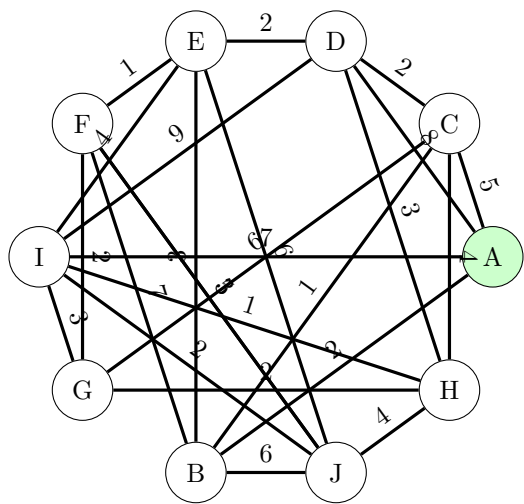


# A\* Algorithm

Log

Initial state

Graph



Open Set

A

Closed Set

Node Costs

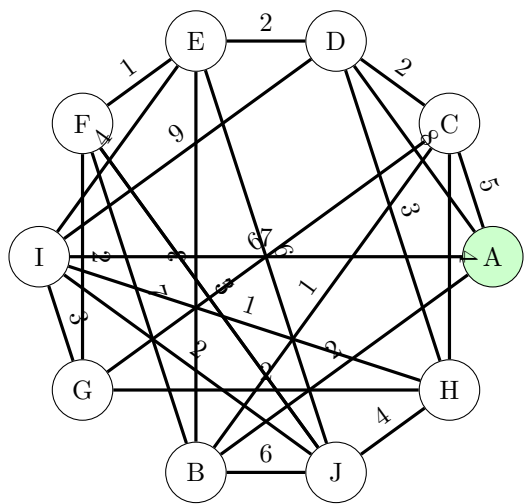
0	0	0	0	0	0	0	0	0	0
A	C	D	E	F	I	G	B	J	H

# A\* Algorithm

Log

Grabbing first node from open set

Graph



Open Set



Closed Set

Node Costs

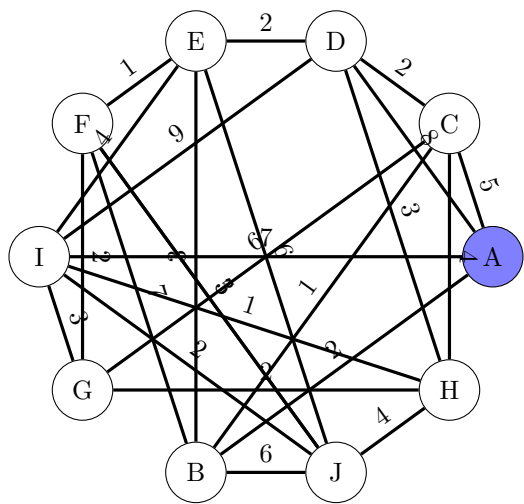
0	0	0	0	0	0	0	0	0	0
A	C	D	E	F	I	G	B	J	H

# A\* Algorithm

Log

Visiting node A and adding it to closed set

Graph



Open Set

Closed Set



Node Costs

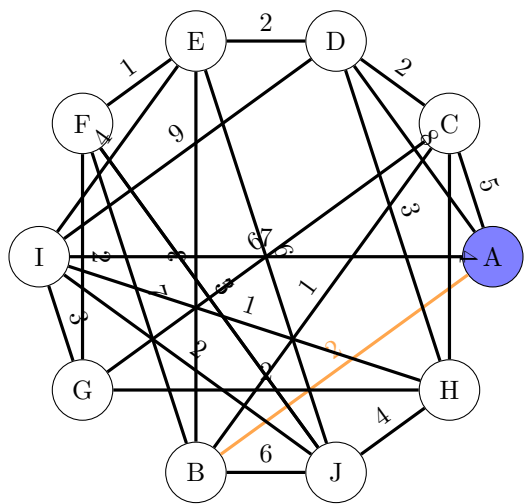
0	0	0	0	0	0	0	0	0	0
A	C	D	E	F	I	G	B	J	H

# A\* Algorithm

Log

Checking neighbor B

Graph



Open Set

Closed Set

A

Node Costs

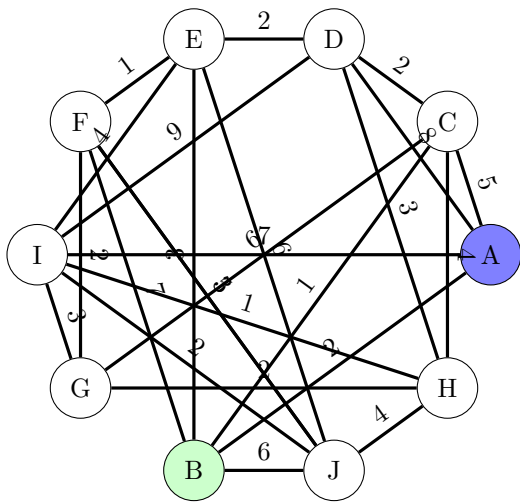
0	0	0	0	0	0	0	0	0	0
A	C	D	E	F	I	G	B	J	H

# A\* Algorithm

Log

Adding neighbor B to open set

Graph



Open Set



Closed Set



Node Costs

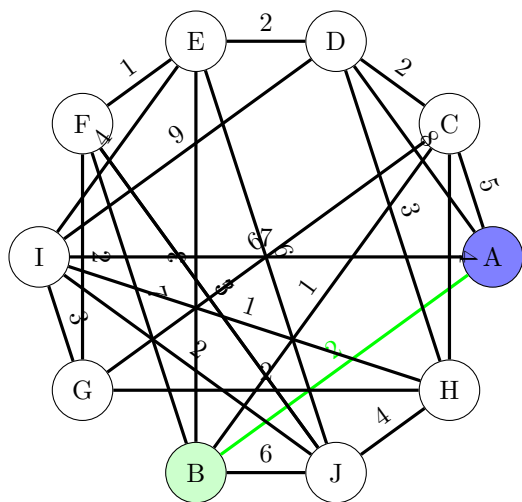
0	0	0	0	0	0	0	0	0	0
A	C	D	E	F	I	G	B	J	H

# A\* Algorithm

Log

Updating cost for neighbor B (cost: 2)

