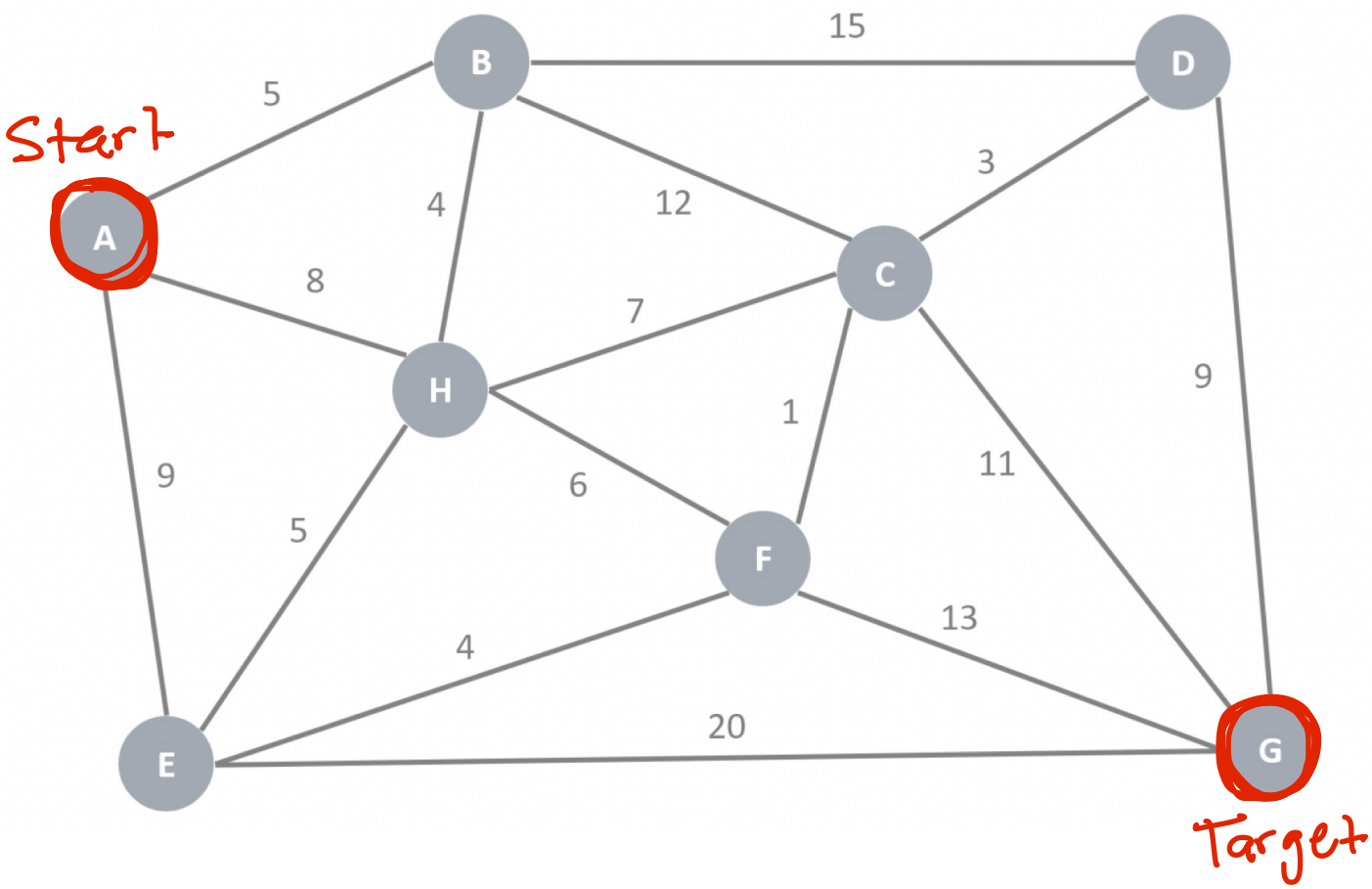
Dijkstra's Shortest Path Algorithm



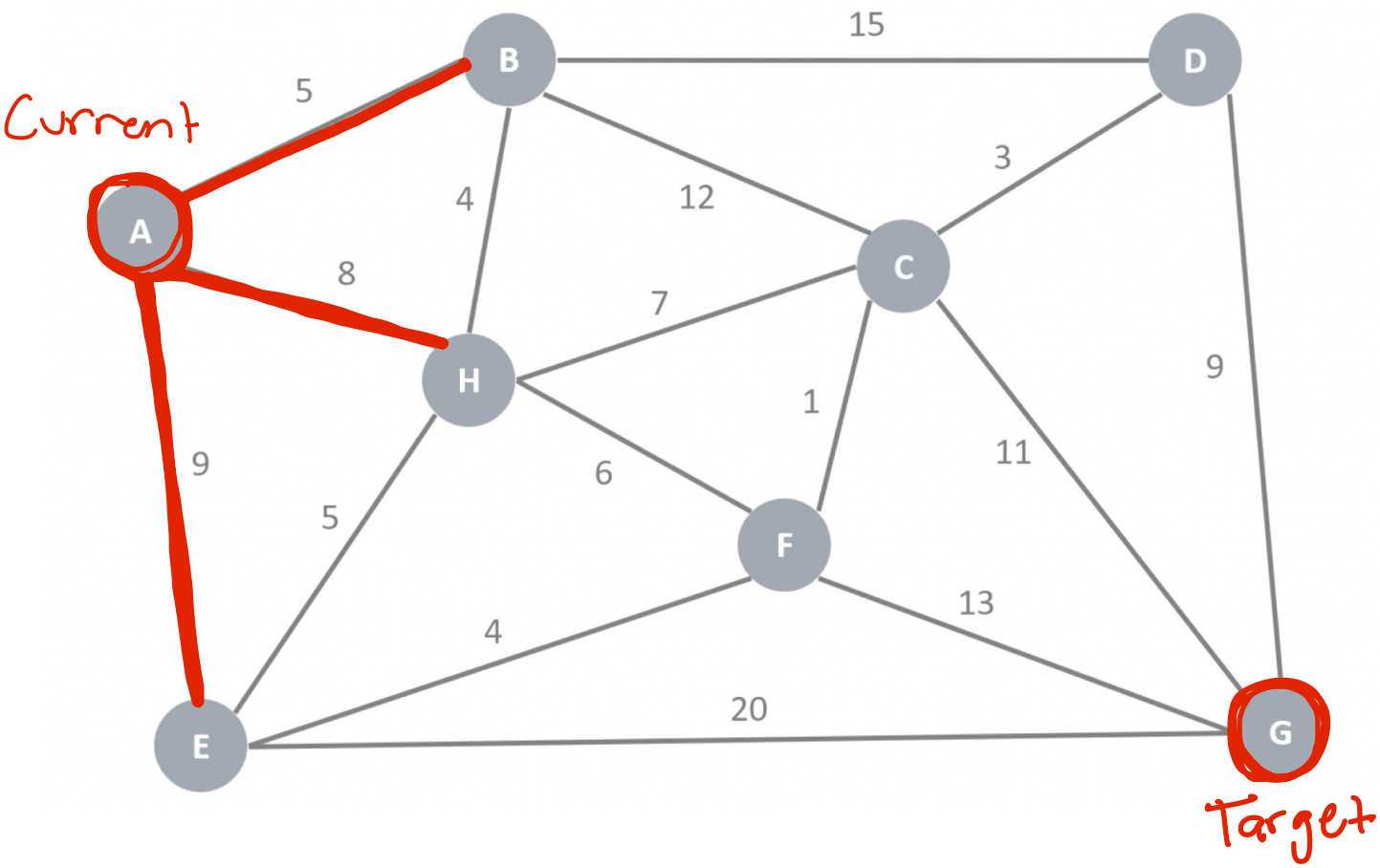
Priority Queue

Node	*Distance*	*Previous*
A	0	Null
B	∞	Null
C	∞	Null
D	∞	Null
E	∞	Null
F	∞	Null
G	∞	Null
H	∞	Null

