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Analisi e Visualizzazione delle Reti Complesse

NS05 - Complex Network Analysis - Solutions

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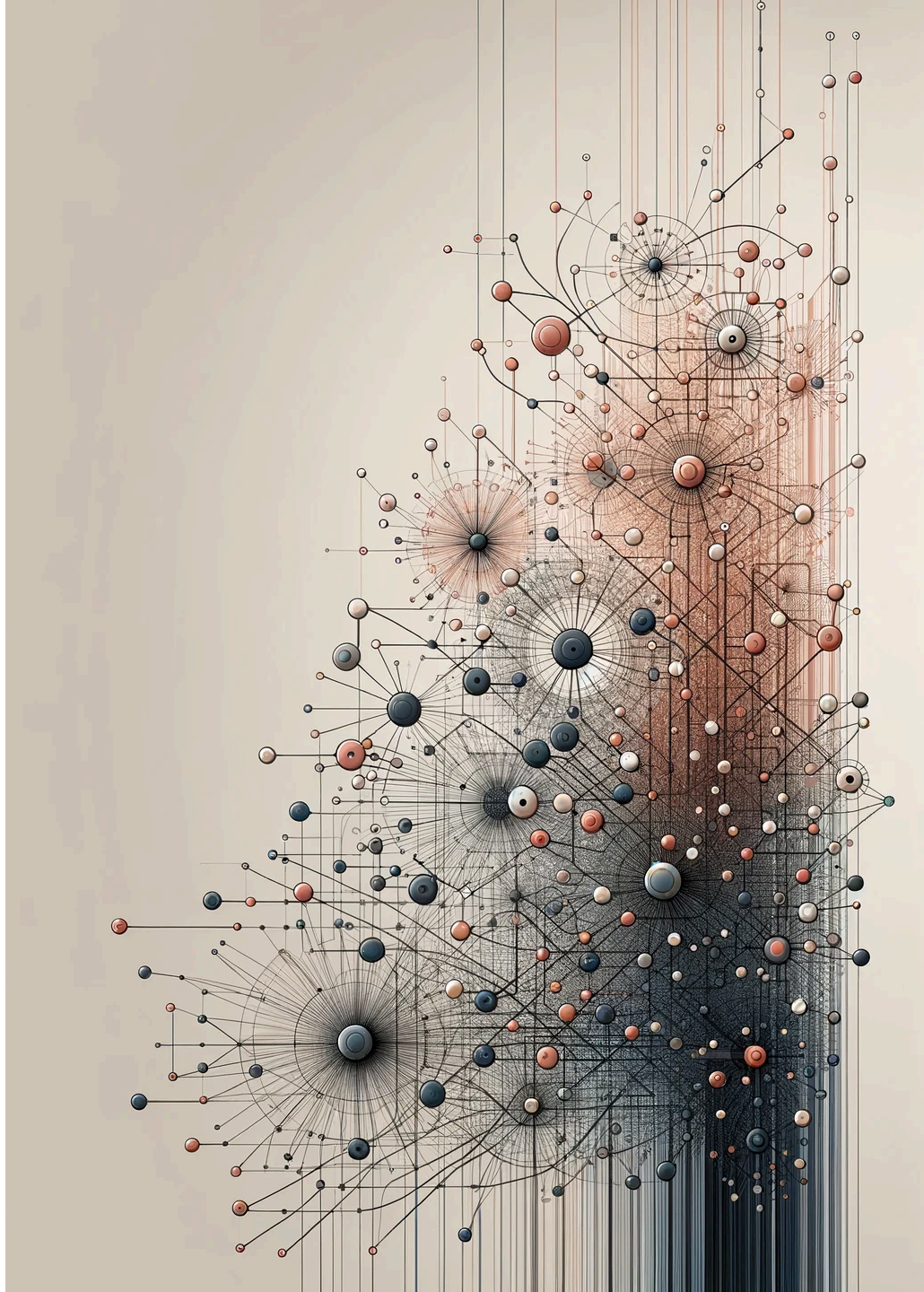

Exercise 1

(1) Road segments, e.g., 5th Ave. between 12th and 13th streets

Exercise 2

b. Street intersections, e.g., 5th Ave. and 12th St.

Exercise 3

An edge could represent the presence of flight(s) between the two airports.

Exercise 4

(1) Hub nodes with many links

Exercise 5

Undirected

Exercise 6

Directed

Exercise 7

(4) A link connects two nodes. A node can be connected to at most $N - 1$ other nodes.

Exercise 8

(3) Total in-degree must be equal to total out-degree

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Exercise 9

(1) Directed, weighted

Exercise 10

(3) Network A has more links than network B

Exercise 11

(2) Directed, weighted

Exercise 12

(3) C

Exercise 13

(2) N = 6, L = 10

Exercise 14

(1) True

Exercise 15

(4) It has increased or stayed the same

Exercise 16

(3) Weakly connected

Exercise 17

(4) 10

Exercise 18

(2) Social networks have small average path length

Exercise 19

(3) Social networks are highly clustered, yet are not dense.

Exercise 21

disassortative

Exercise 22

(a,e)

Exercise 23

AEC form a triangle by belonging to different groups; they connect different communities that otherwise would be disconnected

Exercise 24

There are at least 4 foci because there are 4 different triangles.

Exercise 25

weak (otherwise for the theory of weak-string ties, there should also be other links like e-c)