SHORTEST PATH BETWEEN TWO POINTS

SOURCE CODE:

clc

clear

clf

m=input("Total no. of Paths: ")

for j=1:m

n=input("Total no. of Points in Path"+string(j)+": ")

x=input("Input x coordinates of Points: ")

y=input("Input y coordinates of Points: ")

A=[x;y]

disp(A)

a=gca()

a.x\_location="origin"

a.y\_location="origin"

a.box="on"

d(j)=0

legends(["Path"+string(j)+":"],[j])

xset("thickness",j)

plot2d(x,y,j)

for i=1:n-1

d(j)=d(j) + ((x(i+1)-x(i))^2 + (y(i+1)-y(i))^2)^(0.5)

end

disp(d(j),"length of path"+string(j)+" is: ")

end

r=1

for l=2:m

if d(r)<d(l)

P(r)=d(r)

else

r=l

P(r)=d(l)

end

end

disp("The smallest Path is path("+string(r)+") and its length is "+string(P(r)))

OUTPUT:

Total no. of Paths: 4

Enter no. of points in between for Path 1: 0

Input x coordinates of Points: [0,5]

Input y coordinates of Points: [1,3]

0. 5.

1. 3.

length of path1 is:

5.3851648

Enter no. of points in between for Path 2: 1

Input x coordinates of Points: [0,3,5]

Input y coordinates of Points: [1,-1,3]

0. 3. 5.

1. -1. 3.

length of path2 is:

8.0776872

Enter no. of points in between for Path 3: 3

Input x coordinates of Points: [0,1.5,3.5,6,5]

Input y coordinates of Points: [1,3,5,2,3]

0. 1.5 3.5 6. 5.

1. 3. 5. 2. 3.

length of path3 is:

10.647766

Enter no. of points in between for Path 4: 2

Input x coordinates of Points: [0,2,3.7,5]

Input y coordinates of Points: [1,-2,-3,3]

0. 2. 3.7 5.

1. -2. -3. 3.

length of path4 is:

11.717078

The smallest Path is path(1) and its length is 5.3851648