Visited

Node	*Distance*	*Previous*

Dijkstra's Shortest Path Algorithm



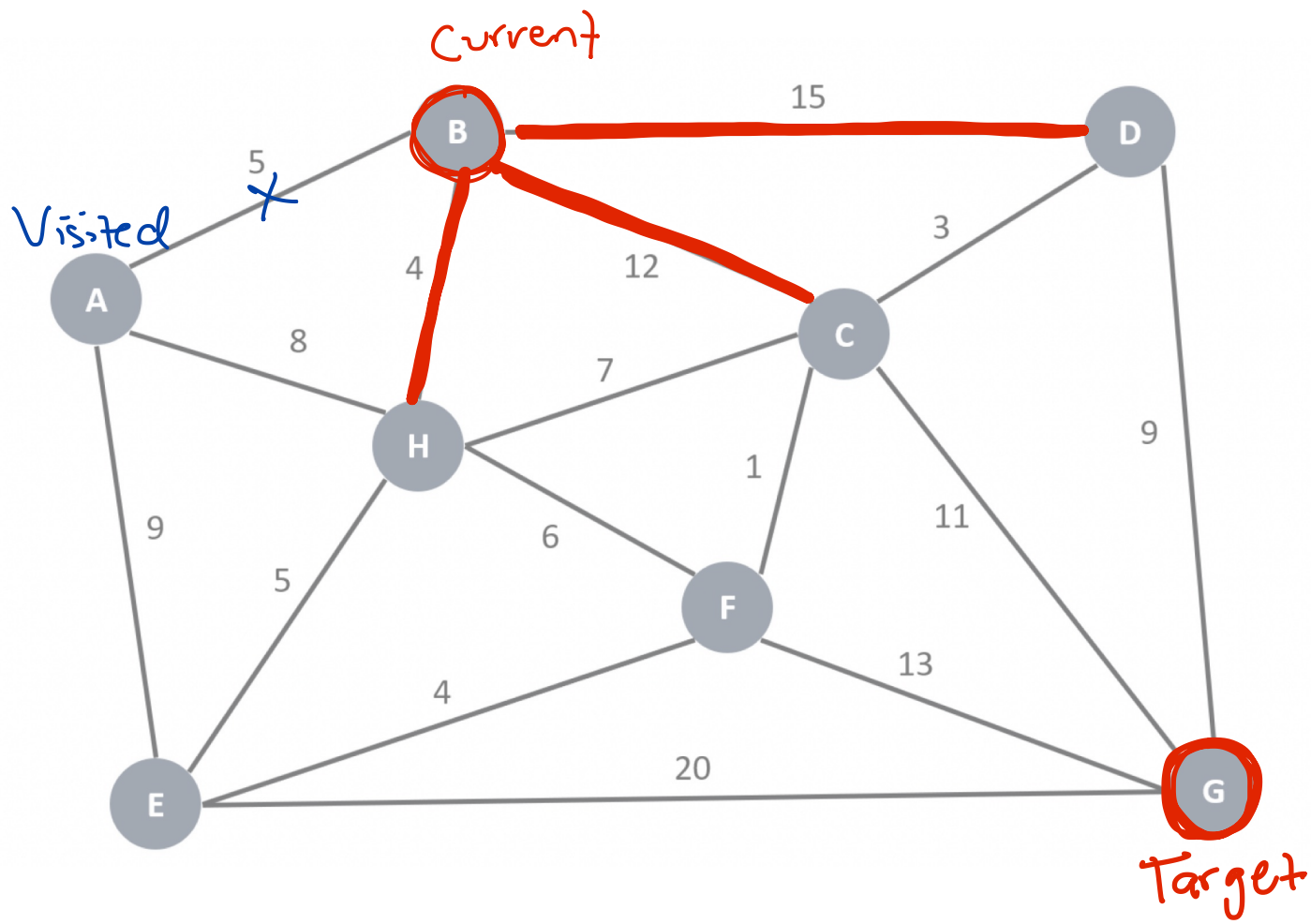
Priority Queue

Node	*Distance*	*Previous*
B	5	A
H	8	A
E	9	A
C	∞	Null
D	∞	Null
F	∞	Null
G	∞	Null

Visited

Node	*Distance*	*Previous*
A	0	Null

Dijkstra's Shortest Path Algorithm



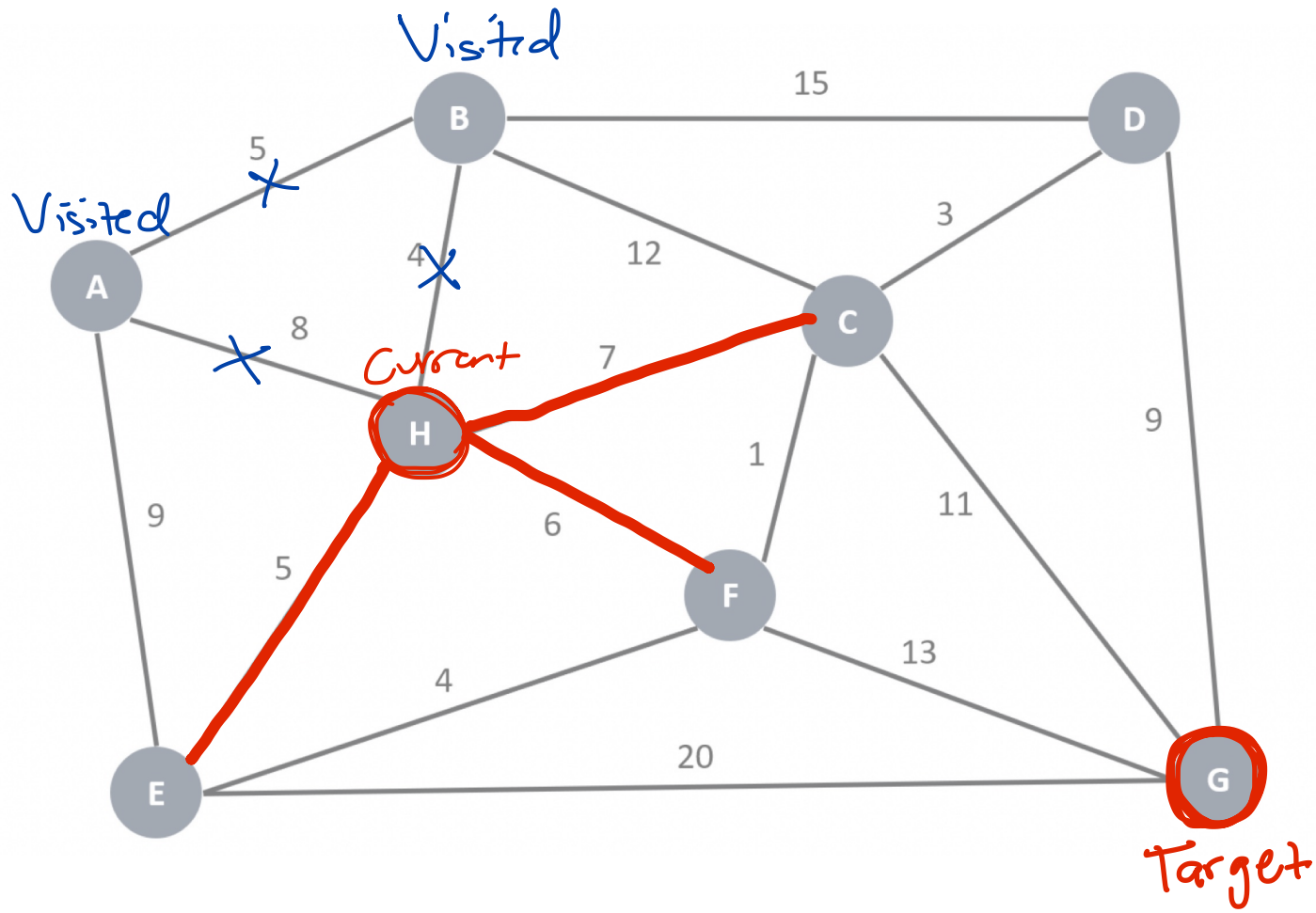
