

1 MATRIX WITH METHODS

```
import pandas as pd
import streamlit as st

class Matriz:
    def __init__(self, data):
        self.__data = data

    def show_matriz(self):
        st.write(pd.DataFrame(self.__data).style.background_gradient(cmap='viridis'))

    def promedio(self):
        flat_list = [item for sublist in self.__data for item in sublist]
        return sum(flat_list) / len(flat_list)

    def media(self):
        flat_list = [item for sublist in self.__data for item in sublist]
        return sorted(flat_list)[len(flat_list)//2] if len(flat_list) % 2 != 0 else (sorted(flat_list)[len(flat_list)//2])

    def diagonal(self):
        return [self.__data[i][i] for i in range(len(self.__data))]

    def inferior(self):
        lower_triangle = []
        for i in range(len(self.__data)):
            for j in range(i):
                lower_triangle.append(self.__data[i][j])
        return lower_triangle

    def superior(self):
        upper_triangle = []
        for i in range(len(self.__data)):
            for j in range(i+1, len(self.__data)):
                upper_triangle.append(self.__data[i][j])
        return upper_triangle

# Interfaz de usuario con Streamlit
st.title("Matriz y Estadísticas")

uploaded_file = st.file_uploader("Sube un archivo CSV o Excel", type=["csv", "xlsx"])

if uploaded_file is not None:
    if uploaded_file.name.endswith('.csv'):
        new_df = pd.read_csv(uploaded_file)
    elif uploaded_file.name.endswith('.xlsx'):
        new_df = pd.read_excel(uploaded_file)

    st.write("### Datos cargados:")
    st.write(new_df)

    matriz_uploaded = Matriz(new_df.values.tolist())
```

```

st.write("### Matriz:")
matriz_uploaded.show_matriz()

st.write("### Promedio:")
st.write(f"El promedio de la matriz es: {matriz_uploaded.promedio()}")

st.write("### Media:")
st.write(f"La media de la matriz es: {matriz_uploaded.media()}")

st.write("### Diagonal:")
st.write(matriz_uploaded.diagonal())

st.write("### Inferior:")
st.write(matriz_uploaded.inferior())

st.write("### Superior:")
st.write(matriz_uploaded.superior())

```

2 RESULTS

Matriz y Estadísticas

Sube un archivo CSV o Excel

Arrastre y suelte el archivo aquí
Límite de 200 MB por archivo • CSV, XLSX

Búsqueda de archivos

matrices.xlsx 53,6 KB

Datos cargados:

	5	24	58
0	83	53	20
1	55	89	89

Matriz:

	0	1	2
0	83	53	20
1	55	89	89

Promedio:
El promedio de la matriz es: 64.83333333333333

Medios de comunicación:
La media de la matriz es: 69.0

Diagonal:
[0: 83, 1: 89]

Inferior:
[0: 55]

Superior:
[0: 53]

The code defines a class to manipulate arrays using Streamlit to create an interactive interface where the user can load an array from a file, and view various statistics and properties of the array.(Methods)