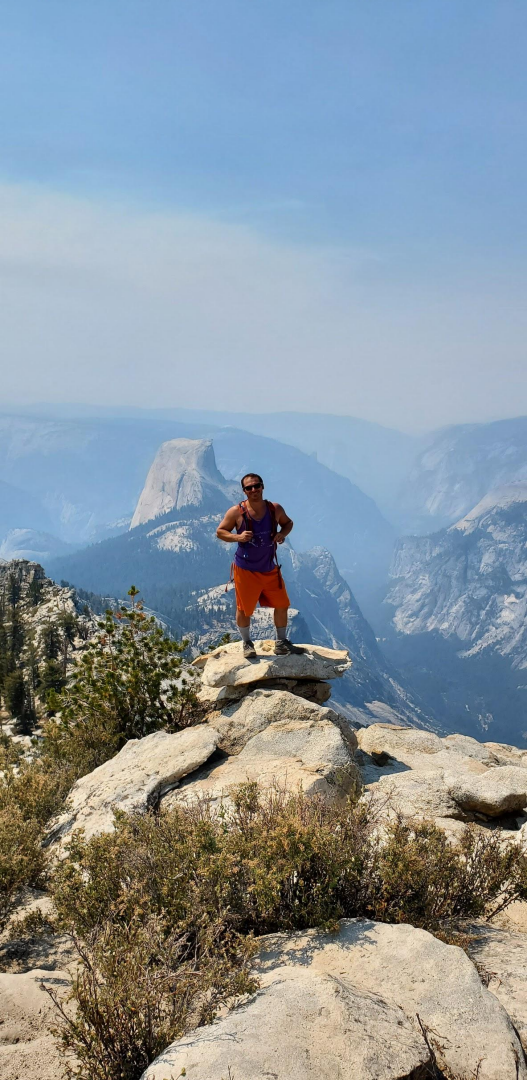
Fruit and Vegetable Nutrition Facts

A Journey to a Healthier Life Using Image Recognition

-Scott Schmidl

Image: https://www.portneuf.org/increasing-fruit-and-vegetable-consumption/



About Me

- B.A. Mathematics from Eastern University
- Nuclear operator for six years in the Navy
- Illumina, maintenance technician
- Enjoy camping, hiking, and snowboarding

Motivation

- Health and wellness is an important part of my life
- “Optimum nutrition is the medicine of the future.” - *Linus Pauling, two-time Nobel Prize winner*

Images Obtained From Kaggle

Pear

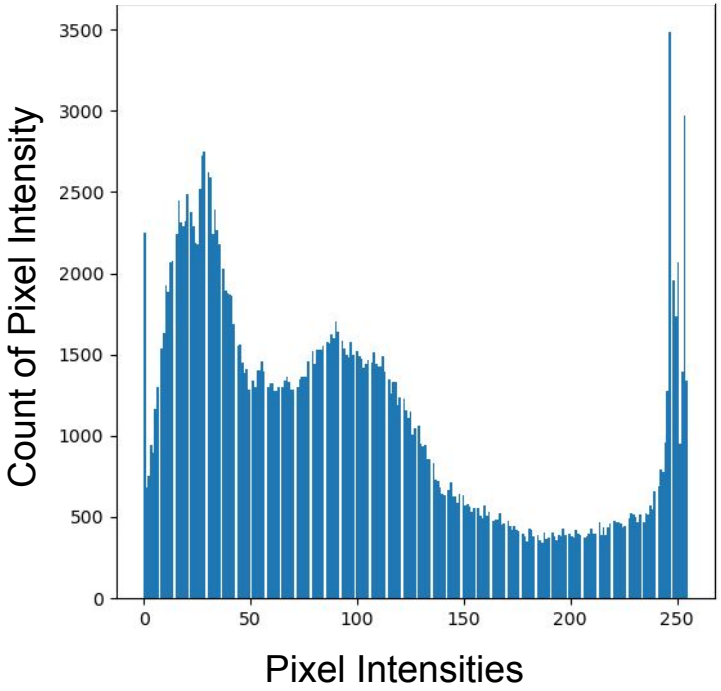
Tomato

Naive Bayes

- It is good with lots of pixel intensity columns
- It is quick to train and test
- It works well with multiple classes
- It assumes independence between pixels (possibly poor assumption for images)

