

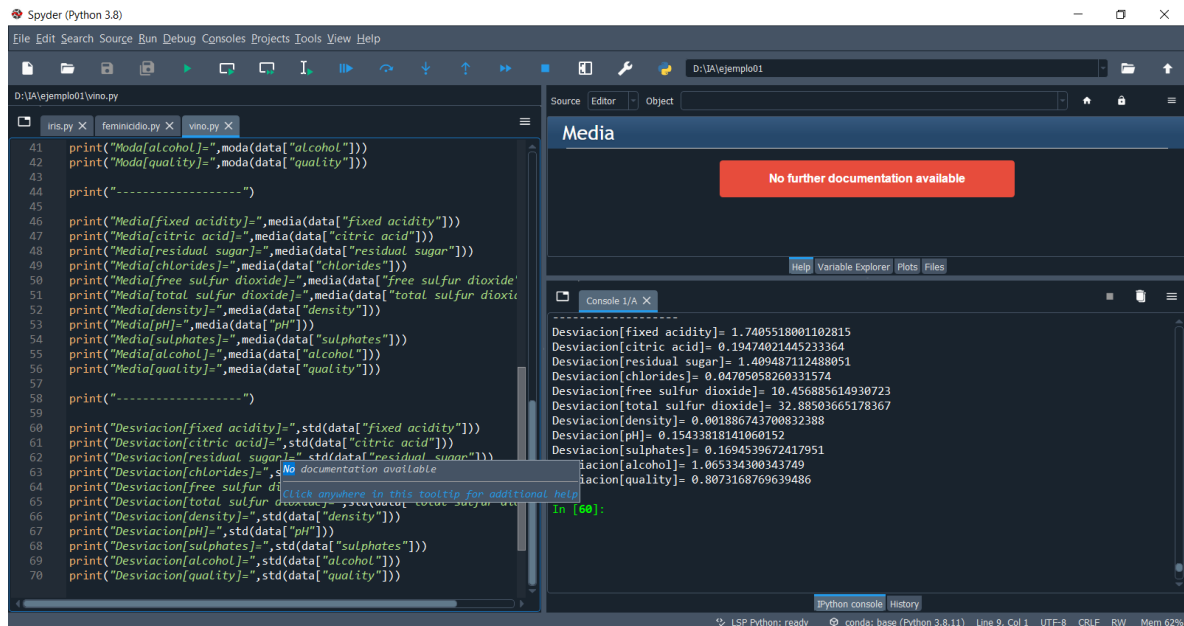
INF354 Inteligencia Artificial

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Q

La media, moda y la desviación estándar por columna; explique qué significa en cada caso mediante Python sin uso de librerías



```
41 print("Moda[alcohol]=" , moda(data["alcohol"]))
42 print("Moda[quality]=" , moda(data["quality"]))
43
44 print("-----")
45
46 print("Media[fixed acidity]=" , media(data["fixed acidity"]))
47 print("Media[citric acid]=" , media(data["citric acid"]))
48 print("Media[residual sugar]=" , media(data["residual sugar"]))
49 print("Media[chlorides]=" , media(data["chlorides"]))
50 print("Media[free sulfur dioxide]=" , media(data["free sulfur dioxide"]))
51 print("Media[total sulfur dioxide]=" , media(data["total sulfur dioxide"]))
52 print("Media[density]=" , media(data["density"]))
53 print("Media[pH]=" , media(data["pH"]))
54 print("Media[sulphates]=" , media(data["sulphates"]))
55 print("Media[alcohol]=" , media(data["alcohol"]))
56 print("Media[quality]=" , media(data["quality"]))
57
58 print("-----")
59
60 print("Desviacion[fixed acidity]=" , std(data["fixed acidity"]))
61 print("Desviacion[citric acid]=" , std(data["citric acid"]))
62 print("Desviacion[residual sugar]=" , std(data["residual sugar"]))
63 print("Desviacion[chlorides]=" , std(data["chlorides"]))
64 print("Desviacion[free sulfur dioxide]=" , std(data["free sulfur dioxide"]))
65 print("Desviacion[total sulfur dioxide]=" , std(data["total sulfur dioxide"]))
66 print("Desviacion[density]=" , std(data["density"]))
67 print("Desviacion[pH]=" , std(data["pH"]))
68 print("Desviacion[sulphates]=" , std(data["sulphates"]))
69 print("Desviacion[alcohol]=" , std(data["alcohol"]))
70 print("Desviacion[quality]=" , std(data["quality"]))
```

