

FACULTY OF COMPUTING

SEMESTER 1 2023/2024

SECI1013 - DISCRETE STRUCTURE

SECTION 3

ASSIGNMENT 3 - CHAPTER 1

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|-----------------------|-----------|
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|) a |) From 0 to 100 points, there are 101 | possible different scores. |
|------------------------------|---|---|
| | Hence, pigeonholes is 101 differ | |
| and the second of the second | 102 students or more because | if would be impossible for |
| | | nt scores and at least two |
| | students will receive the same | |
| , L | of students must be 102, or | |
| - Park | | |
| | on we sou that vertices are alia | |
| 910 (13 | b) rigeons - number of students (n) | |
| (71180) | Pigeonholes - number of letter k=6 m(k-1) = 5 | U in the second |
| 4 - 3 | | |
| - W 9 U | 2 = incident it there is = m | |
| 1 11 ha | $0 \text{ is included} = \frac{1}{5} \text{ included} = \frac{1}{5} \text{ included}$ | these e |
| 1 - 1 00 | 5 - 20 0 10 m C 2 10 2 2 1 | 3 |
| | :. Minimum number of students | must be 26 because |
| 9.0 | a 1726 14 to tradical too zi todi | e) Isolated vertex: Vertex |
| | 9 1[26] = [5.2] = 100 1 ton 21 tons | |
| (xº | trov betplosi 2/3 (V) a) $P(B1) = \frac{70}{100} = 0.70$ | |
| 2) | a) $P(BI) = \frac{70}{10} = 0.70$ | e. P(w Bz) = P(W \cap Bz) |
| | 100 | PCB2) |
| | b) Y(B2) = 30 -2+ 20 210012 0 00 1 | P(W162) = P(W B2) - P(B2) |
| | 100 | = 0.4 x 0.3 |
| | c) P(W BI) = P(WABI) = \frac{70}{100} \times \frac{20}{100} | = 0,12 |
| | P(B1) +0 | |
| ts2 | once distinct edge with some | |
| | = 0.7 | gbn3 7=0.26 |
| | 13 Pt 191) | 9. 1 |
| 11911 | 4) P(BIn W) = P(tw/BI) | g. P(BIN) = P(BINW) |
| | = P(WNBI) | P(w) |
| | P(B1) | > 0.14 |
| | p(WABI) = P(W BI).P(BI) | 0.26 |
| | = 0.2 x 0.7 | 2 0.5385 |
| | = 0.14 | |

| | Land to the state of the state |
|-------------------------------------|--|
| 3, | a) vertices is one of the objects that are connected together |
| | b) Edges are connections between the vertices |
| 001 | real fredge of more differently sond it stouchute un |
| nber | students will receive the same score there for a the but |
| | |
| | an edge, we say that warties and adia and |
| | an english start of a radia No. and |
| | an edge, we say that vertices are adjacent (1) choose to reduce the connected by (1) choose to reduce the connected by (1) choose the connected by (2) choose the connected by (3) choose the connected by (4) choose the connected by (5) choose the connected by (6) choose the connected by (6) choose the connected by (6) choose the connected by (7) choose the connected by (8) choose the choose the connected by (8) choose the connected by (8) choose the connected by (8) choose the choose the connected by (8) choose the choose t |
| | k=6 m(k-1) = 5(6-1) |
| | d) Incident edge : Edges are incident if there is a vertex between |
| | these edges a |
| | e, V2 (e, is incident to Vi and V2 |
| | |
| | Minimum number of students must be 26 because |
| | e) Isolated vertex: Vertex that is not incident with any edge. |
| | , V, |
| | (V3 is isolated vertex) |
| | (18/11/1 = (18/11/1 (1) 1 (1) (1) (1) (1) (1) (1) (1) (1) |
| | 8684) |
| \$ 2) | Stoop An edgémincident on a single vertex e = (6)7(d) |
| | Ero X 420 = 1 |
| and the second second second second | 5/10= (19/(ez) is 10/0p)) 9 (3 |
| | P(81) 70 100 |
| (4, 9) | Parallel edges: Two or more distinct edges with same set |
| J | of endpoints stage of |
| | ε, |
| | (write) q = (w/18) 1 V2 (eland ez (laret parallel) |
| | (W) 9 = P (W) 181) Y = |
| | F1.0 = (18)4 |
| | p(w/81) = P(w/81)-P(B1) |
| | = 0.2385 |
| | 41.0.0 |
| | |