Color Image Histograms of Pear VS Tomato

Pear



Tomato

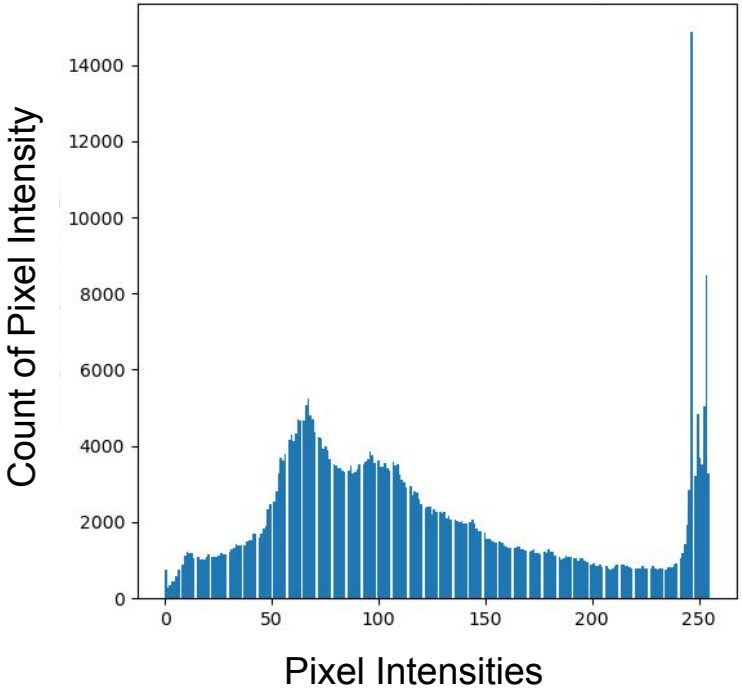
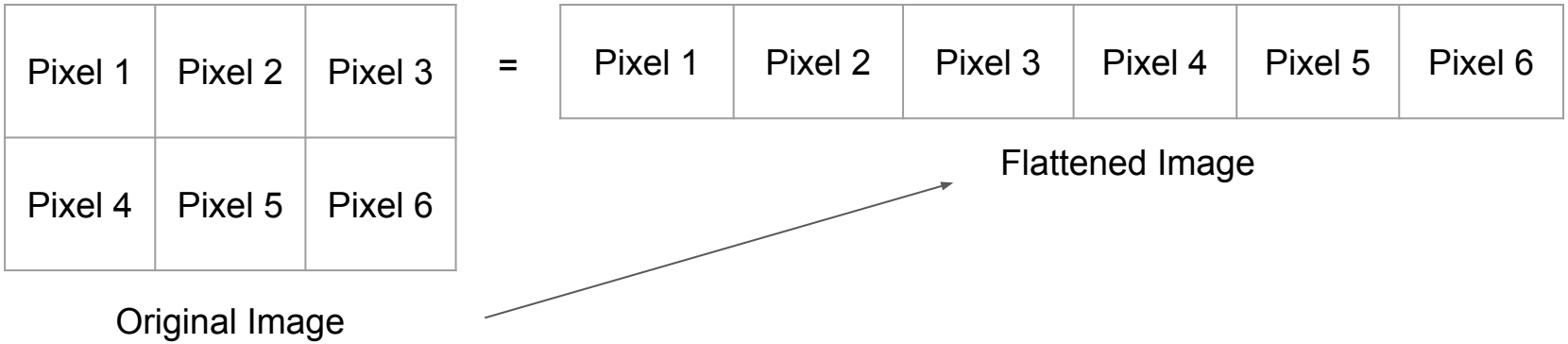


Image Preparation

- 3,175 Pear Images
- 2,313 Tomato Images



Class Prediction

p(Tomato | Image) = p(tomato) x p_1(pixel intensity 1 | tomato) x p_2(pixel intensity 2 | tomato) x …

p(Pear | Image) = p(pear) x p_1(pixel intensity 1 | pear) x p_2(pixel intensity 2 | pear) x ...

- Predict class with highest probability
- Performed best using color images
- 80% F1-Score

Why Use F1-Score?

- Harmonic Mean - calculates average of ratios or rates
- Works well with imbalanced classes

Total Fruit Tested: 1,372	Correct Prediction	Incorrect Prediction
Total Tomatoes Tested: 579	417	162
Total Pears Tested: 793	654	139

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Fruit and Vegetable Nutrition Facts

Click the button below to

Get Started!