Graph



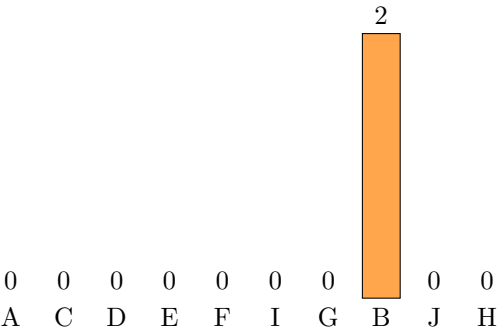
Open Set

B

Closed Set

A

Node Costs

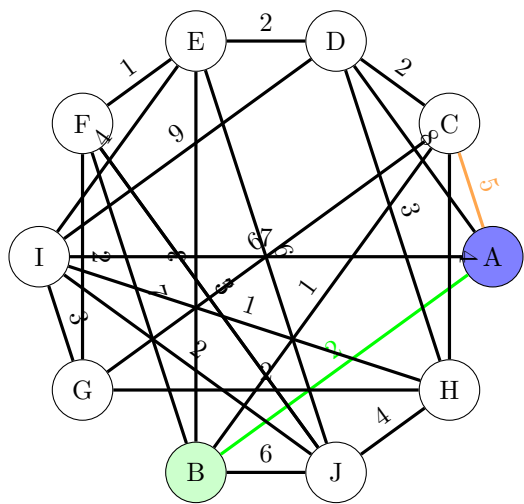


# A\* Algorithm

Log

Checking neighbor C

Graph



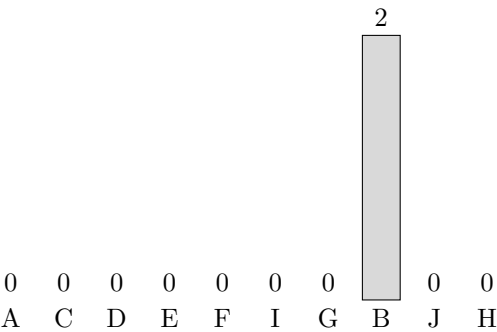
Open Set

B

Closed Set

A

Node Costs

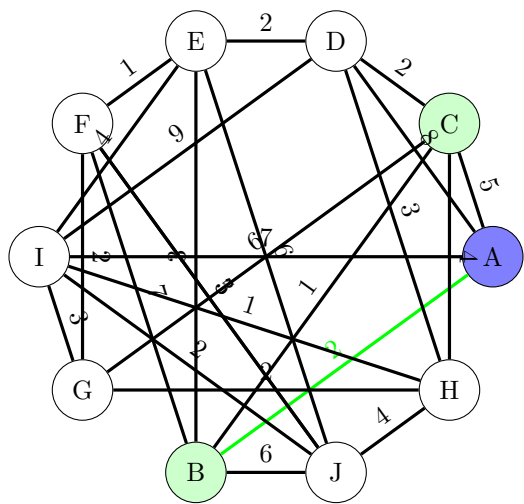


# A\* Algorithm

Log

Adding neighbor C to open set

Graph



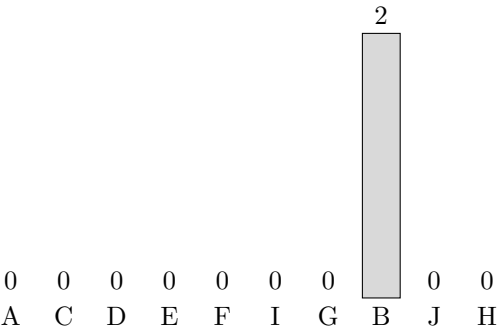
Open Set



Closed Set



Node Costs



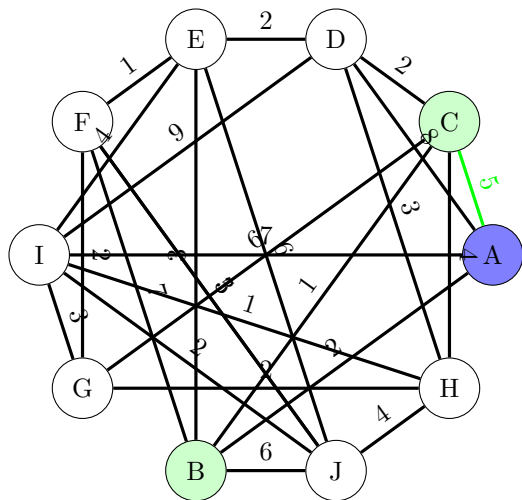


# A\* Algorithm

Log

Updating cost for neighbor C (cost: 5)

Graph



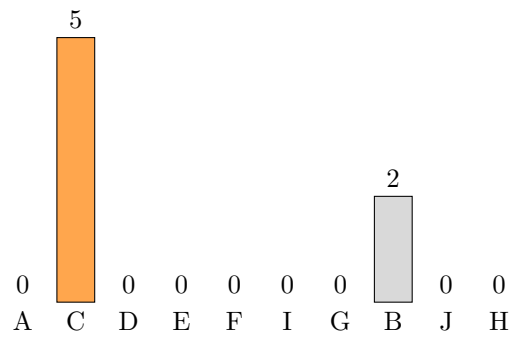
Open Set

B	C
---	---

Closed Set

A
---

Node Costs

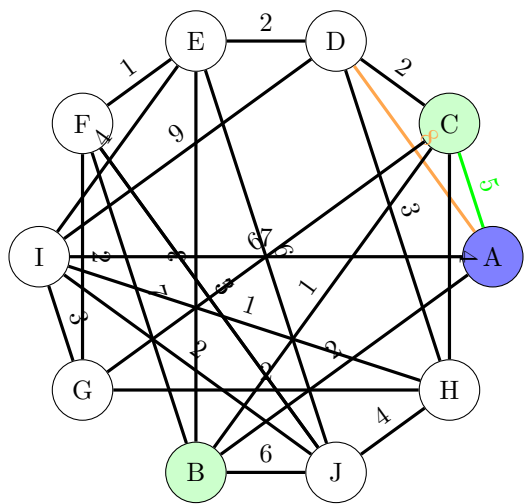


# A\* Algorithm

Log

Checking neighbor D

Graph



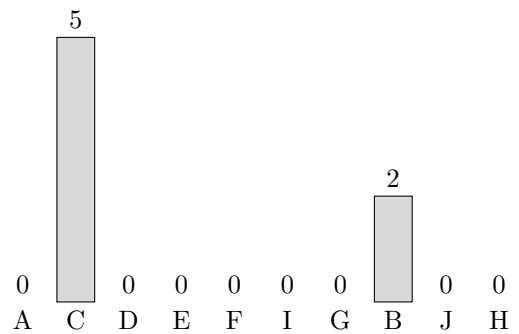
Open Set

B	C
---	---

Closed Set

A
---

Node Costs

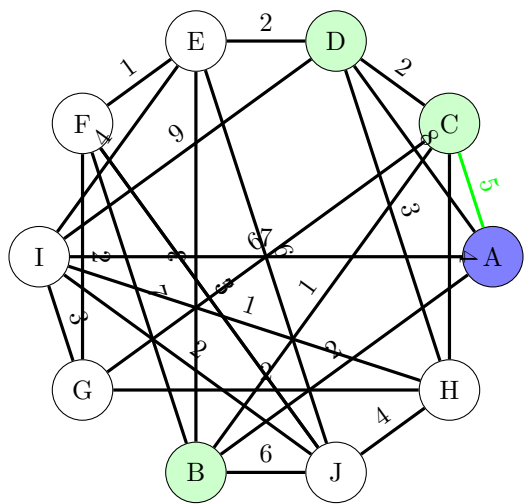


# A\* Algorithm

Log

Adding neighbor D to open set

Graph



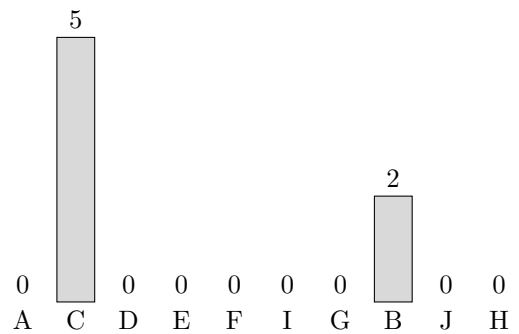
Open Set

B	C	D
---	---	---

Closed Set

A
---

Node Costs

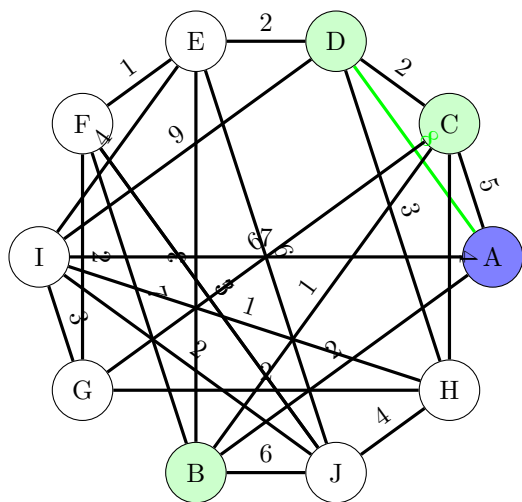


# A\* Algorithm

Log

Updating cost for neighbor D (cost: 8)

