

The Traveling Salesman Problem

Cheapest-Link Algorithm

Lecture 32
Sections 6.5

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1 The Cheapest-Link Algorithm

2 Practice

3 Assignment

Outline

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3 Assignment

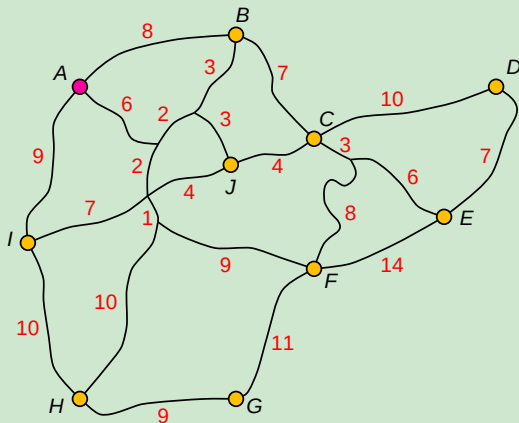
The Cheapest-Link Algorithm

Definition (Cheapest-Link Algorithm)

The **Cheapest-Link Algorithm** begins with the edge of least weight and makes it part of the circuit. Then it selects the edge of second-smallest weight, and so on. Once a vertex has two selected edges, no more edges of that vertex are considered and we must avoid creating a circuit prematurely. Eventually the edges will form a circuit.

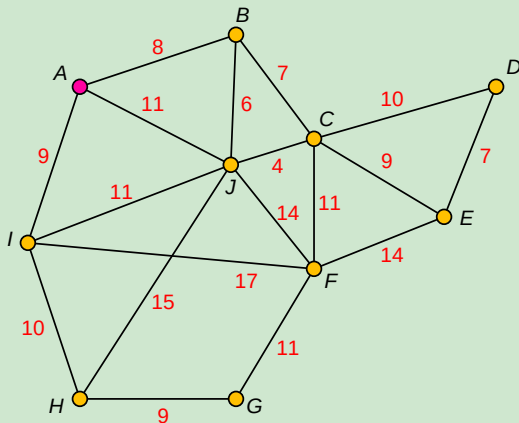
Example

Example (Cheapest-Link Algorithm)



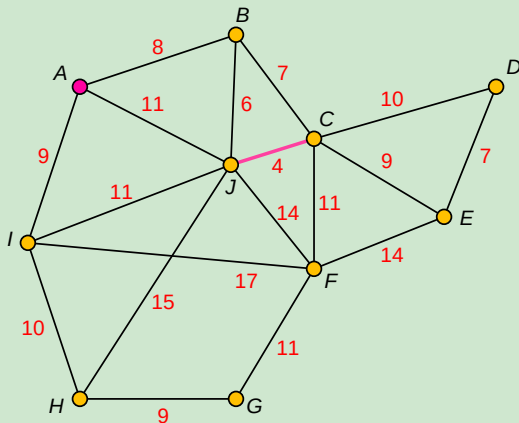
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Example (Cheapest-Link Algorithm)



