ProyectoContadorPersonas

January 30, 2024

Clonar el repositorio del proyecto de partida de noorkhokhar99

```
[ ]: ! git clone https://github.com/noorkhokhar99/
     ↪Object-Detection-and-Count-in-polygon-zone.git
```

```
Cloning into 'Object-Detection-and-Count-in-polygon-zone'…
remote: Enumerating objects: 27, done.
remote: Counting objects: 100% (27/27), done.
remote: Compressing objects: 100% (27/27), done.
remote: Total 27 (delta 12), reused 0 (delta 0), pack-reused 0
Receiving objects: 100% (27/27), 11.26 MiB | 16.11 MiB/s, done.
Resolving deltas: 100% (12/12), done.
```

Instalar requerimientos del proyecto

```
[ ]: !pip uninstall tourch
```

```
WARNING: Skipping tourch as it is not installed.
```

```
[ ]: !pip install -r /content/Object-Detection-and-Count-in-polygon-zone/
     ↪requirements.txt
```

```
Requirement already satisfied: torchvision==0.13.0 in
/usr/local/lib/python3.10/dist-packages (from -r /content/Object-Detection-and-
Count-in-polygon-zone/requirements.txt (line 1)) (0.13.0)
Requirement already satisfied: ultralytics in /usr/local/lib/python3.10/dist-
packages (from -r /content/Object-Detection-and-Count-in-polygon-
zone/requirements.txt (line 2)) (8.1.8)
Requirement already satisfied: supervision==0.2.0 in
/usr/local/lib/python3.10/dist-packages (from -r /content/Object-Detection-and-
Count-in-polygon-zone/requirements.txt (line 3)) (0.2.0)
Requirement already satisfied: typing-extensions in
/usr/local/lib/python3.10/dist-packages (from torchvision==0.13.0->-r
/content/Object-Detection-and-Count-in-polygon-zone/requirements.txt (line 1))
(4.5.0)
Requirement already satisfied: numpy in /usr/local/lib/python3.10/dist-packages
(from torchvision==0.13.0->-r /content/Object-Detection-and-Count-in-polygon-
zone/requirements.txt (line 1)) (1.23.5)
```

Requirement already satisfied: requests in /usr/local/lib/python3.10/dist-packages (from torchvision==0.13.0->-r /content/Object-Detection-and-Count-in-polygon-zone/requirements.txt (line 1)) (2.31.0)
Requirement already satisfied: torch==1.12.0 in /usr/local/lib/python3.10/dist-packages (from torchvision==0.13.0->-r /content/Object-Detection-and-Count-in-polygon-zone/requirements.txt (line 1)) (1.12.0)
Requirement already satisfied: pillow!=8.3.*,>=5.3.0 in /usr/local/lib/python3.10/dist-packages (from torchvision==0.13.0->-r /content/Object-Detection-and-Count-in-polygon-zone/requirements.txt (line 1)) (9.4.0)
Requirement already satisfied: opencv-python in /usr/local/lib/python3.10/dist-packages (from supervision==0.2.0->-r /content/Object-Detection-and-Count-in-polygon-zone/requirements.txt (line 3)) (4.8.0.76)
Requirement already satisfied: matplotlib in /usr/local/lib/python3.10/dist-packages (from supervision==0.2.0->-r /content/Object-Detection-and-Count-in-polygon-zone/requirements.txt (line 3)) (3.7.1)
Requirement already satisfied: pyyaml>=5.3.1 in /usr/local/lib/python3.10/dist-packages (from ultralytics->-r /content/Object-Detection-and-Count-in-polygon-zone/requirements.txt (line 2)) (6.0.1)
Requirement already satisfied: scipy>=1.4.1 in /usr/local/lib/python3.10/dist-packages (from ultralytics->-r /content/Object-Detection-and-Count-in-polygon-zone/requirements.txt (line 2)) (1.11.4)
Requirement already satisfied: tqdm>=4.64.0 in /usr/local/lib/python3.10/dist-packages (from ultralytics->-r /content/Object-Detection-and-Count-in-polygon-zone/requirements.txt (line 2)) (4.66.1)
Requirement already satisfied: psutil in /usr/local/lib/python3.10/dist-packages (from ultralytics->-r /content/Object-Detection-and-Count-in-polygon-zone/requirements.txt (line 2)) (5.9.5)
Requirement already satisfied: py-cpuinfo in /usr/local/lib/python3.10/dist-packages (from ultralytics->-r /content/Object-Detection-and-Count-in-polygon-zone/requirements.txt (line 2)) (9.0.0)
Requirement already satisfied: thop>=0.1.1 in /usr/local/lib/python3.10/dist-packages (from ultralytics->-r /content/Object-Detection-and-Count-in-polygon-zone/requirements.txt (line 2)) (0.1.1.post2209072238)
Requirement already satisfied: pandas>=1.1.4 in /usr/local/lib/python3.10/dist-packages (from ultralytics->-r /content/Object-Detection-and-Count-in-polygon-zone/requirements.txt (line 2)) (1.5.3)
Requirement already satisfied: seaborn>=0.11.0 in /usr/local/lib/python3.10/dist-packages (from ultralytics->-r /content/Object-Detection-and-Count-in-polygon-zone/requirements.txt (line 2)) (0.13.1)
Requirement already satisfied: contourpy>=1.0.1 in /usr/local/lib/python3.10/dist-packages (from matplotlib->supervision==0.2.0->-r /content/Object-Detection-and-Count-in-polygon-zone/requirements.txt (line 3)) (1.2.0)
Requirement already satisfied: cycler>=0.10 in /usr/local/lib/python3.10/dist-packages (from matplotlib->supervision==0.2.0->-r /content/Object-Detection-and-Count-in-polygon-zone/requirements.txt (line 3)) (0.12.1)
Requirement already satisfied: fonttools>=4.22.0 in