This Is Exciting

I Hope You're Ready To See Your Nutrition Facts!
It's Going To Be Great!

Fruits and Vegetable Nutrit | My Fruit And Vegetable Nutrit

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Give A Fruit Or Vegetable, Get A Nutrition Fact

Insert Your Image Below To Commence Your Journey To Healthier Living.

Enter The Fruit Or Vegetable Image: Browse... No file selected.

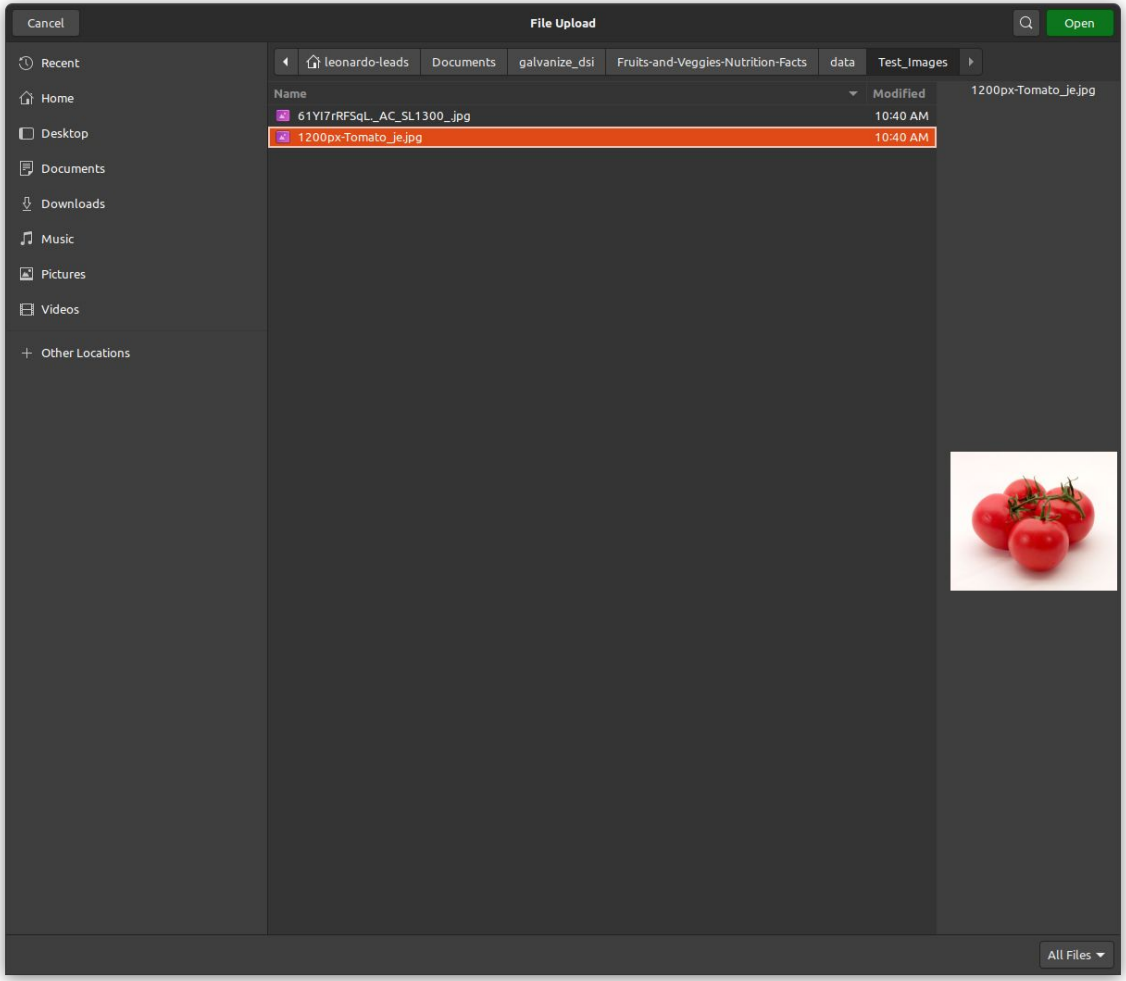
Click To See Your Nutrition Facts

Click The Picture Below And Get Nutrition Facts

Click The Image Below For Pear

Click The Image Below For Tomato

Click The Image Below For The Nutrition Facts Of Each Fruit And Vegetable On File


