Guided Project Report

Adaptive Thresholding for Edge Detection on Images

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Course: AI and ML
(Batch 4)
Duration: 10 months

Problem Statement: Usine OpenCV, Implementing Edge detection on an image

Prerequisites

What things you need to install the software and how to install them:

Python 3.8 or higher versions This setup requires that your machine has latest version of python. The following url https://www.python.org/downloads/ can be referred to download python. Once you have python downloaded and installed, you will need to setup PATH variables (if you want to run python program directly, detail instructions are below in how to run software section). To do that check this: https://www.pythoncentral.io/add-python-to-path-python-is-not- recognized-as-an-internal-or-external- command/. Setting up PATH variable is optional as you can also run program without it and more instruction are given below on this topic.

Second and easier option is to download anaconda and use its anaconda prompt to run the commands. To install anaconda check this url https://www.anaconda.com/download/ You will also need to download and install below 3 packages after you install either python or anaconda from the steps above Sklearn (scikit-learn) numpy scipy if you have chosen to install python 3.8 then run below commands in command prompt/terminal to install these packages pip install -U scikit-learn pip install numpy pip install scipy if you have chosen to install anaconda then run below commands in anaconda prompt to install these packages conda install -c scikit-learn conda install -c anaconda numpy conda install -c anaconda scipy . Install opencv.

Dataset used

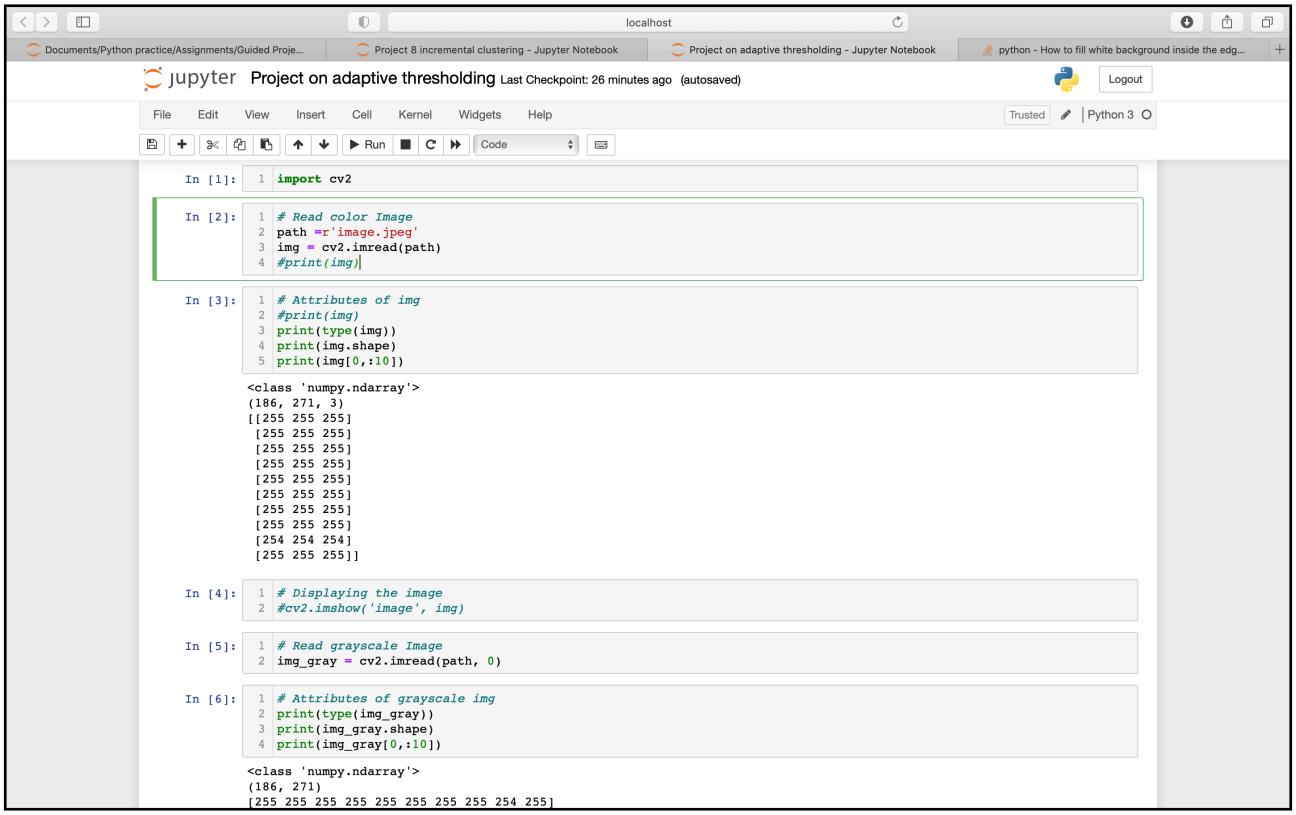
The data is a sample image taken from internet of a fish in jpeg format.

