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Parcial #1

Punto

1ª.

def gausConteo(n):  
 c=0  
 for i in range(n):  
 for j in range(i+1,n):  
 for k in range(i,n+1):  
 c+=1  
 print("[" + str(n) + "] = ", c)

def gaus\_jordan(n):  
 c=0  
 for i in range(n):  
 for j in range(n):  
 if (j!=i):  
 for k in range(i,n+1):  
 c+=1  
 print("["+str(n) + "] = ",c)

print("GAUS Normal")  
for i in range(11):  
 print(gausConteo(i))  
  
print("GAUS Jordan")  
for i in range(11):  
 print(gaus\_jordan(i))

|  |  |
| --- | --- |
| GAUS Normal  [0] = 0  [1] = 0  [2] = 3  [3] = 11  [4] = 26  [5] = 50  [6] = 85  [7] = 133  [8] = 196  [9] = 276  [10] = 375 | GAUS Jordan  [0] = 0  [1] = 0  [2] = 5  [3] = 18  [4] = 42  [5] = 80  [6] = 135  [7] = 210  [8] = 308  [9] = 432  [10] = 585 |

Por ambos metodos llegamos a sus ecuaciones dadas.

Punto 1B

import math  
def lanormal(mat, n):  
 sum = 0;  
 for i in range(n):  
 for j in range(n):  
 sum += mat[i][j] \* mat[i][j];  
 return math.floor(math.sqrt(sum));  
mat = [[2.6, 0.3, 2.4, 6.2],  
 [7.7, 0.4, 4.7, 1.4],  
 [5.1, 9.9, 9,5, 1.5],  
 [6.0, 7.0, 8.5, 4.8]]



matTrans = [[-91.145477668889,-20.376916381235,-107.64544419424,157.31204391088],  
 [-107.83892347388,-24.350271137714,-127.28258685925,186.16991362911],  
 [164.478810999,37.043583047174,194.31211085711,-283.97871057199],  
 [-20.067617325214,-4.6160540936602,-23.917118563589,34.949454373508]]  
  
Condicion= (lanormal(mat, 4)+0.05) \*(lanormal(matTrans, 4)+0.1)  
  
print("Normal de la matriz =", lanormal(mat, 4)+0.05)  
print("Normal de la matriz =", lanormal(matTrans, 4)+0.1)  
print("Condicion A\*ATRABS =", Condicion)  
MatError=([[0, 0, 0, 0],  
 [0, 0, 0, 0],  
 [0, 0, 0, 0],  
 [0.1, 0, 0, 0]])  
  
print("VALOR Error es 0.1")  
#PARA EL ERROR CON ||MATERRO|| / ||A|| TENDREMOS  
Error=0.1/(lanormal(mat, 4)+0.05)  
print("Error ",Error)  
print("Error del Sistemas de ecuacion",Error\*Condicion)

/Users/carlosrestrepo/PycharmProjects/puntos/venv/bin/python /Users/carlosrestrepo/PycharmProjects/puntos/Parcial.py

Normal de la matriz = 23.05

Normal de la matriz = 507.1

Condicion A\*ATRABS = 11688.655

VALOR Error es 0.1

Error 0.004338394793926247

Error del Sistemas de ecuacion 50.71

Process finished with exit code 0

Punto 2.a

rm(list=ls())

Fx <- function(x) tan(3.1416\*x)

gx <- function(x) cos(3.1416\*x)

FxGlobal <- function(x) {

for(i in 1:5) {

x<-x-Fx(x)/gx(x)

if (Fx(x) == 0) break

error<-abs(Fx(x)/gx(x))

cat("X :",x,"\t","E :",error,"\n")

}

}

FxGlobal(1)

FxGlobal(2)

> FxGlobal(1)

X : 1.000007 E : 3.042589e-05

X : 1.000038 E : 0.0001260119

X : 1.000164 E : 0.0005218909

X : 1.000686 E : 0.002161472

X : 1.002847 E : 0.008952541

> FxGlobal(2)

X : 1.999985 E : 3.146614e-05

X : 2.000017 E : 6.738789e-05

X : 1.999949 E : 0.0001443179

X : 2.000094 E : 0.0003090713

X : 1.999785 E : 0.0006619073

Punto2.b