Cancel
File Upload
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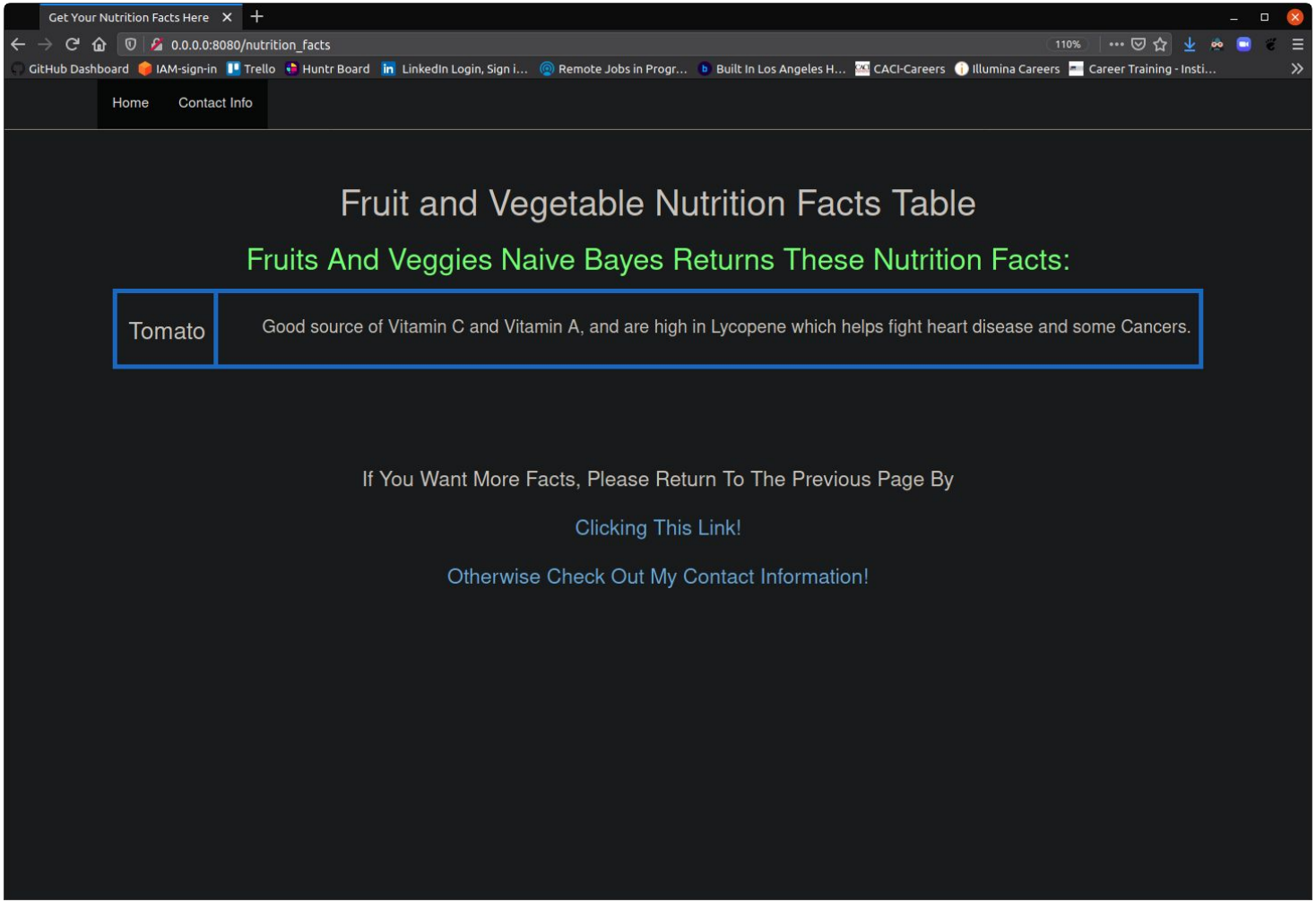
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Fruit and Vegetable Nutrition Facts Table
Fruits And Veggies Naive Bayes Returns These Nutrition Facts:
Tomato
Good source of Vitamin C and Vitamin A, and are high in Lycopene which helps fight heart disease and some Cancers.
If You Want More Facts, Please Return To The Previous Page By
Clicking This Link!
Otherwise Check Out My Contact Information!