Method used for detection

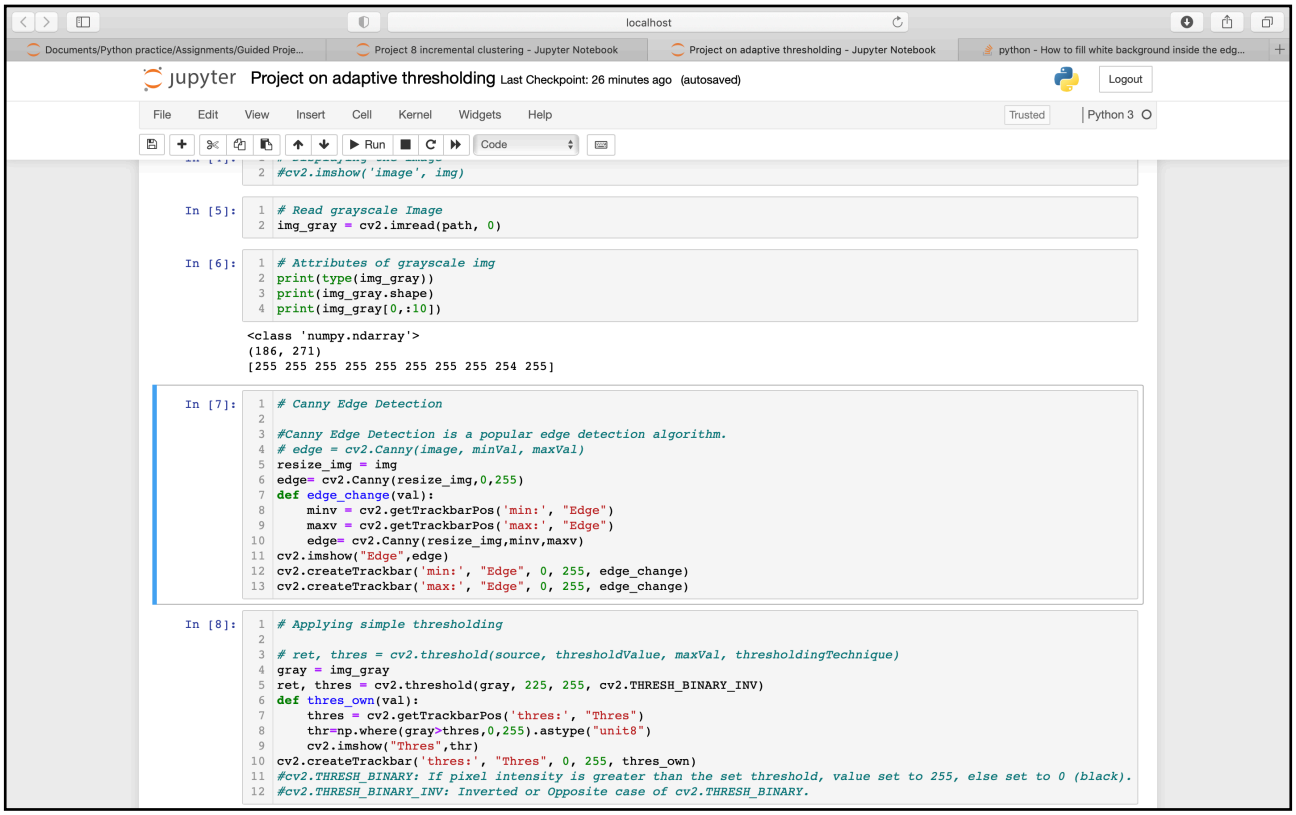
Canny Edge Detection

Image reading -> Converting to Grayscale image -> applying canny edge detection > applying adaptive threshold > mask