Graph



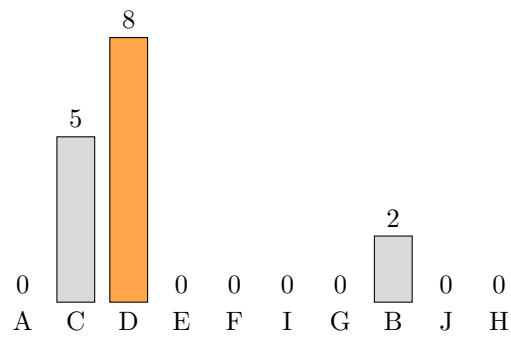
Open Set

B	C	D
---	---	---

Closed Set

A
---

Node Costs

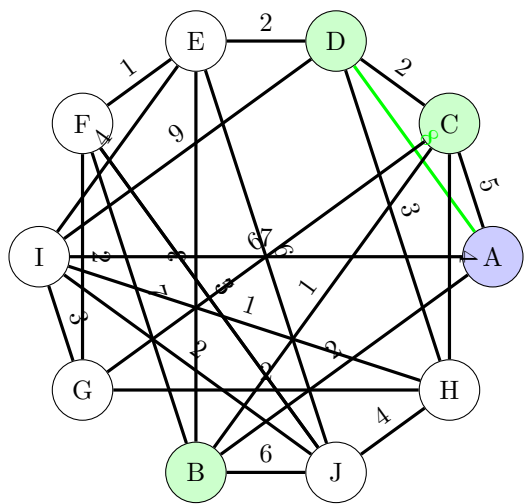


# A\* Algorithm

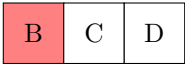
Log

Grabbing first node from open set

Graph



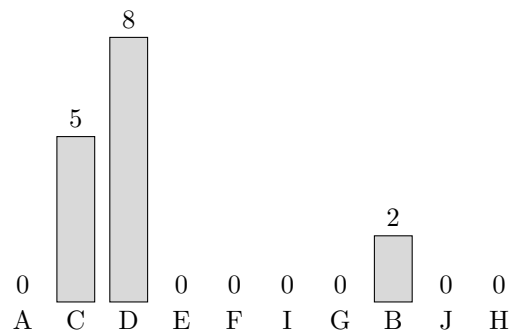
Open Set



Closed Set



Node Costs

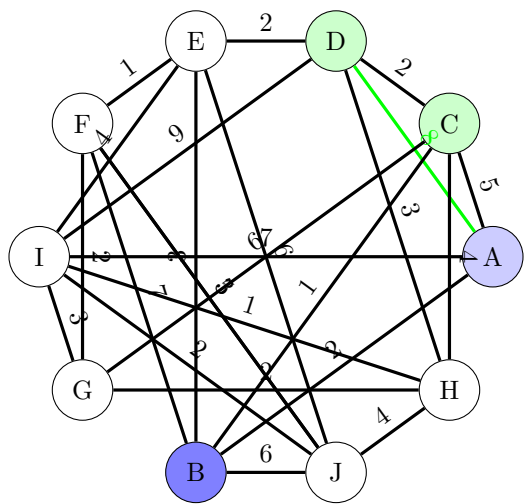


# A\* Algorithm

Log

Visiting node B and adding it to closed set

Graph



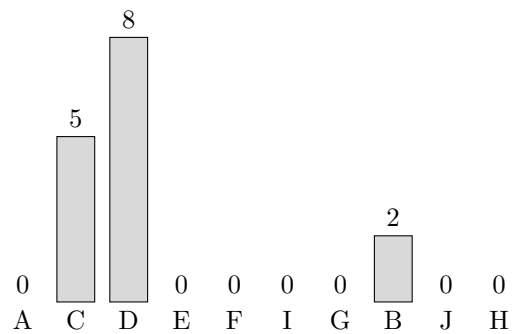
Open Set

C	D
---	---

Closed Set

A	B
---	---

Node Costs

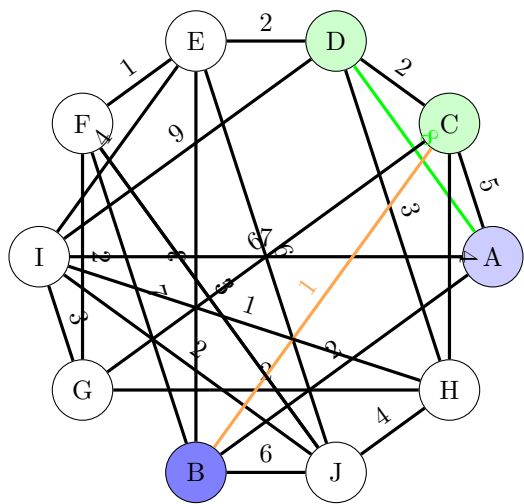


# A\* Algorithm

Log

Checking neighbor C

Graph



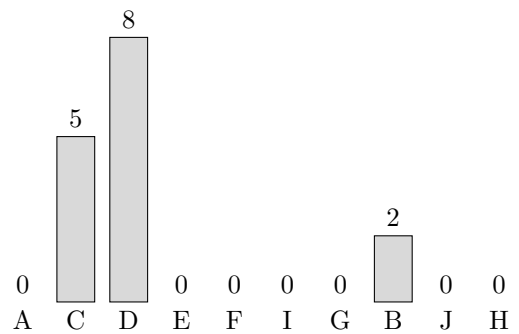
Open Set

C	D
---	---

Closed Set

A	B
---	---

Node Costs

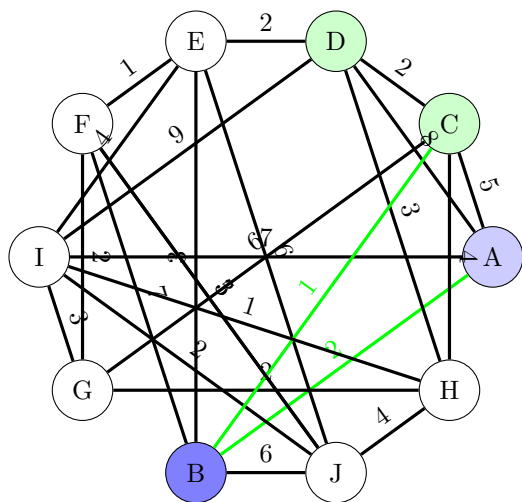


# A\* Algorithm

Log

Updating cost for neighbor C (cost: 3)