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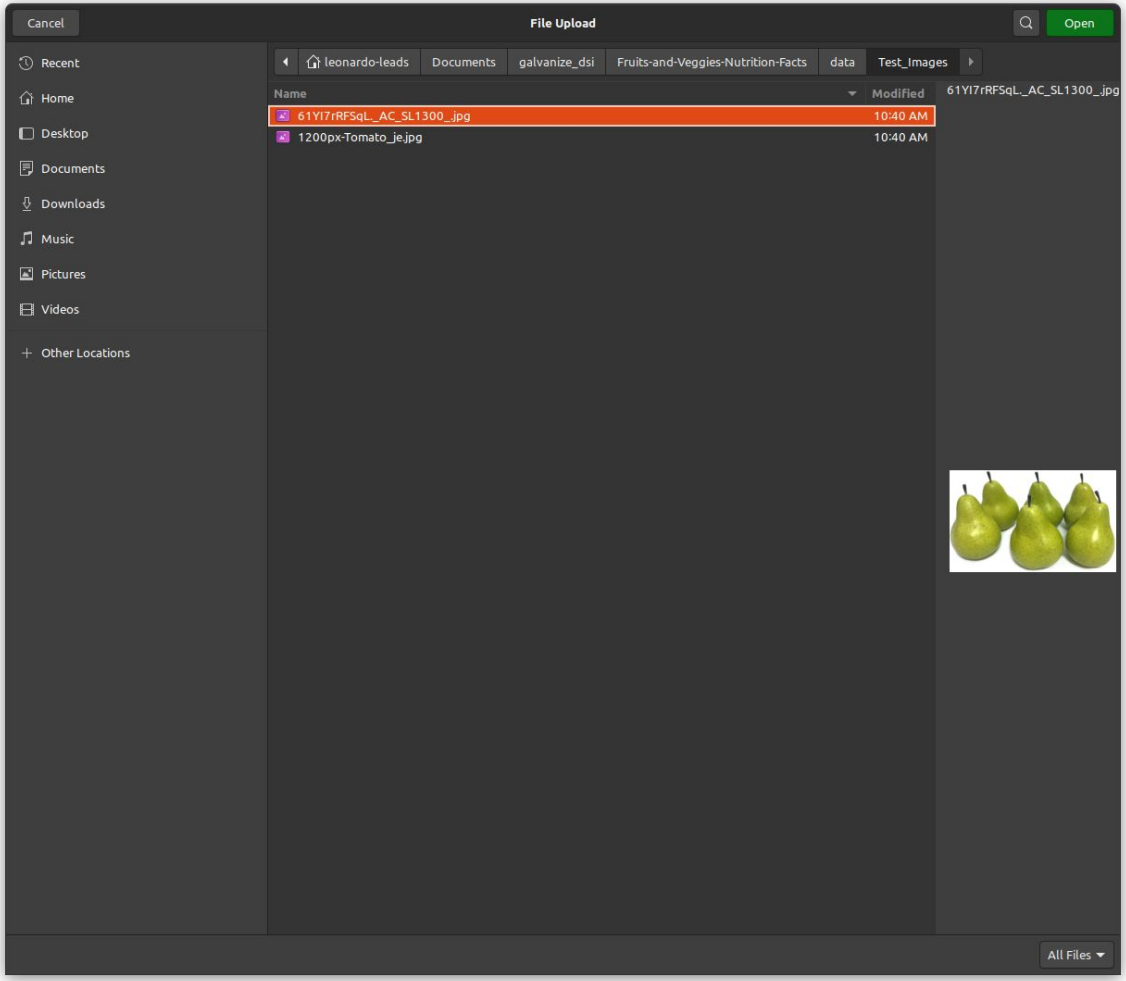
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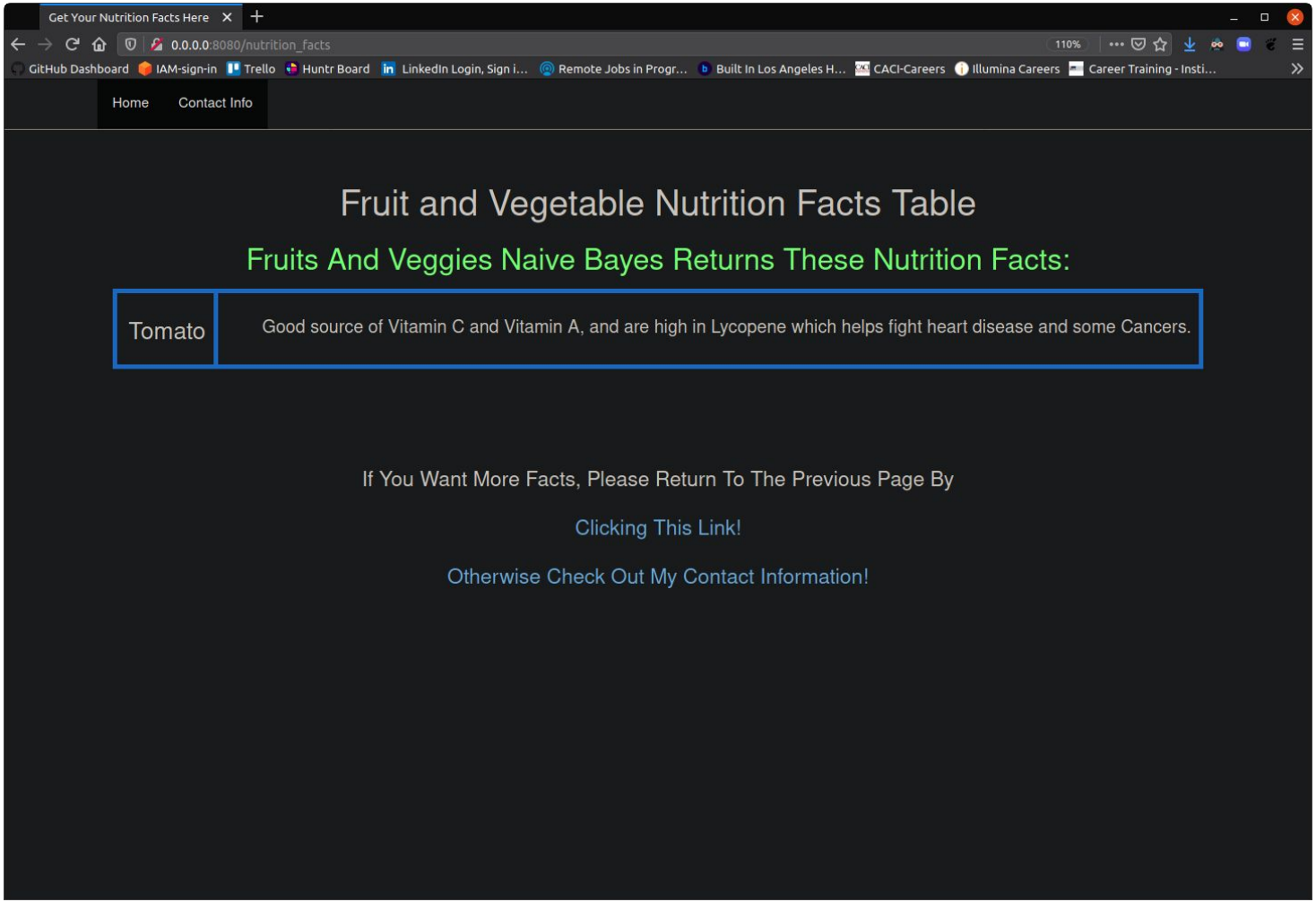
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Fruits And Veggies Naive Bayes Returns These Nutrition Facts:
Tomato
Good source of Vitamin C and Vitamin A, and are high in Lycopene which helps fight heart disease and some Cancers.
If You Want More Facts, Please Return To The Previous Page By
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In Closing

- Expand the database to use with more fruits and vegetables
- Incorporate my Convolutional Neural Network
- Create a Recommender
- Deploy on AWS

Thank You!

Here are my stats:

http://www.linkedin.com/in/scott-schmidl-268b29154

scottschmidl0326@gmail.com

https://github.com/scottschmidl

Techs Used:

Thumbnails Borrowed From: https://www.flaticon.com/packs
and Google Images

Nutrition Facts App

The Reason For The Season!

In this app nutrition facts are displayed by inserting an image or by clicking one of the pictures

Nutrition Facts

Yay!

Code For This Project Is Here!