/usr/local/lib/python3.10/dist-packages (from matplotlib->supervision==0.2.0->-r
/content/Object-Detection-and-Count-in-polygon-zone/requirements.txt (line 3))
(4.47.2)
Requirement already satisfied: kiwisolver>=1.0.1 in
/usr/local/lib/python3.10/dist-packages (from matplotlib->supervision==0.2.0->-r
/content/Object-Detection-and-Count-in-polygon-zone/requirements.txt (line 3))
(1.4.5)
Requirement already satisfied: packaging>=20.0 in
/usr/local/lib/python3.10/dist-packages (from matplotlib->supervision==0.2.0->-r
/content/Object-Detection-and-Count-in-polygon-zone/requirements.txt (line 3))
(23.2)
Requirement already satisfied: pyparsing>=2.3.1 in
/usr/local/lib/python3.10/dist-packages (from matplotlib->supervision==0.2.0->-r
/content/Object-Detection-and-Count-in-polygon-zone/requirements.txt (line 3))
(3.1.1)
Requirement already satisfied: python-dateutil>=2.7 in
/usr/local/lib/python3.10/dist-packages (from matplotlib->supervision==0.2.0->-r
/content/Object-Detection-and-Count-in-polygon-zone/requirements.txt (line 3))
(2.8.2)
Requirement already satisfied: pytz>=2020.1 in /usr/local/lib/python3.10/dist-
packages (from pandas>=1.1.4->ultralytics->-r /content/Object-Detection-and-
Count-in-polygon-zone/requirements.txt (line 2)) (2023.3.post1)
Requirement already satisfied: charset-normalizer<4,>=2 in
/usr/local/lib/python3.10/dist-packages (from requests->torchvision==0.13.0->-r
/content/Object-Detection-and-Count-in-polygon-zone/requirements.txt (line 1))
(3.3.2)
Requirement already satisfied: idna<4,>=2.5 in /usr/local/lib/python3.10/dist-
packages (from requests->torchvision==0.13.0->-r /content/Object-Detection-and-
Count-in-polygon-zone/requirements.txt (line 1)) (3.6)
Requirement already satisfied: urllib3<3,>=1.21.1 in
/usr/local/lib/python3.10/dist-packages (from requests->torchvision==0.13.0->-r
/content/Object-Detection-and-Count-in-polygon-zone/requirements.txt (line 1))
(2.0.7)
Requirement already satisfied: certifi>=2017.4.17 in
/usr/local/lib/python3.10/dist-packages (from requests->torchvision==0.13.0->-r
/content/Object-Detection-and-Count-in-polygon-zone/requirements.txt (line 1))
(2023.11.17)
Requirement already satisfied: six>=1.5 in /usr/local/lib/python3.10/dist-
packages (from python-dateutil>=2.7->matplotlib->supervision==0.2.0->-r
/content/Object-Detection-and-Count-in-polygon-zone/requirements.txt (line 3))
(1.16.0)

```
[ ]: !pip install GitPython Pillow
```