Graph



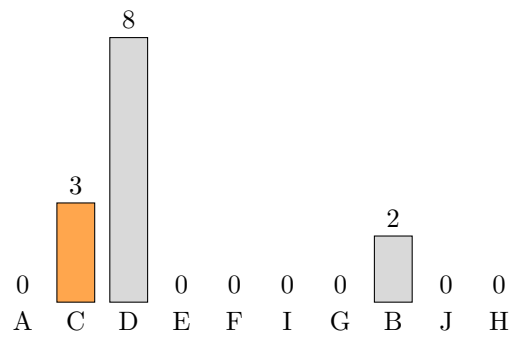
Open Set

C	D
---	---

Closed Set

A	B
---	---

Node Costs



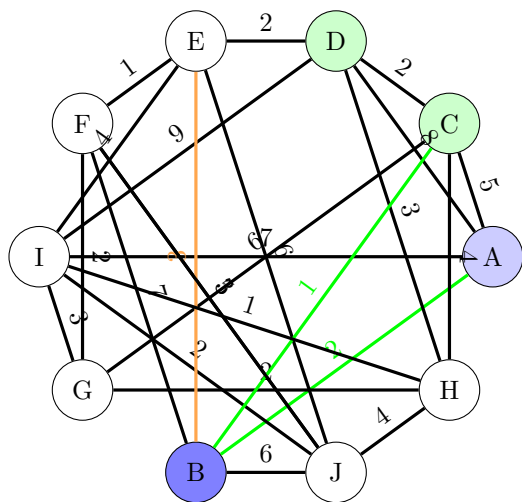


# A\* Algorithm

Log

Checking neighbor E

Graph



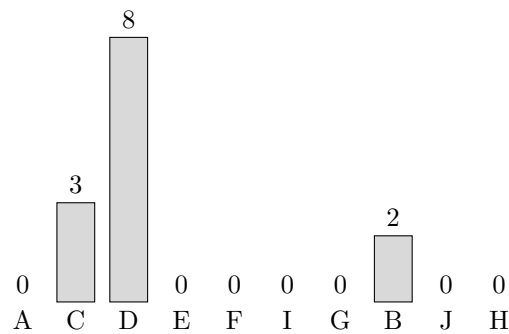
Open Set

C	D
---	---

Closed Set

A	B
---	---

Node Costs

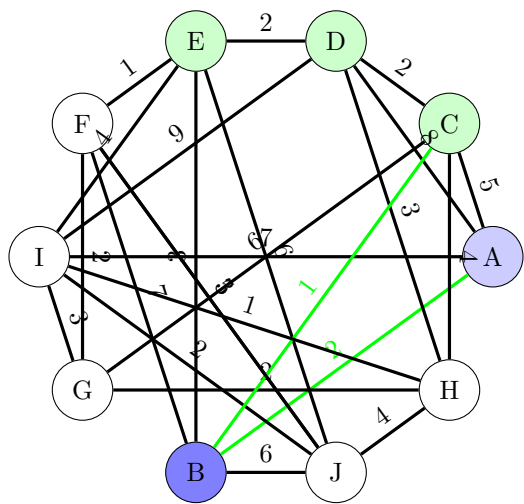


# A\* Algorithm

Log

Adding neighbor E to open set

Graph



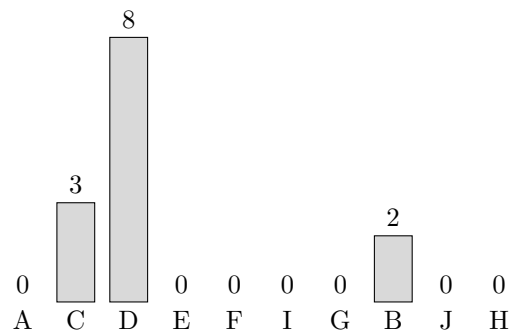
Open Set

C	D	E
---	---	---

Closed Set

A	B
---	---

Node Costs

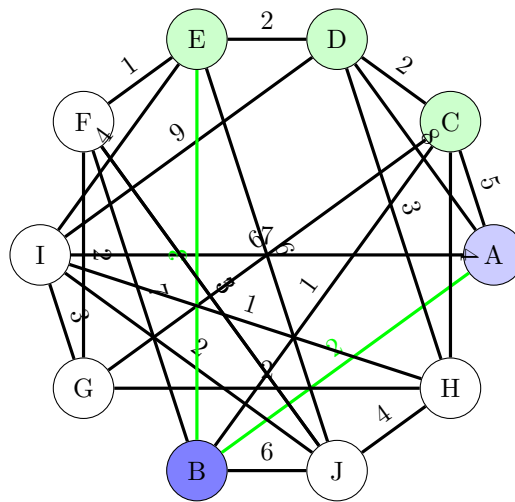


# A\* Algorithm

## Log

Updating cost for neighbor E (cost: 5)

## Graph



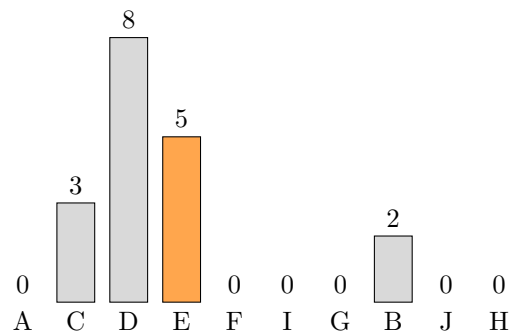
## Open Set

C	D	E
---	---	---

## Closed Set

A	B
---	---

## Node Costs

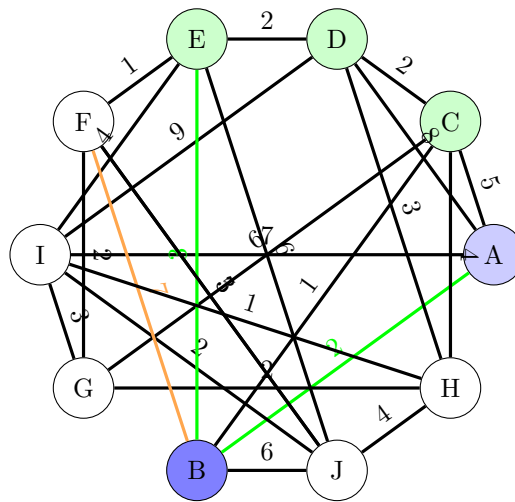


# A\* Algorithm

Log

Checking neighbor F

Graph



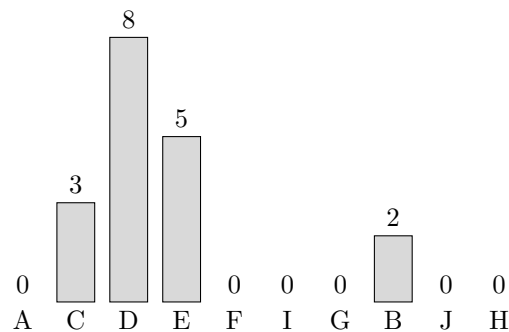
Open Set

C	D	E
---	---	---

Closed Set

A	B
---	---

Node Costs

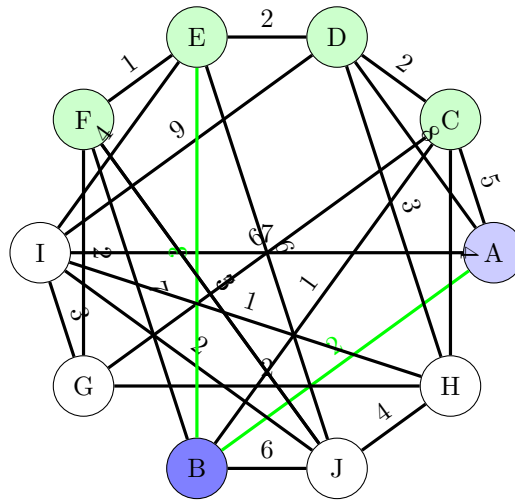


# A\* Algorithm

Log

Adding neighbor F to open set

Graph



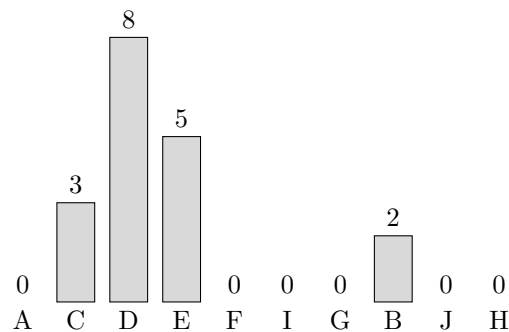
Open Set

C	D	E	F
---	---	---	---

Closed Set

A	B
---	---

Node Costs

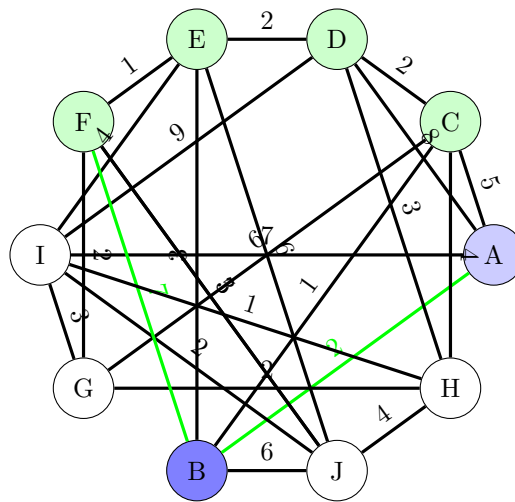


# A\* Algorithm

## Log

Updating cost for neighbor F (cost: 9)