Media

No further documentation available

Desviacion[fixed acidity]= 1.7405518001102815
Desviacion[citric acid]= 0.1947402144523364
Desviacion[residual sugar]= 1.409487112488051
Desviacion[chlorides]= 0.04705858269331574
Desviacion[free sulfur dioxide]= 10.456885614930723
Desviacion[total sulfur dioxide]= 32.88593665178367
Desviacion[density]= 0.001886743700832388
Desviacion[pH]= 0.15433818141060152
Desviacion[sulphates]= 0.1694539672417951
Desviacion[alcohol]= 1.065334300343749
Desviacion[quality]= 0.8073168769639486

```
# -*- coding: utf-8 -*-
```

```
"""
```

```
@author: Alvaro Quisbert Mamani
```

```
"""
```

```
import pandas as pd
data = pd.read_csv("vino.csv", sep=";", header=[0])
print(data)
```

```
def moda(columna):
    #print(columna.value_counts())
    contarunicosindice=columna.value_counts().index.tolist()
    #contarunicosvalor=columna.value_counts().tolist()
    return contarunicosindice[0]
```

```
def media(columna):
    suma=columna.sum()
    return suma/len(columna)
```

```
def _ss(columna):
```

```

c=media(columna)
ss=sum((x-c)**2 for x in columna)
return ss

def std(columna,d=0):
    n=len(columna)
    if (n>=2):
        ss=_ss(columna)
        pvar=ss/(n-d)
        return pvar**0.5

print("Moda[fixed acidity]=",moda(data["fixed acidity"]))
print("Moda[citric acid]=",moda(data["citric acid"]))
print("Moda[residual sugar]=",moda(data["residual sugar"]))
print("Moda[chlorides]=",moda(data["chlorides"]))
print("Moda[free sulfur dioxide]=",moda(data["free sulfur dioxide"]))
print("Moda[total sulfur dioxide]=",moda(data["total sulfur dioxide"]))
print("Moda[density]=",moda(data["density"]))
print("Moda[pH]=",moda(data["pH"]))
print("Moda[sulphates]=",moda(data["sulphates"]))
print("Moda[alcohol]=",moda(data["alcohol"]))
print("Moda[quality]=",moda(data["quality"]))

print("-----")

print("Media[fixed acidity]=",media(data["fixed acidity"]))
print("Media[citric acid]=",media(data["citric acid"]))
print("Media[residual sugar]=",media(data["residual sugar"]))
print("Media[chlorides]=",media(data["chlorides"]))
print("Media[free sulfur dioxide]=",media(data["free sulfur dioxide"]))
print("Media[total sulfur dioxide]=",media(data["total sulfur dioxide"]))
print("Media[density]=",media(data["density"]))
print("Media[pH]=",media(data["pH"]))
print("Media[sulphates]=",media(data["sulphates"]))
print("Media[alcohol]=",media(data["alcohol"]))
print("Media[quality]=",media(data["quality"]))

print("-----")

print("Desviacion[fixed acidity]=",std(data["fixed acidity"]))
print("Desviacion[citric acid]=",std(data["citric acid"]))
print("Desviacion[residual sugar]=",std(data["residual sugar"]))
print("Desviacion[chlorides]=",std(data["chlorides"]))
print("Desviacion[free sulfur dioxide]=",std(data["free sulfur dioxide"]))

```

```
print("Desviacion[total sulfur dioxide]=",std(data["total sulfur dioxide"]))
print("Desviacion[density]=",std(data["density"]))
print("Desviacion[pH]=",std(data["pH"]))
print("Desviacion[sulphates]=",std(data["sulphates"]))
print("Desviacion[alcohol]=",std(data["alcohol"]))
print("Desviacion[quality]=",std(data["quality"]))
```