| | No.i | Date: |
|---------------|--|--------------|
| - | | |
| 4. | mun sensition en Headegitis 3 Min sens and | -1 |
| 10 | | 334016 934.9 |
| 3111 | deg (V2)=12 | Leaght to |
| | $\frac{1}{c} \int_{C} deg(V_3) = 3$ | ry S. Lan E |
| | g agg (V4) -) | 2 5 F Y: 1 |
| | V ₃ 0 V ₄ deg (V ₅) = 1(1)+ | (A)+ |
| | 1 (1)1, (1)7 | f(8) = 5 |
| | emas gro s brabicos de cordinato la some | ti gangH |
| <u>5i)</u> | Decide to the control of the control | d A |
| | 2 0 0 0 0 0 0 0 0 0 0 | 1 0 TA = Y |
| | 1 1 1 0 0 3 1 0 0 0 0 1 1 1 0 0 0 | 6 1 8 |
| | 11100400001100 | |
| | | 1 1 1 |
| | 000160000000001 | |
| | | 1 0 14 |
| ij) | | |
| - ") | | 9 |
| | | , 9 .F |
| | | 10 |
| 1. 9. 1. 29. | p. ,9,0) (4, p9, 2, 3) 2 0, 0, 14, 19, 1 + | V 12/15 |
| 4.197,19 | 2 0 0 9 0 0 0 9 1 9 1 9 1 9 1 9 9 9 9 9 9 | X 1.9 |
| | 5001001 | |
| | 6 10= 0 11 1 1 9 10 22 0 0 (i) | |
| (4,12,1,5 | (p. es. +), (f. p. e. es. s. e. +), (f. e. , e.) | Jur 1 |
| (4,19,7,59 | (p.e., 9, e, 1, e, 2, e, +), (p.e., 7, e4, s) | 7 |
| , a) e | (p, e, 9, e, 1, e, t) (p, e, t, e, t) | |
| (+,4) | | |
| | | |
| | fir-shortest shortest | |
| | 1,29,9 | |
| | | |
| | longest | |
| red J. L. Cha | pre, 7, 2, 2, 6, 4, pre, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, | |
| | 1,09. 6 1,0,0,0,0,0,0,0,0 | - |
| | | |
| 1. | | 1 |
| | | |
| | | |

| 6. | · Doth graphs have same number of vertices and same number | |
|----|--|-------------------|
| | of edges. For both graphs, there are 2 restices have degree | |
| | 3 and 2 vertices have degree 4. | |
| | f:Y > Z is defined. (AV) Fold | |
| | f(A) = (= f(1) = 4 f(1) + f(1 | |
| | f(b) =512 f(p)=3 /f(F)=1-1+0-12 An-1 An-1 An-1 An-1 An-1 | |
| | - Hence it is isomorphic because I and 2 are same | |
| | A B C OD E F O 0 1 1 1 5 1 6 15 x 14 cm3 82 1 1001 100 | |
| | Y = A 0 10 0 0 0 7=6 0 1 0 1 0 0 | |
| | B 1 800 1 11 115 1 107 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | |
| | C 0 0 0 1 0 1 01 0 0 1 1 0 0 0 0 0 1 1 1 | Ġ, |
| | E 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | |
| | | |
| | F[011100] 1[011100] | |
| | ii) Adjalenty matrix = 123456 [[102100] | |
| 7. | | |
| | e, e, i) possible path p->+ s | |
| 7 | 9 (p, e5, +), (p, e, , q, e6; s, e4, +), (p, e, q, e2, r, e | 7) |
| 7 | e, (p, e,, q, e,, r, e, s, e,, +), (p, e,, q, e,, s, e, r, e, | at |
| | r e3 5 ii) possible trails p +)t | |
| | (p, e5, +), (p, e,,q, e6, s, e4, +), (p, e,,q, e2, r, e2 | 1 |
| | (p,e,,9,ez,r,e3,s,e4,t),(p,e5,t,e4,s,e3,r,e3 | <i>μΤ.</i> _ L |
| | (p, e,, 9, e6, s, e3, r, e4, t), (p, e5, t, e4, r, e2, 9. | , P. |
| | s, e4, +) | 7 06 |
| | | |
| | iii-shortest iv. Shortest | |
| | p, e ₅ , † p, e ₅ , † | |
| | longest longest | |
| | · · · · · · · · · · · · · · · · · · · | 66 |
| | | |
| | p,e,,q,ez,,,ez,s,e4 p,e5,t,ez,r,ez,q, | |