## Graph



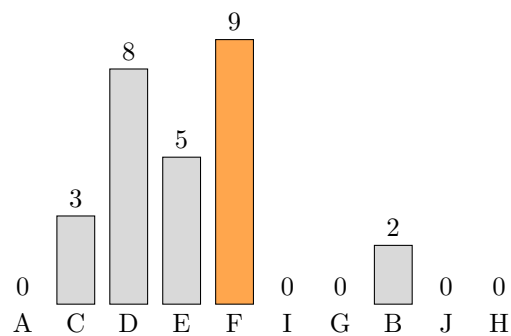
## Open Set

C	D	E	F
---	---	---	---

## Closed Set

A	B
---	---

## Node Costs

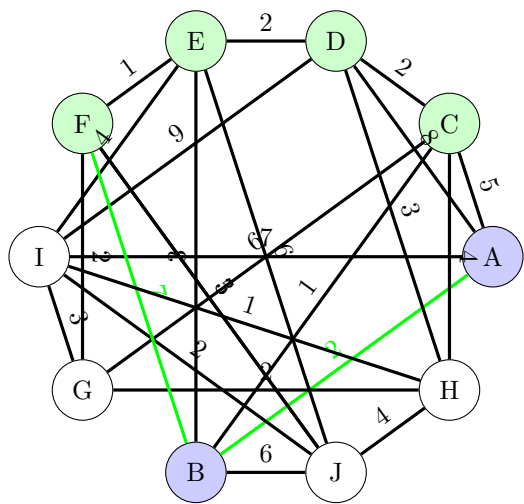


# A\* Algorithm

Log

Grabbing first node from open set

Graph



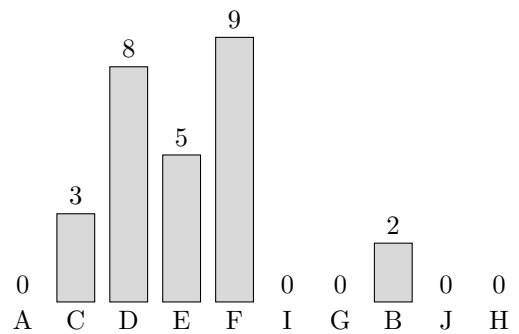
Open Set

C	D	E	F
---	---	---	---

Closed Set

A	B
---	---

Node Costs

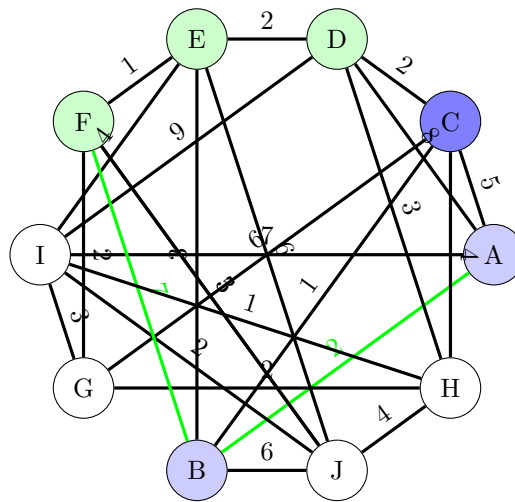


# A\* Algorithm

## Log

Visiting node C and adding it to closed set

## Graph



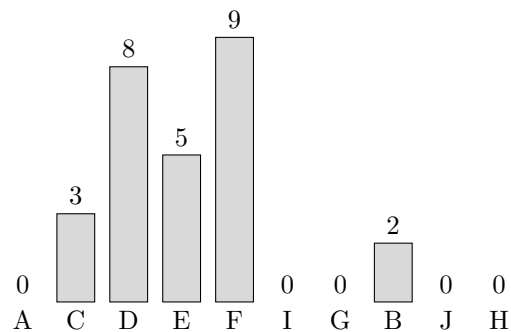
## Open Set

D	E	F
---	---	---

## Closed Set

A	B	C
---	---	---

## Node Costs



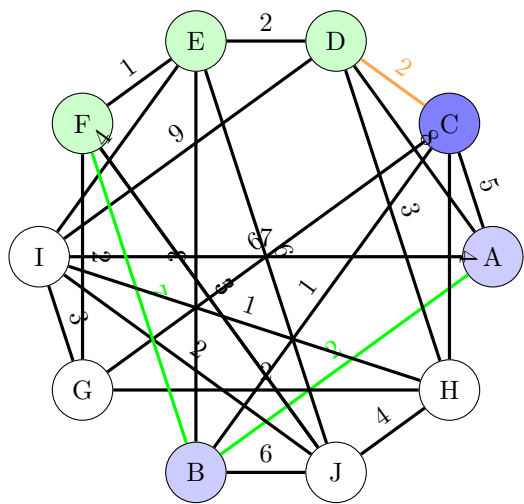


# A\* Algorithm

Log

Checking neighbor D

Graph



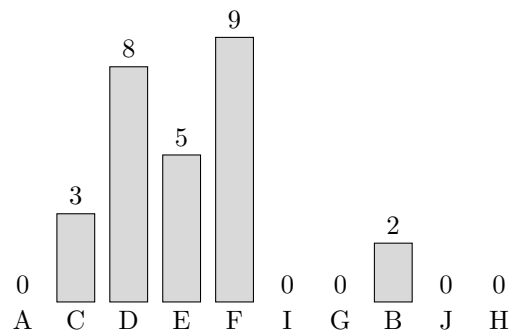
Open Set

D	E	F
---	---	---

Closed Set

A	B	C
---	---	---

Node Costs

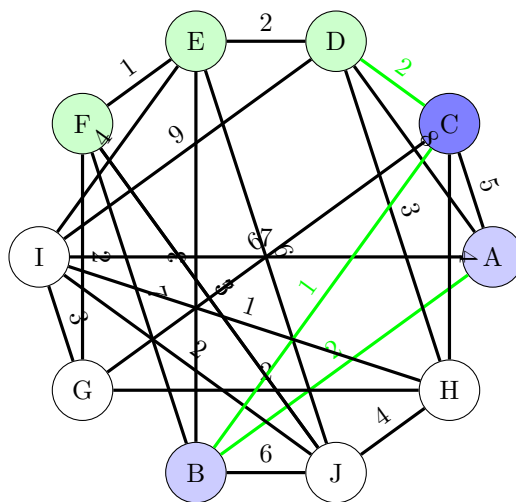


## A\* Algorithm

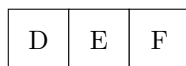
## Log

Updating cost for neighbor D (cost: 5)

