

Exam for Data Structures, Algorithms & Databases

ID 2546379

Question 1

Part 1

N[v]	Neighbours(s)
A	(B, 7), (C, 4), (E, 8)
B	(A, 7), (C, 3), (E, 2)
C	(A, 4), (B, 3), (D, 9)
D	(C, 9), (E, 6), (F, 7)
E	(A, 8), (B, 2), (D, 6), (F, 5)
F	(D, 7), (E, 5)

Table 1: Part 1

Part 2

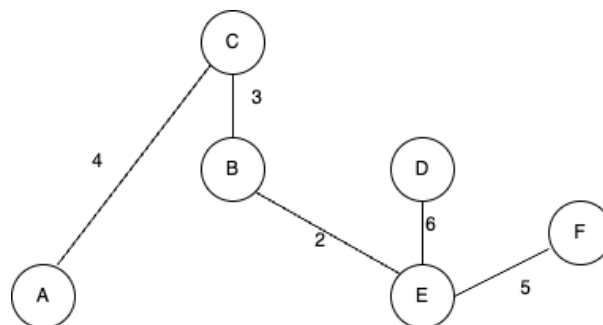


Figure 1: Total Weight: 20

Question 2

A	B	C	D	E	Finished
0, A	∞ , B	∞ , C	∞ , D	∞ , E	
0, A, ✓	5, A	∞ , C	13, A	20, A	A
0, A, ✓	5, A, ✓	8, B	13, A	17, B	B
0, A, ✓	5, A, ✓	8, B ✓	10, C	17, B	C
0, A, ✓	5, A, ✓	8, B ✓	10, C ✓	13, D	D
0, A, ✓	5, A, ✓	8, B ✓	10, C ✓	13, D ✓	E

Table 2:

Total Weight: 13

Shortest Path: $A \rightarrow B \rightarrow C \rightarrow D \rightarrow E$ **Question 3**

- linear probing

1.

0	1	2	3	4	5
	B	D	E	A	

2.

0	1	2	3	4	5
	B	D	E	A	C

3.

0	1	2	3	4	5
F	B	D	E	A	C

4.

0	1	2	3	4	5
F	B	#	E	A	C

5.

0	1	2	3	4	5
F	B	#	E	A	#

6.

0	1	2	3	4	5
F	B	C	E	A	#

- double hashing

1.

0	1	2	3	4	5
	B	D	E	#	A

2.

0	1	2	3	4	5
	B	D	E	C	A

3.

0	1	2	3	4	5
F	B	D	E	C	A

4.

0	1	2	3	4	5
F	B	#	E	C	A

5.

0	1	2	3	4	5
F	B	#	E	#	A

6.

0	1	2	3	4	5
F	B	C	E	#	A

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