

File Edit Selection View Go Run Terminal Help

EXPLORER

Dagnino_Gerardo_TSP

Dagnino_Gerardo_TSP.py

```
3 import matplotlib.pyplot as plt
4 from matplotlib.figure import Figure
5 from matplotlib.backends.backend_tkagg import
6
7 #Grafo de 8 nodos, mediante un diccionario
8 grafo={
9     'A': {'B': 1, 'C': 4, 'D': 7},
10     'B': {'A': 1, 'C': 2, 'E': 5},
11     'C': {'A': 4, 'B': 2, 'D': 1, 'F': 3},
12     'D': {'A': 7, 'C': 1, 'F': 2, 'G': 6},
13     'E': {'B': 5, 'F': 4, 'H': 3},
14     'F': {'C': 3, 'D': 2, 'E': 4, 'H': 1},
15     'G': {'D': 6, 'H': 2},
16     'H': {'E': 3, 'F': 1, 'G': 2}
17 }
18
19 #resolver el problema del viajero mediante
20 class TSPBacktracking:
21     def __init__(self, grafo):
22         self.grafo = grafo
23         self.mejorRuta = None #Inicializar
24         self.mejorCosto=float('inf') #Inic
25
26 File "C:\Users\gzdag\Documents\GitHub\Algorithms\
27 dibujarGrafo(plot_frame)
28
29 NameError: name 'plot_frame' is not defined
30 (TSP) PS C:\Users\gzdag\Documents\GitHub\Algorithms\
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33 (TSP) PS C:\Users\gzdag\Documents\GitHub\Algorithms\Class\Dagnino_Gerardo_TSP> python .\Dagnino_Gerardo_TSP.py
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PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

Ln 8, Col 8 Spaces: 4 UTF-8 CRLF {} Python TSP (3.13.0)

Search

TSP Backtracking

Resolviendo TSP con Backtracking

Grafo del Problema del Viajero (TSP)

Resultado:

Calcular Mejor Ruta

File Edit Selection View Go Run Terminal Help

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10     'B': {'A': 1, 'C': 2, 'E': 5},
11     'C': {'A': 4, 'B': 2, 'D': 1, 'F': 3},
12     'D': {'A': 7, 'C': 1, 'F': 2, 'G': 6},
13     'E': {'B': 5, 'F': 4, 'H': 3},
14     'F': {'C': 3, 'D': 2, 'E': 4, 'H': 1},
15     'G': {'D': 6, 'H': 2},
16     'H': {'E': 3, 'F': 1, 'G': 2}
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PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

Ln 8, Col 8 Spaces: 4 UTF-8 CRLF {} Python TSP (3.13.0)

Search

TSP Backtracking

Resolviendo TSP con Backtracking

Grafo del Problema del Viajero (TSP)

Resultado: Ruta: H -> F -> E -> B -> A -> C -> D -> G -> H | Costo: 24

Calcular Mejor Ruta


```
File Edit Selection View Go Run Terminal Help
Dagnino_Gerardo_TSP

EXPLORER
DAGNINO_GERARDO_TSP
  .vscode
  TSP
    include
    lib
    Scripts
      activate
      activate.bat
      activate.fish
      deactivate.bat
      qzy.exe
      fonttools.exe
      meson.exe
      ninja.exe
      numpy-config.exe
      pip.exe
      pip3.13.exe
      pip3.exe
      pythmerge.exe
      pythsubet.exe
      python.exe
      pythonw.exe
      ts.exe
      wheel.exe
    share
    .gitignore
    pyvenv.cfg
    Dagnino_Gerardo_TSP.py
    req.txt

Dagnino_Gerardo_TSP.py > Python > dibujarGrafo
50 | return self.mejorRuta, self.mejorCosto #Retornar mejor ruta y costo
51 |
52 | #Funciones para ejecucion y mostrar resultado
53 | def dibujarGrafo(parent): #Dibujar y presentar el grafo dentro de un widget Tk usando matplotlib
54 |     G = nx.Graph() #Inicializar grafo de networkx
55 |     for nodo, vecinos in grafo.items(): #Agregar nodos y aristas al grafo
56 |         for vecino, peso in vecinos.items():
57 |             G.add_edge(nodo, vecino, weight=peso)
58 |
59 |     pos = nx.spring_layout(G) #Posicionamiento de nodos
60 |
61 |     # Crear figura matplotlib y dibujar en ella
62 |     fig = Figure(figsize=(5, 4), dpi=100)
63 |     ax = fig.add_subplot(111)
64 |     ax.set_title("Grafo del Problema del Viajero (TSP)")
65 |     ax.axis('off')
66 |
67 |     # Dibujar grafo
68 |     nx.draw(G, pos, ax=ax, with_labels=True, node_color='lightblue', node_size=500, font_size=10)
69 |     labels = nx.get_edge_attributes(G, 'weight')
70 |     nx.draw_networkx_edge_labels(G, pos, edge_labels=labels, ax=ax)
71 |
72 |     fig.tight_layout() #Ajustar diseño
73 |
74 |     # Embedir la figura en Tk
75 |     canvas = FigureCanvasTkAgg(fig, master=parent)
76 |     canvas.draw()
77 |     widget = canvas.get_tk_widget()
78 |     widget.pack(fill="both", expand=True)
79 |     return canvas
80 |
81 | def mostrar_resultado():
82 |     nodoInicial=nodoInicio.get()
83 |     tsp=TSPBacktracking(grafo)
84 |     ruta, costo=tsp.encontrar_mejor_ruta(nodoInicial)
85 |     if ruta is None:
86 |         resultado.config(text="Resultado: No se encontro ruta válida.")
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