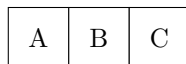
## Graph



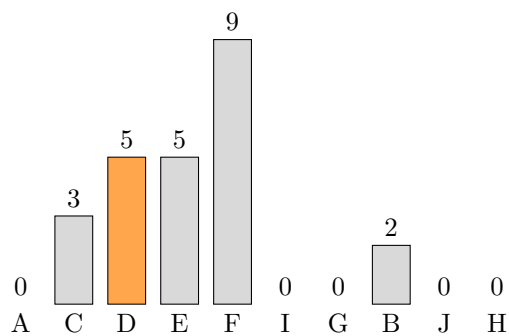
## Open Set



## Closed Set



## Node Costs

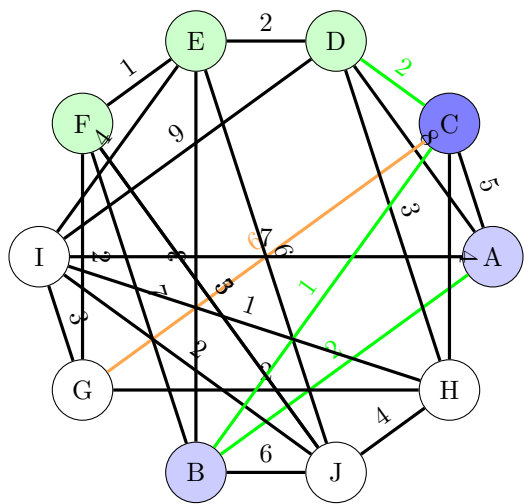


# A\* Algorithm

Log

Checking neighbor G

Graph



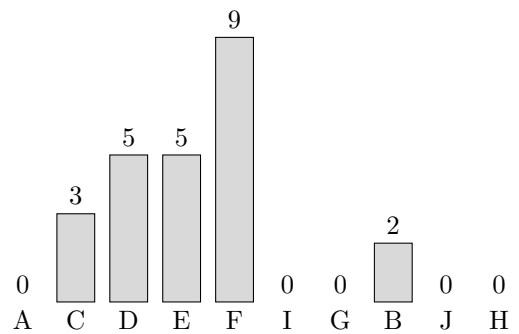
Open Set

D	E	F
---	---	---

Closed Set

A	B	C
---	---	---

Node Costs

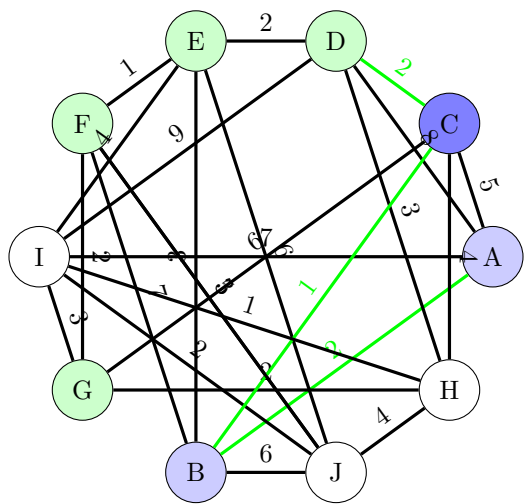


# A\* Algorithm

Log

Adding neighbor G to open set

Graph



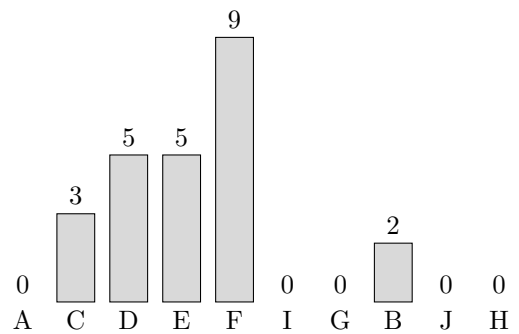
Open Set

D	E	F	G
---	---	---	---

Closed Set

A	B	C
---	---	---

Node Costs

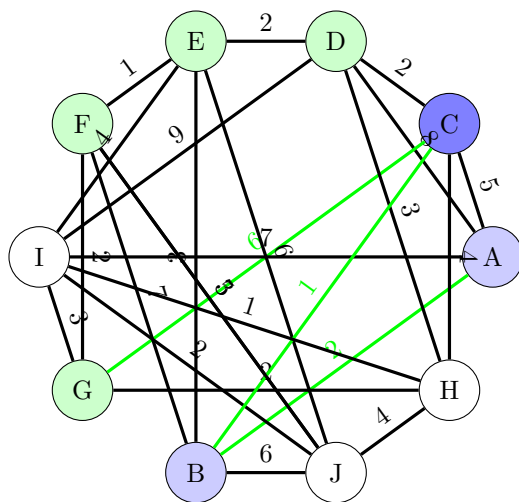


## A\* Algorithm

Log

```
Updating cost for neighbor G (cost: 9)
```

## Graph



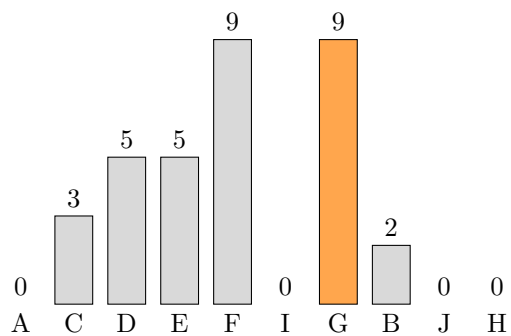
## Open Set

D	E	F	G
---	---	---	---

## Closed Set

A	B	C
---	---	---

## Node Costs

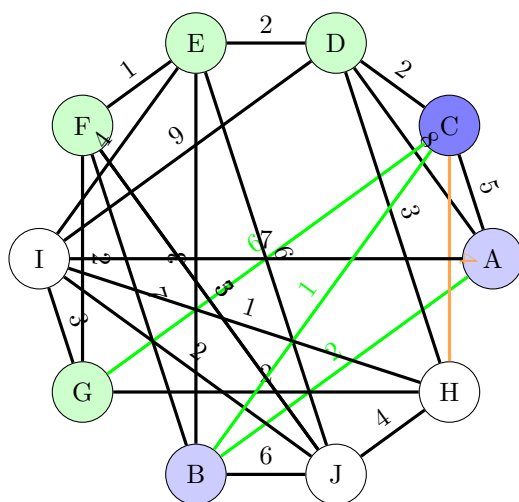


## A\* Algorithm

Log

Checking neighbor H

## Graph



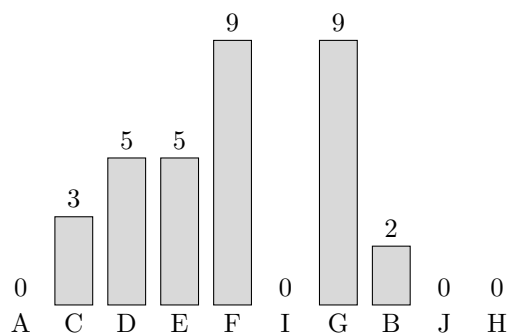
## Open Set

D	E	F	G
---	---	---	---

## Closed Set

A	B	C
---	---	---

## Node Costs

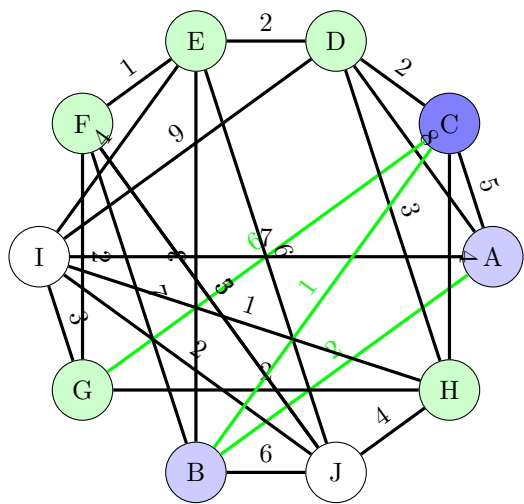


# A\* Algorithm

Log

Adding neighbor H to open set

Graph



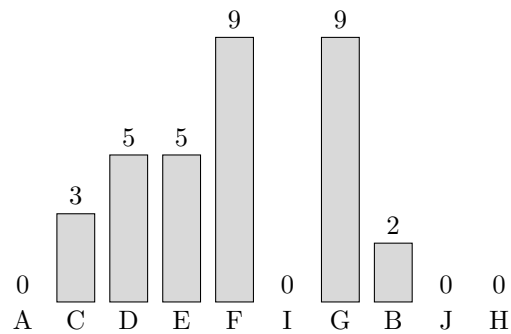
Open Set

D	E	F	G	H
---	---	---	---	---

Closed Set

A	B	C
---	---	---

Node Costs

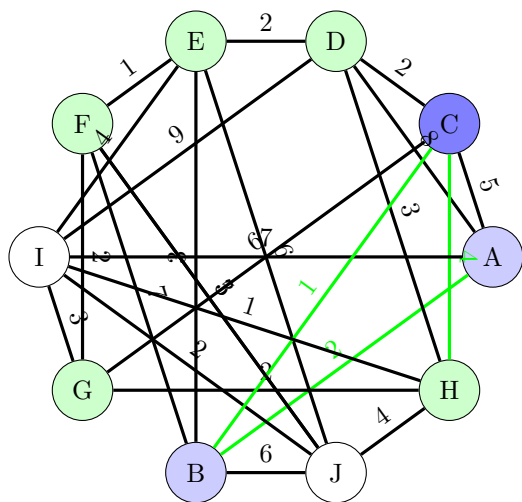


# A\* Algorithm

Log

Updating cost for neighbor H (cost: 7)