Priority Queue

Node	*Distance*	*Previous*
H	8	A
E	9	A
C	17	B
D	20	B
F	∞	Null
G	∞	Null

Visited

Node	*Distance*	*Previous*
A	0	Null
B	5	A

Dijkstra's Shortest Path Algorithm



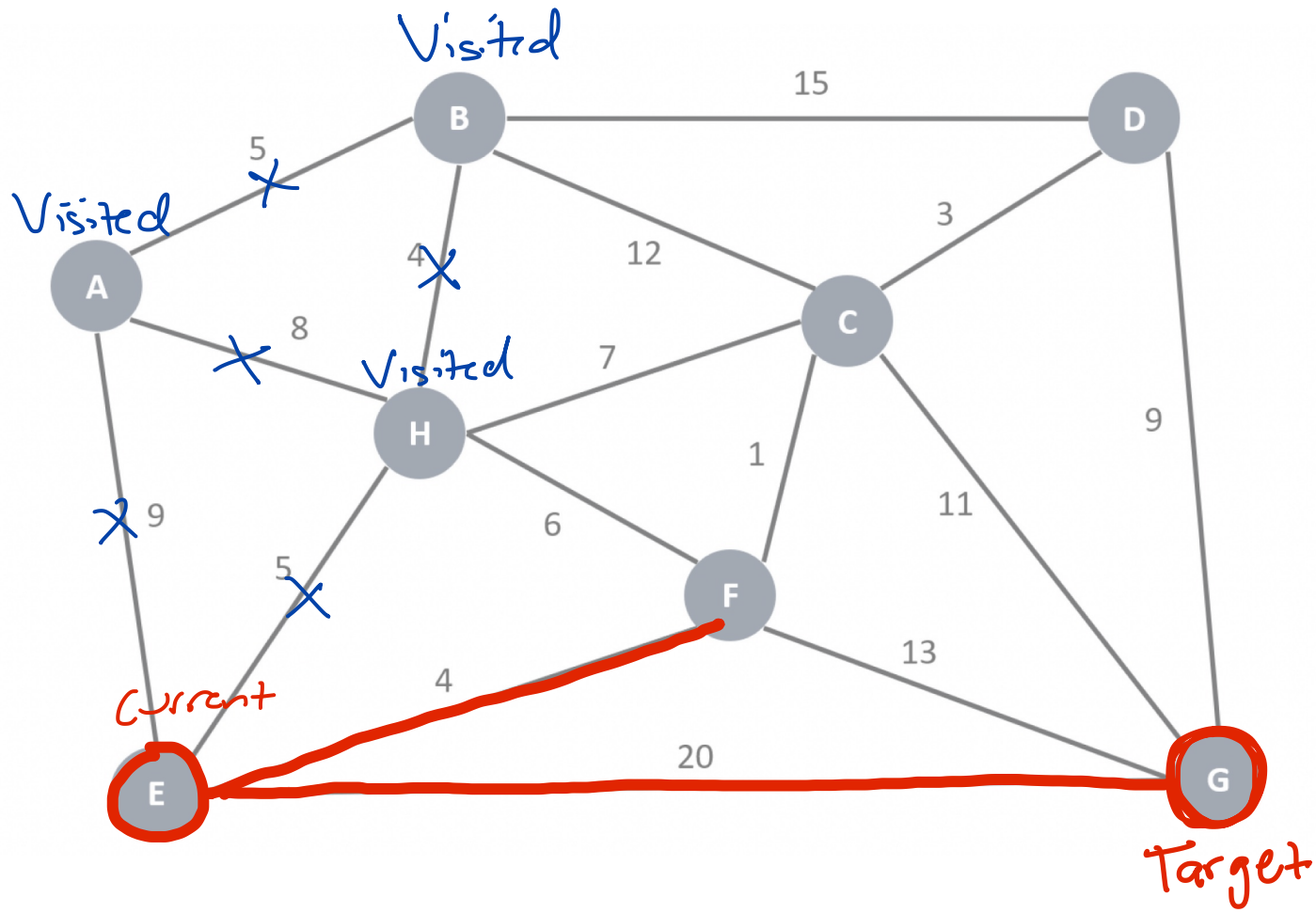
Priority Queue

Node	*Distance*	*Previous*
E	9	A
F	14	B
C	15	H
D	20	B
G	∞	Null

Visited