Requirement already satisfied: GitPython in /usr/local/lib/python3.10/dist-
packages (3.1.41)
Requirement already satisfied: Pillow in /usr/local/lib/python3.10/dist-packages
(10.2.0)

```
Requirement already satisfied: gitdb<5,>=4.0.1 in
/usr/local/lib/python3.10/dist-packages (from GitPython) (4.0.11)
Requirement already satisfied: smmap<6,>=3.0.1 in
/usr/local/lib/python3.10/dist-packages (from gitdb<5,>=4.0.1->GitPython)
(5.0.1)
```

[ ]: ```
!python /content/Object-Detection-and-Count-in-polygon-zone/
↪yolov5MultiplePolygon.py -i /content/
↪Object-Detection-and-Count-in-polygon-zone/demo2.mp4 -o resultado.mp4
```

```
Using cache found in /root/.cache/torch/hub/ultralytics_yolov5_master
YOLOv5  2024-1-29 Python-3.10.12 torch-1.12.0+cu102 CUDA:0 (Tesla T4, 15102MiB)

Downloading
https://github.com/ultralytics/yolov5/releases/download/v7.0/yolov5x6.pt to
yolov5x6.pt…
100% 270M/270M [00:01<00:00, 159MB/s]

Fusing layers…
YOLOv5x6 summary: 574 layers, 140730220 parameters, 0 gradients
Adding AutoShape…
```

[ ]: ```
!python yolov5MultiplePolygonFinal.py -i /content/
↪Object-Detection-and-Count-in-polygon-zone/demo2.mp4 -o resultado1.mp4 -fps 5
```

```
Using cache found in /root/.cache/torch/hub/ultralytics_yolov5_master
YOLOv5  2024-1-30 Python-3.10.12 torch-1.12.0+cu102 CUDA:0 (Tesla T4, 15102MiB)

Fusing layers…
YOLOv5x6 summary: 574 layers, 140730220 parameters, 0 gradients
Adding AutoShape…
Procesando el video original…
Procesamiento completado.
Tiempo total de ejecución: 31.59 segundos
```

[ ]: ```python
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns

df = pd.read_csv('/content/resultadosFPS5.csv')

# Establece Tiempo como índice
df.set_index('Tiempo', inplace=True)

# Gráfica de Líneas
plt.figure(figsize=(10,6))
sns.lineplot(data=df)
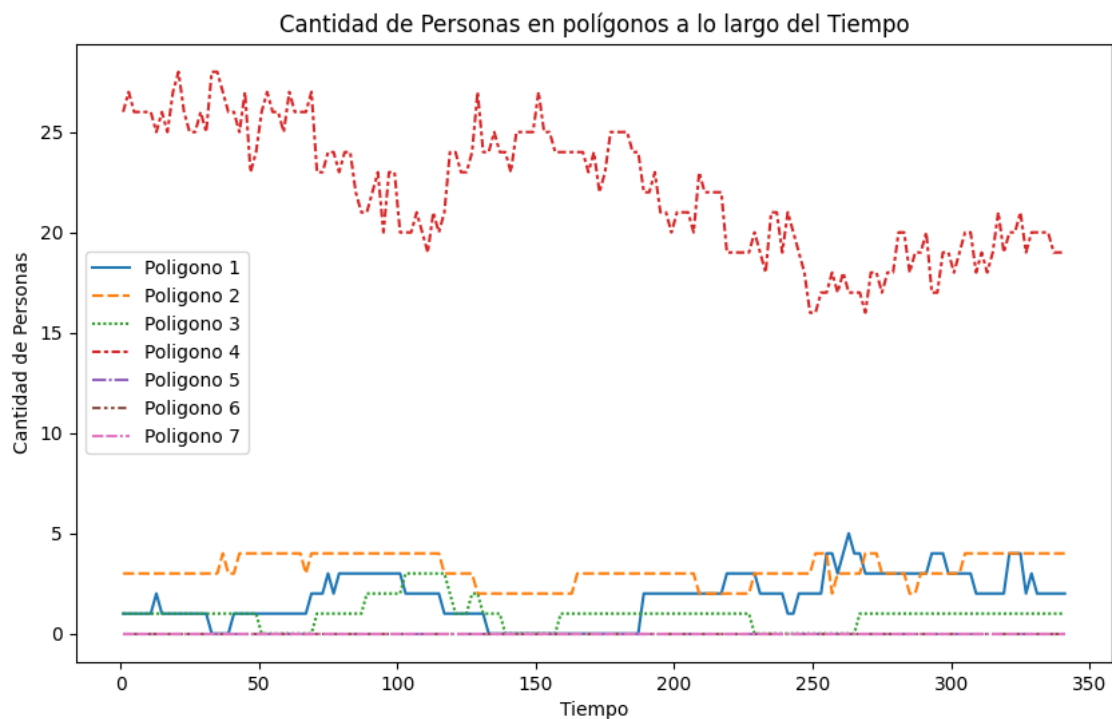plt.title('Cantidad de Personas en polígonos a lo largo del Tiempo')
```