Graph



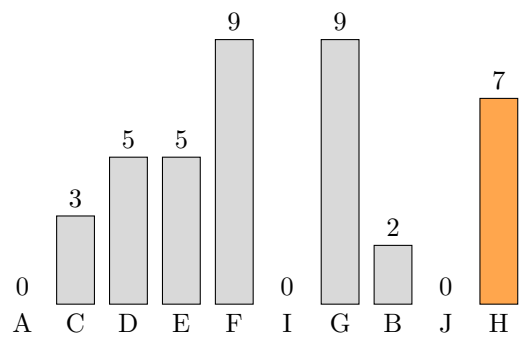
Open Set

D	E	F	G	H
---	---	---	---	---

Closed Set

A	B	C
---	---	---

Node Costs



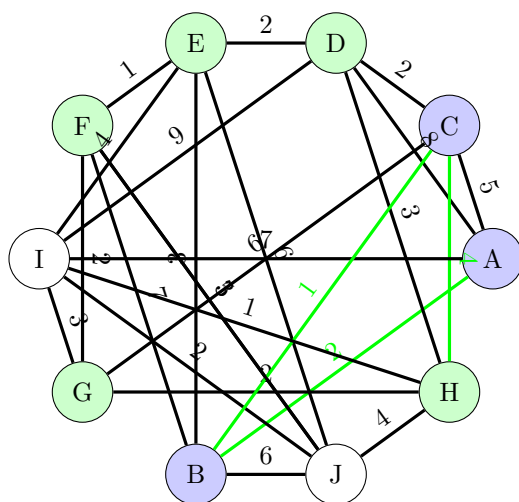


## A\* Algorithm

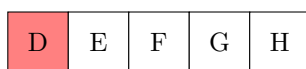
Log

Grabbing first node from open set

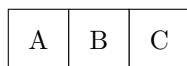
## Graph



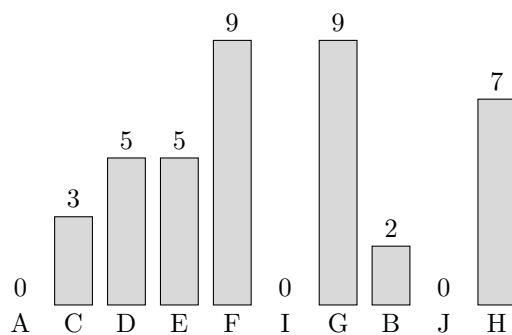
## Open Set



## Closed Set



## Node Costs

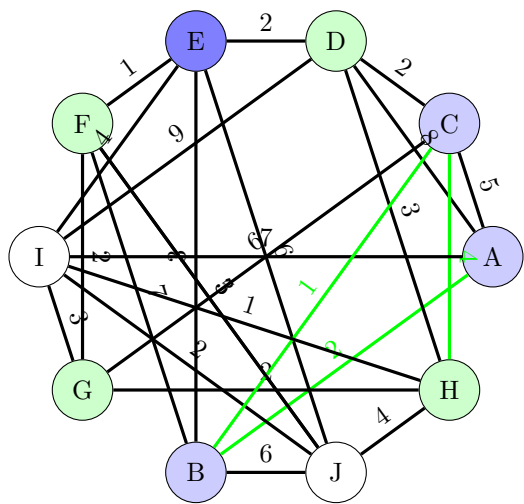


# A\* Algorithm

Log

Visiting node E and adding it to closed set

Graph



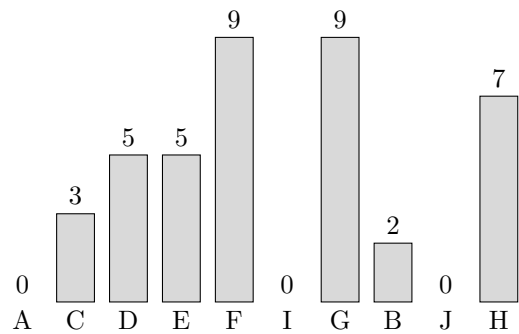
Open Set

E	F	G	H
---	---	---	---

Closed Set

A	B	C	E
---	---	---	---

Node Costs

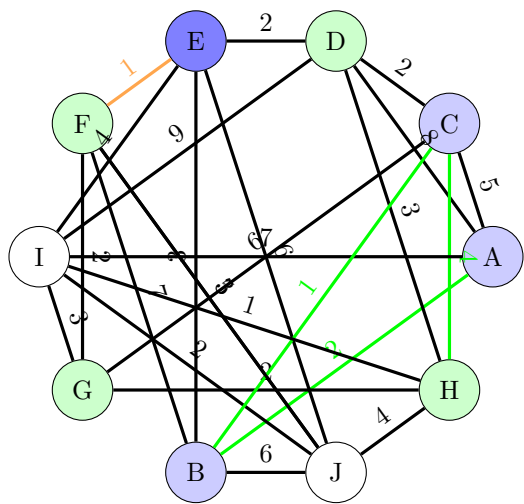


# A\* Algorithm

Log

Checking neighbor F

Graph



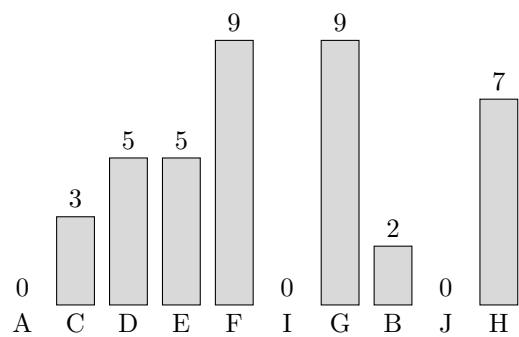
Open Set

E	F	G	H
---	---	---	---

Closed Set

A	B	C	E
---	---	---	---

Node Costs

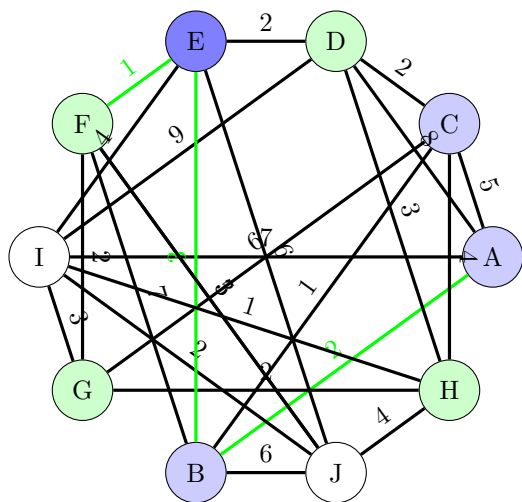


# A\* Algorithm

Log

Updating cost for neighbor F (cost: 6)