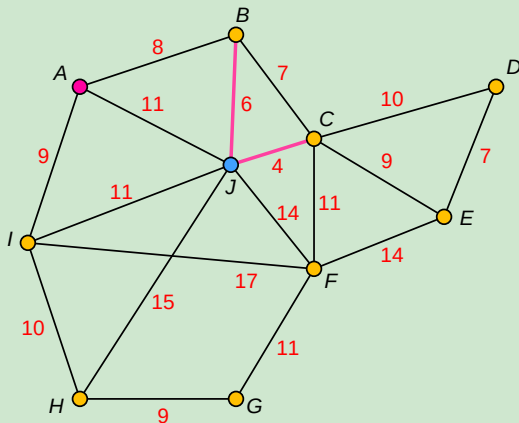
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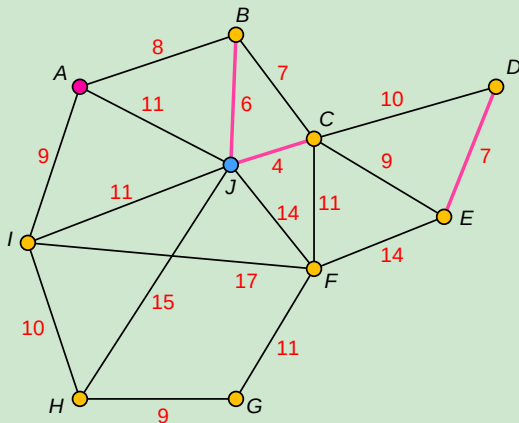
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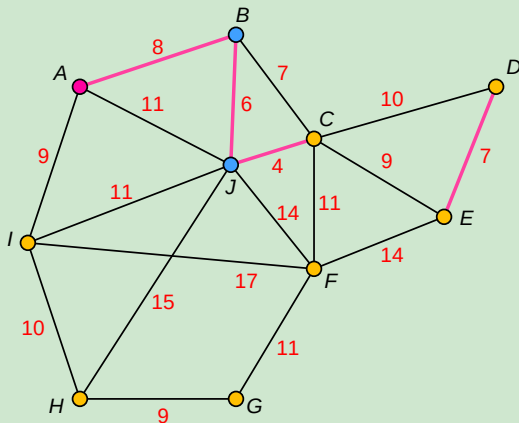
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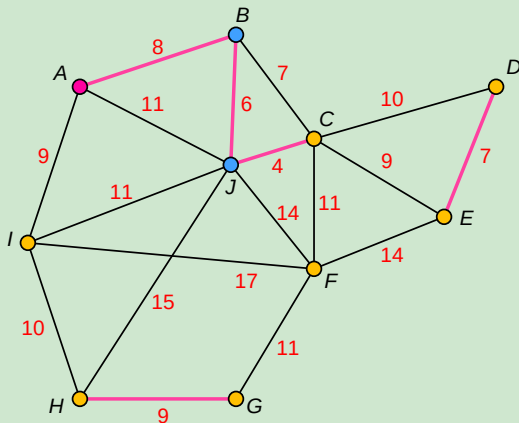
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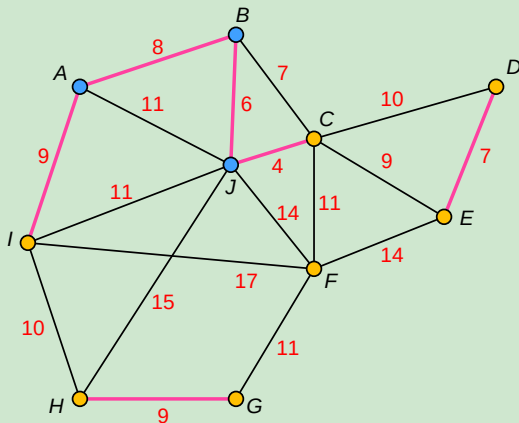
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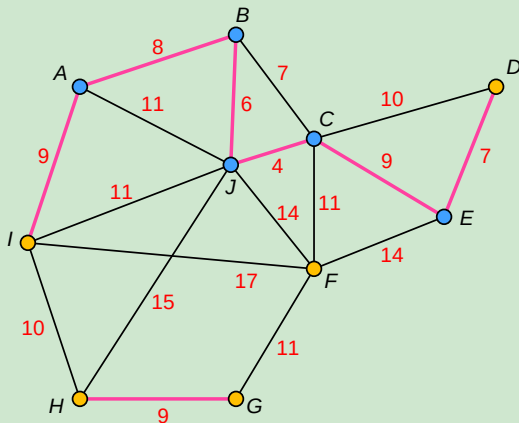
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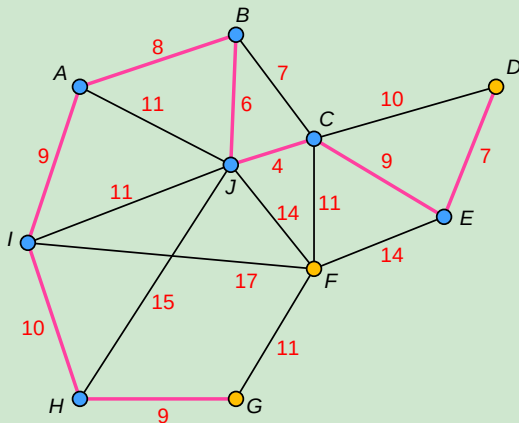
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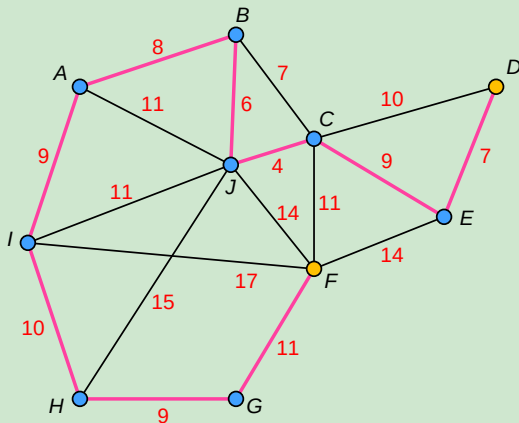
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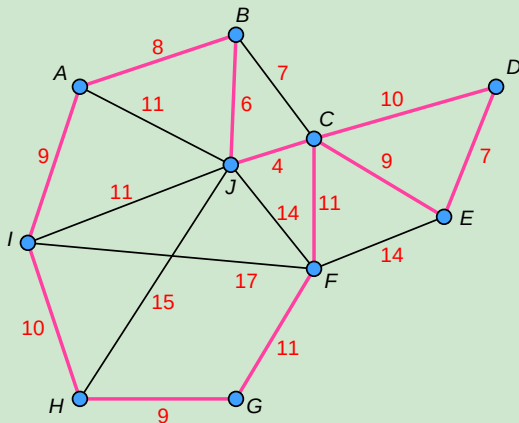
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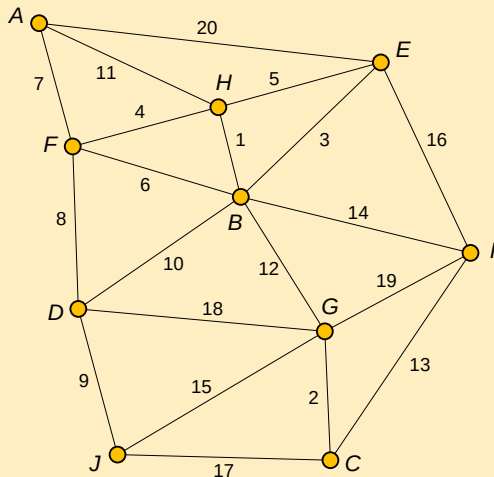
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Worksheet

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	A	B	C	D	E	F	G	H	I	J
A	0	12	26	15	16	7	24	11	26	24
B	12	0	14	10	3	6	12	1	14	19
C	26	14	0	20	17	20	2	15	13	17
D	15	10	20	0	13	8	18	11	24	9
E	16	3	17	13	0	9	15	5	16	22
F	7	6	20	8	9	0	18	4	20	17
G	24	12	2	18	15	18	0	13	15	15
H	11	1	15	11	5	4	13	0	15	21
I	26	14	13	24	16	20	15	15	0	30
J	24	19	17	9	22	17	15	21	30	0

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- Chapter 6: Exercises 49, 50, 51, 52, 55, 56.