Node	*Distance*	*Previous*
A	0	Null
B	5	A
H	8	A

Dijkstra's Shortest Path Algorithm



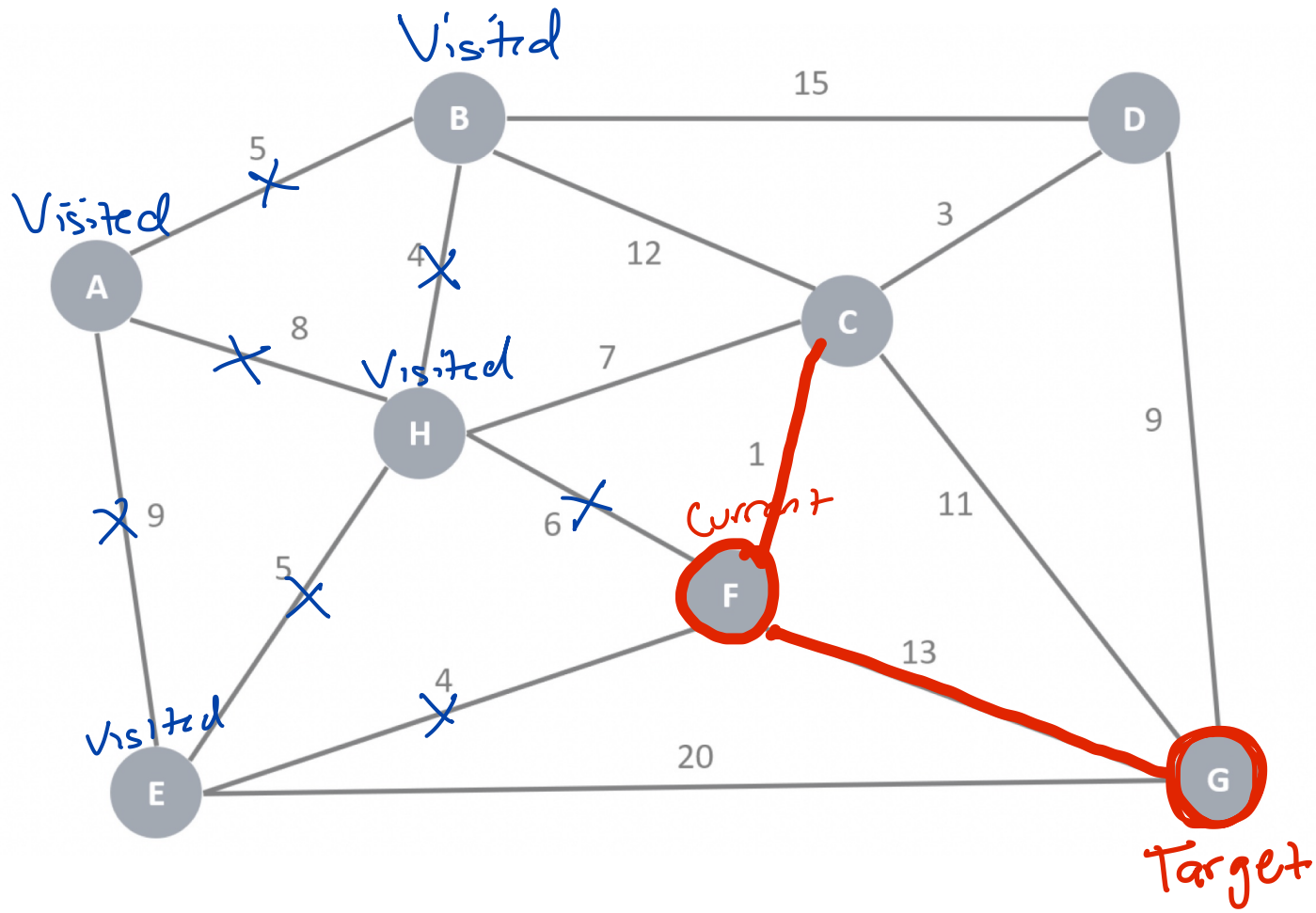
Priority Queue

Node	*Distance*	*Previous*
F	13	E
C	15	H
D	20	B
G	29	E

Visited

Node	*Distance*	*Previous*
A	0	Null
B	5	A
H	8	A
E	9	A

Dijkstra's Shortest Path Algorithm



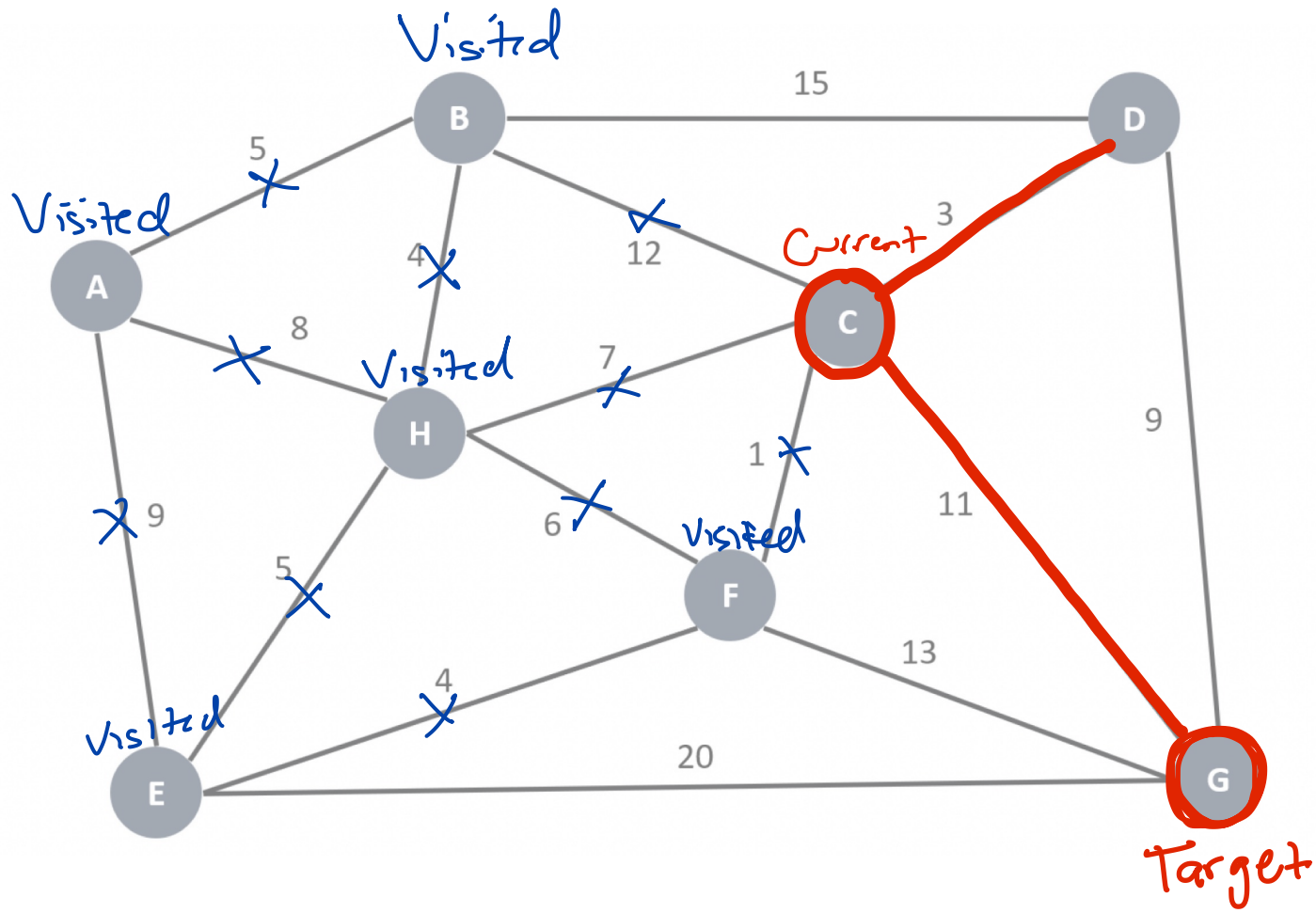