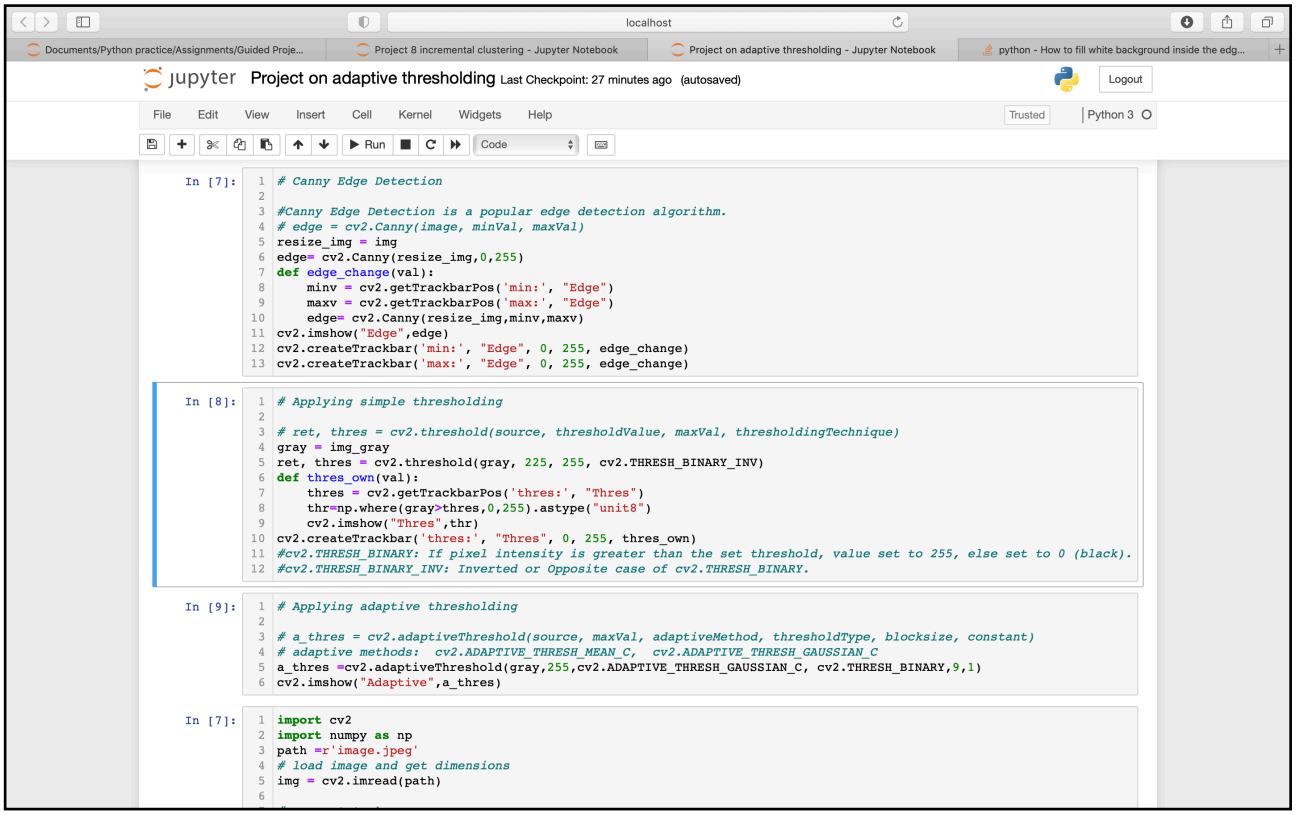
Importing the libraries and reading the image as grayscale:



Canny Edge Detection



Simple and adaptive thresholding



Mask to give colour to the edges