NOMBRE	MATERIA	CI	NUMERO DE PREGUNTA
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CODIGO NORMALIZACION L1

```
import pandas as pd

def normalizar_L1(datos):
    suma = sum(abs(datos[i]) for i in range(len(datos)))
    return [datos[i] / suma for i in range(len(datos))]


def normalizar_L2(datos):
    suma_cuadrados = sum(datos[i]**2 for i in range(len(datos)))
    norma = suma_cuadrados**0.5
    return [datos[i] / norma for i in range(len(datos))]


archivo = pd.read_csv("DatasetEx.csv")


columnas = ["year", "duration_ms", "danceability", "loudness",
            "speechiness", "acousticness", "instrumentalness",
            "valence", "tempo", "time_signature"]

tipo_normalizacion = 'L1'
for col in columnas:
    if tipo_normalizacion == 'L1':
        archivo[col] = normalizar_L1(archivo[col].tolist())
    elif tipo_normalizacion == 'L2':
        archivo[col] = normalizar_L2(archivo[col].tolist())


print(archivo)
```

CORRIDA

	year	duration_ms	danceability	energy	...	valence	tempo	time_signature	class
0	0.000903	0.000825	0.000896	0.826	...	0.001013	0.000872	0.000921	RnB
1	0.000911	0.000900	0.000908	0.430	...	0.000194	0.000668	0.000921	RnB
2	0.000910	0.001172	0.000998	0.429	...	0.000323	0.001064	0.000921	Rock
3	0.000909	0.001001	0.000977	0.490	...	0.000957	0.000613	0.000921	Pop
4	0.000912	0.000841	0.001426	0.720	...	0.001553	0.001007	0.000921	RnB
...	...	...	...	...	...	...	...	...	...
1095	0.000911	0.001026	0.000679	0.851	...	0.001204	0.001032	0.000921	Rock
1096	0.000911	0.001939	0.000439	0.953	...	0.000190	0.000872	0.000921	Electronic
1097	0.000909	0.001118	0.000238	0.239	...	0.000071	0.000560	0.000921	Rock
1098	0.000912	0.000619	0.001264	0.721	...	0.000748	0.000603	0.000921	Pop
1099	0.000903	0.001005	0.001430	0.307	...	0.001338	0.000634	0.000921	Reggae

CODIGO NORMALIZACION L2

```
import pandas as pd

def normalizar_L1(datos):
    suma = sum(abs(datos[i]) for i in range(len(datos)))
    return [datos[i] / suma for i in range(len(datos))]


def normalizar_L2(datos):
    suma_cuadrados = sum(datos[i]**2 for i in range(len(datos)))
    norma = suma_cuadrados**0.5
    return [datos[i] / norma for i in range(len(datos))]


archivo = pd.read_csv("DatasetEx.csv")


columnas = ["year", "duration_ms", "danceability", "loudness",
            "speechiness", "acousticness", "instrumentalness",
            "valence", "tempo", "time_signature"]

tipo_normalizacion = 'L2'
for col in columnas:
    if tipo_normalizacion == 'L1':
        archivo[col] = normalizar_L1(archivo[col].tolist())
    elif tipo_normalizacion == 'L2':
        archivo[col] = normalizar_L2(archivo[col].tolist())


print(archivo)
```

CORRIDA

```
          year  duration_ms  danceability  energy  ...   valence     tempo  time_signature       class
0     0.029955     0.025823      0.028415   0.826  ...  0.030111  0.028228        0.030468         RnB
1     0.030211     0.028149      0.028807   0.430  ...  0.005767  0.021602        0.030468         RnB
2     0.030196     0.036686      0.031659   0.429  ...  0.009593  0.034426        0.030468        Rock
3     0.030136     0.031318      0.030988   0.490  ...  0.028448  0.019822        0.030468         Pop
4     0.030241     0.026317      0.045252   0.720  ...  0.046137  0.032589        0.030468         RnB
...        ...          ...           ...     ...  ...       ...       ...             ...         ...
1095  0.030211     0.032099      0.021535   0.851  ...  0.035767  0.033382        0.030468        Rock
1096  0.030211     0.060688      0.013928   0.953  ...  0.005656  0.028225        0.030468  Electronic
1097  0.030136     0.034999      0.007551   0.239  ...  0.002096  0.018121        0.030468        Rock
1098  0.030241     0.019356      0.040106   0.721  ...  0.022237  0.019523        0.030468         Pop
1099  0.029955     0.031435      0.045363   0.307  ...  0.039760  0.020518        0.030468      Reggae
```