mg	0%

*The % Daily Value tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

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nutrition facts
about 1 g servings per container
serving size 2 pieces (279)

amount per serving
calories 100
% daily value
totalfat 2 g tsp
saturated fat 1 6 %
trans fat 04
cholesterol 0 mg 0 %
sodium 10 mg 0 %
total carbohydrate 22 g 8 %
dietary fiber < 1 g 2 %

total sugars 18 g
includes 18 g added sugars 35 %
protein < 1 g
vitamin d 0 c 0 % @ calcumamg oz
{ iron 1 mg 4 % @ potassium 30 mg 0 %
than % diet value tells oz oz much a nutrient in

a serving oz food contributes oz a daily diet . 2000
calories a cal in used from general nutrition advice

ML Lifecycle platforms- open source

Thank you!