Priority Queue

Node	*Distance*	*Previous*
C	14	F
D	20	B
G	26	F

Visited

Node	*Distance*	*Previous*
A	0	Null
B	5	A
H	8	A
E	9	A
F	13	E

Dijkstra's Shortest Path Algorithm



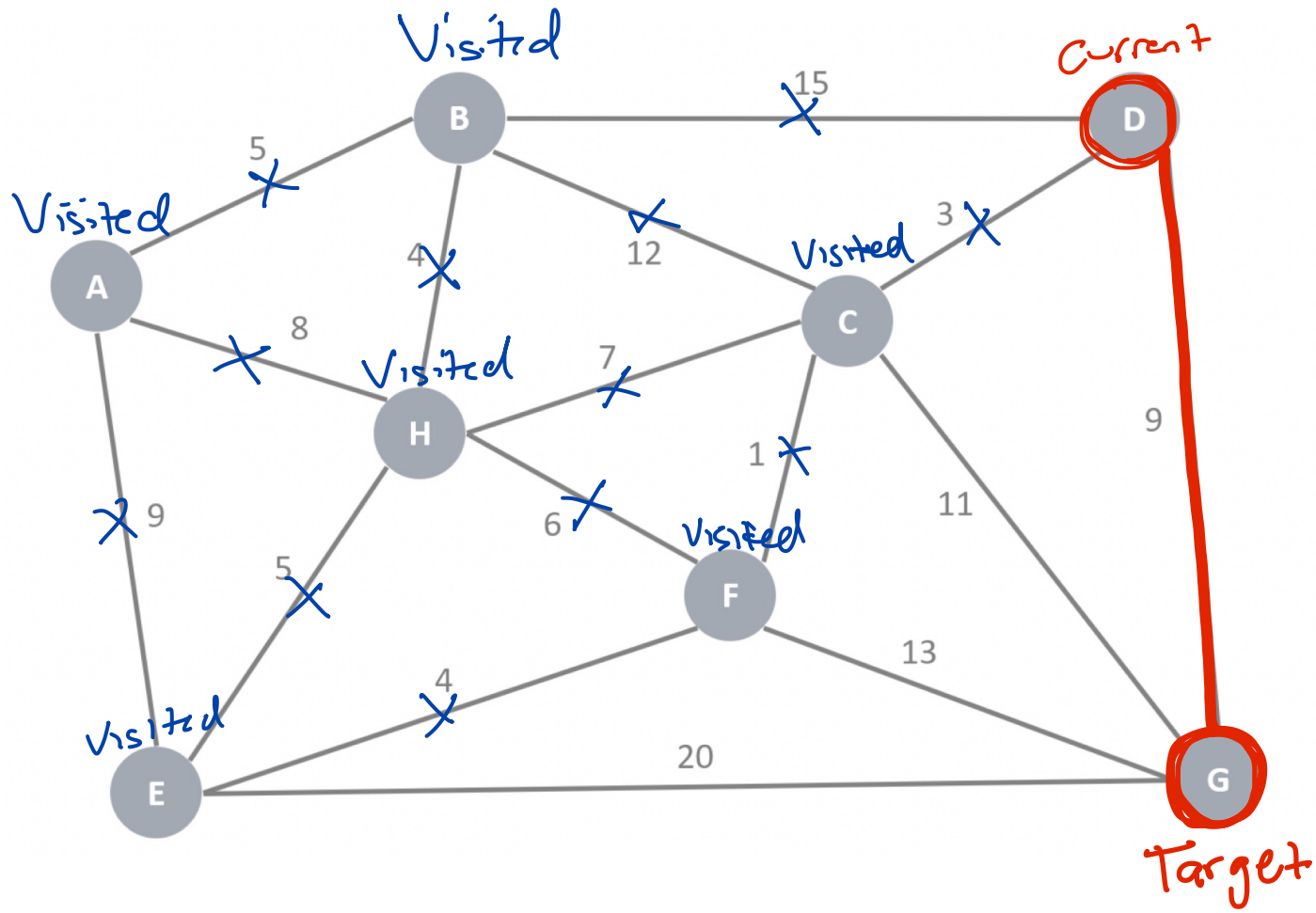
Priority Queue

Node	*Distance*	*Previous*
D	17	C
G	25	C

Visited

Node	*Distance*	*Previous*
A	0	Null
B	5	A
H	8	A
