```
import pandas as pd
import numpy as np
```

```
# Crear un DataFrame de ejemplo
data = {'col1': [1, -2, 3], 'col2': [4, 5, 6], 'col3': [7, 8, 9]}
df = pd.DataFrame(data)
# Sumar cada fila
df['suma_fila'] = df.sum(axis=1)
print(df)
```

```
   col1  col2  col3  suma_fila
0     1     4     7         12
1    -2     5     8         11
2     3     6     9         18
```

```
# Definicion de funciones
def pivotearInferior(A,i,j):
    # abajo de i,j
    k=len(A[:,j])
    A[i,:]=(1/A[i,j])*A[i,:]

    for r in range(i+1,k):
        f=A[r,j]
        A[r,:]=A[r,:]-f*A[i,:]
    return A

def pivotearSuperior(A,i,j):
    # arriba de i,j
    k=len(A[:,j])
    A[i,:]=(1/A[i,j])*A[i,:]

    if j>0:
        for r in range(j-1,-1,-1):
            f=A[r,j]
            A[r,:]=A[r,:]-f*A[i,:]
    return A
```

```
A=df.values
A
```

```
array([[ 1,  4,  7, 12],
       [-2,  5,  8, 11],
       [ 3,  6,  9, 18]])
```

```
A=pivotearInferior(A,0,0)
A=pivotearInferior(A,1,1)
A=pivotearInferior(A,2,2)
A
```

```
array([[ 1,  4,  7, 12],
       [ 0,  1,  1,  2],
       [ 0,  0,  1,  1]])
```

```
A=pivotearSuperior(A,2,2)
A=pivotearSuperior(A,1,1)
A=pivotearSuperior(A,0,0)

```

```
A
```

```
array([[1, 0, 0, 1],
       [0, 1, 0, 1],
       [0, 0, 1, 1]])
```