```
plt.xlabel('Tiempo')
plt.ylabel('Cantidad de Personas')
plt.show()

# Gráfica de área apiladas
plt.figure(figsize=(10,6))
df.plot(kind='area',stacked=True)
plt.title('Cantidad de Personas en polígonos a lo largo del Tiempo (área␣
  ↪apilada)')
plt.xlabel('Tiempo')
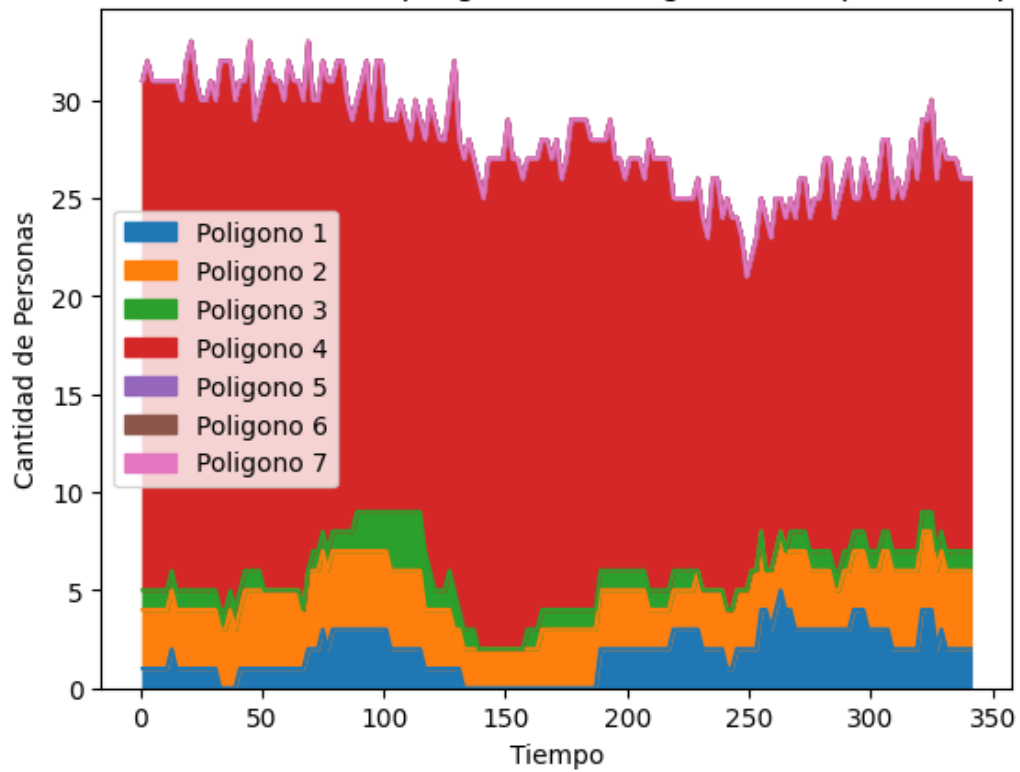plt.ylabel('Cantidad de Personas')
plt.show()


# Gráfica de barras
plt.figure(figsize=(10,6))
df.plot(kind='area',stacked=True)
plt.title('Cantidad de Personas en polígonos a lo largo del Tiempo (Barras␣
  ↪apilada)')
plt.xlabel('Tiempo')
plt.ylabel('Cantidad de Personas')
plt.show()
```


Cantidad de Personas en polígonos a lo largo del Tiempo

```
<Figure size 1000x600 with 0 Axes>
```

Cantidad de Personas en polígonos a lo largo del Tiempo (área apilada)

<Figure size 1000x600 with 0 Axes>

Cantidad de Personas en polígonos a lo largo del Tiempo (Barras apilada)