E	9	A
F	13	E
C	14	F

Dijkstra's Shortest Path Algorithm



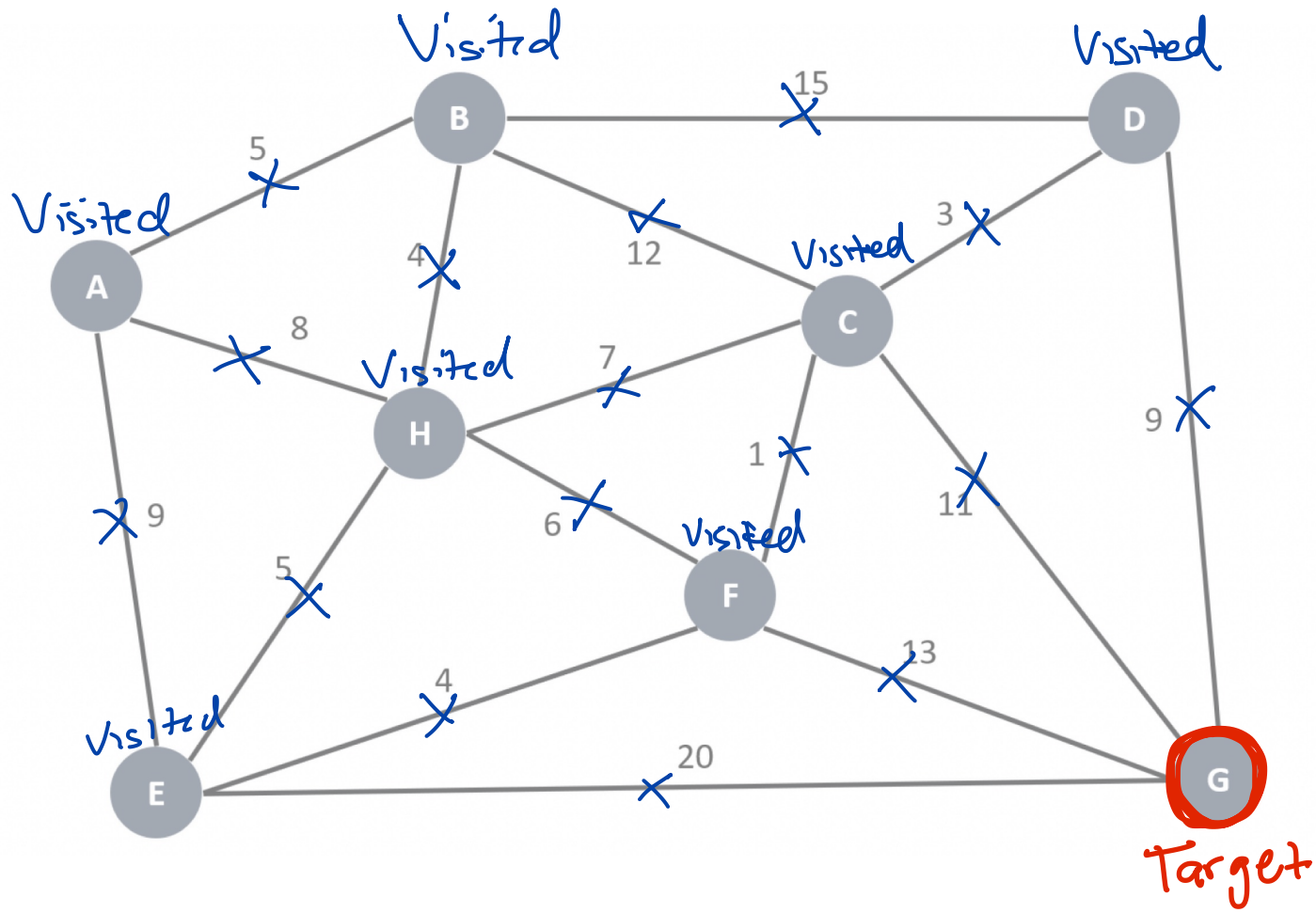
Priority Queue

Node	*Distance*	*Previous*
G	25	C

Visited

Node	*Distance*	*Previous*
A	0	Null
B	5	A
H	8	A
E	9	A
F	13	E
C	14	F
D	17	C

Dijkstra's Shortest Path Algorithm



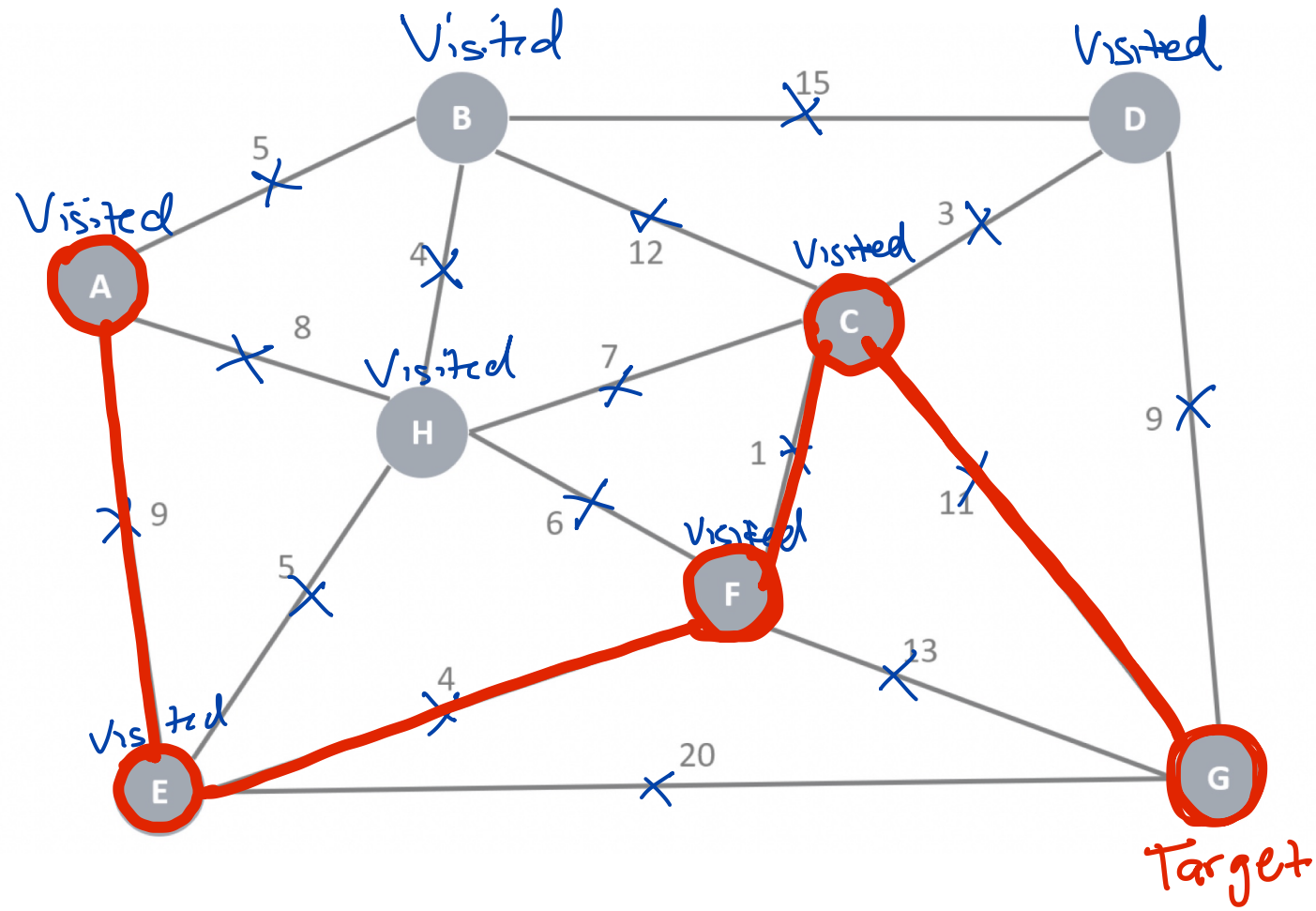
Priority Queue

Node	*Distance*	*Previous*

Visited

Node	*Distance*	*Previous*
A	0	Null
B	5	A
H	8	A
E	9	A
F	13	E
C	14	F
D	17	C
G	25	C

Dijkstra's Shortest Path Algorithm



Priority Queue

Node	*Distance*	*Previous*

Visited

Node	*Distance*	*Previous*
A	0	Null
B	5	A
H	8	A
E	9	A
F	13	E
C	14	F
D	17	C
G	25	C

Shortest Path: A → E → F → C → G