Graph



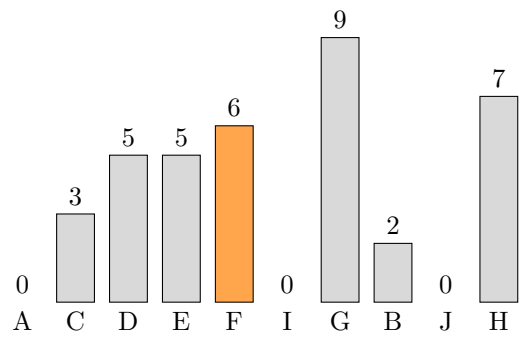
Open Set

E	F	G	H
---	---	---	---

Closed Set

A	B	C	E
---	---	---	---

Node Costs

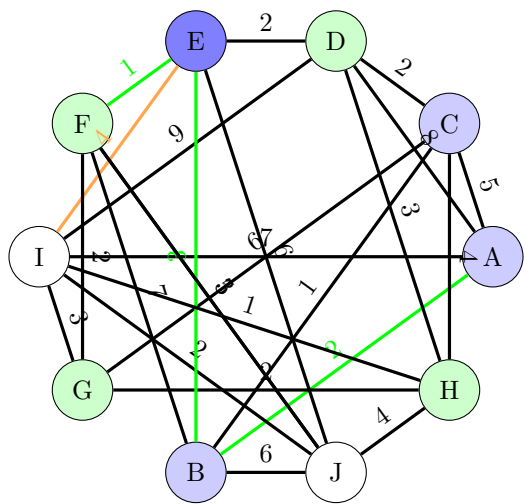


# A\* Algorithm

Log

Checking neighbor I

Graph



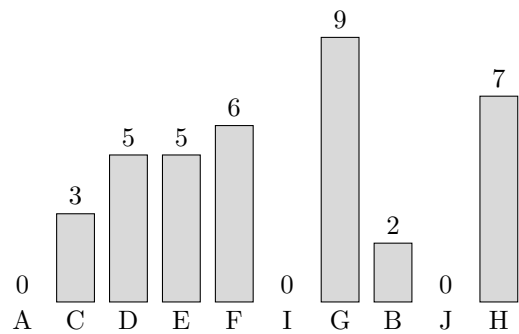
Open Set

E	F	G	H
---	---	---	---

Closed Set

A	B	C	E
---	---	---	---

Node Costs

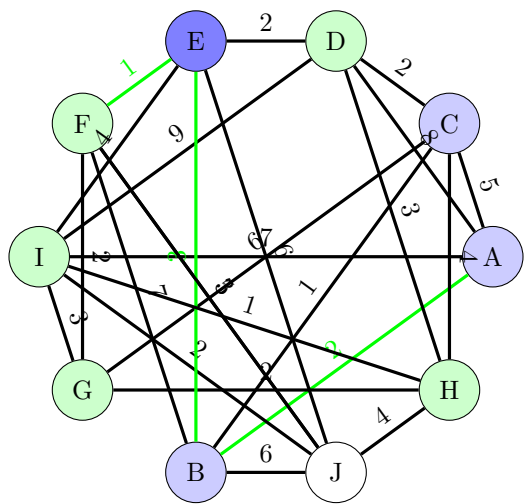


# A\* Algorithm

Log

Adding neighbor I to open set

Graph



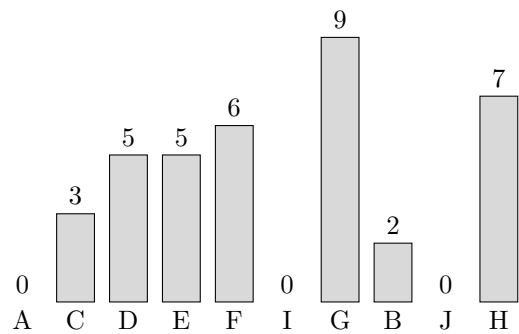
Open Set

E	F	G	H	I
---	---	---	---	---

Closed Set

A	B	C	E
---	---	---	---

Node Costs

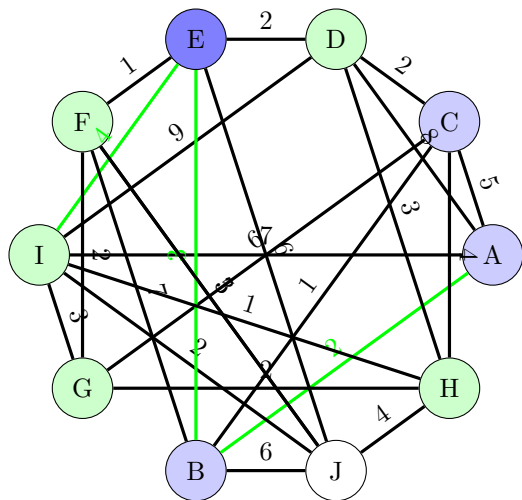


# A\* Algorithm

Log

Updating cost for neighbor I (cost: 9)

Graph



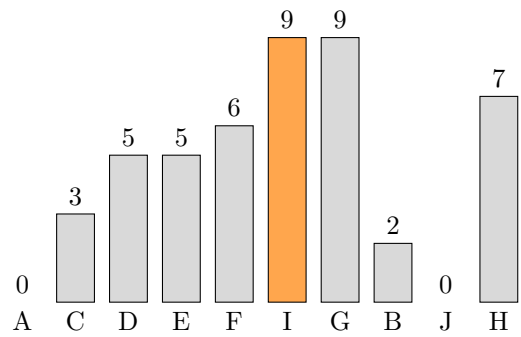
Open Set

E	F	G	H	I
---	---	---	---	---

Closed Set

A	B	C	E
---	---	---	---

Node Costs

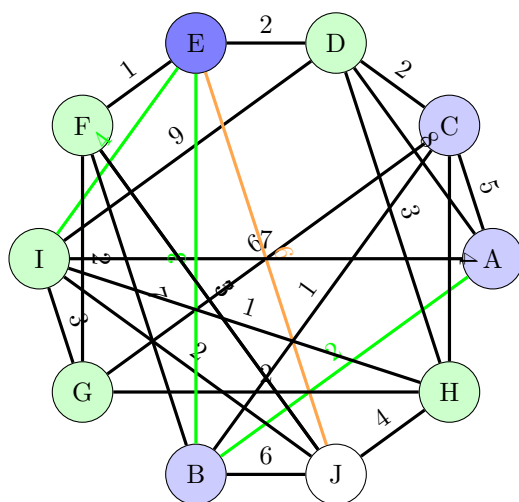


## A\* Algorithm

Log

Checking neighbor J

## Graph



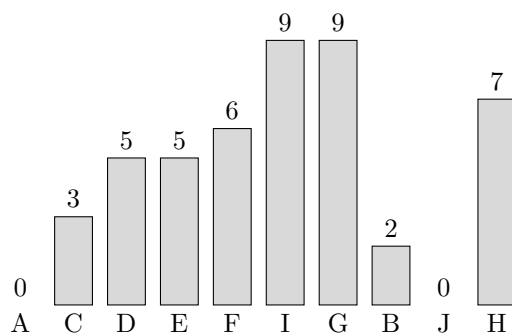
## Open Set

E	F	G	H	I
---	---	---	---	---

## Closed Set

A	B	C	E
---	---	---	---

## Node Costs



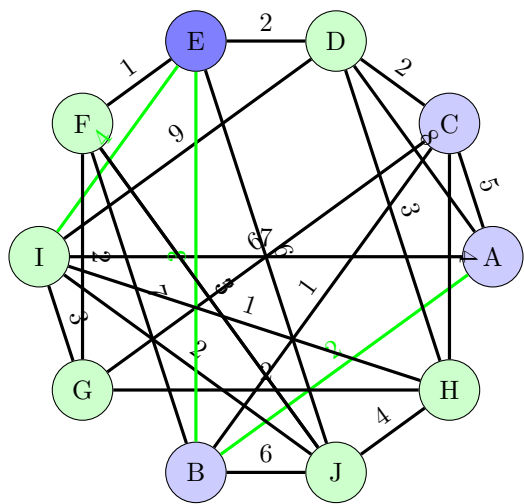


# A\* Algorithm

Log

Adding neighbor J to open set

Graph



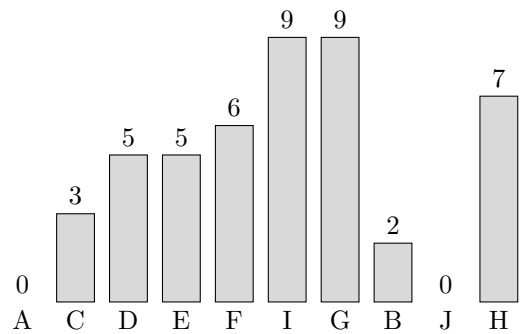
Open Set

E	F	G	H	I	J
---	---	---	---	---	---

Closed Set

A	B	C	E
---	---	---	---

Node Costs

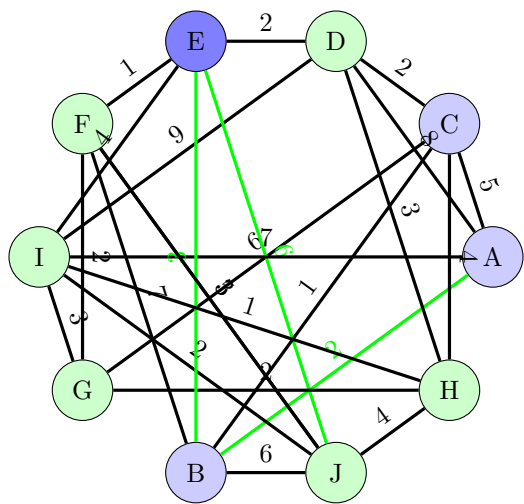


# A\* Algorithm

Log

Updating cost for neighbor J (cost: 11)

Graph



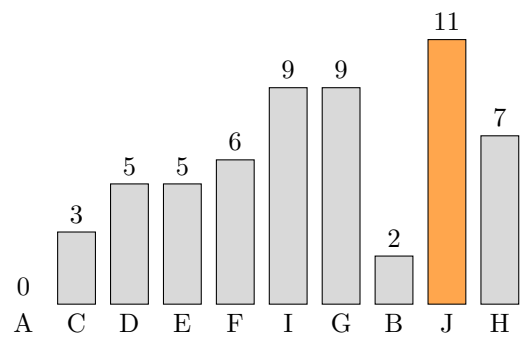
Open Set

E	F	G	H	I	J
---	---	---	---	---	---

Closed Set

A	B	C	E
---	---	---	---

Node Costs

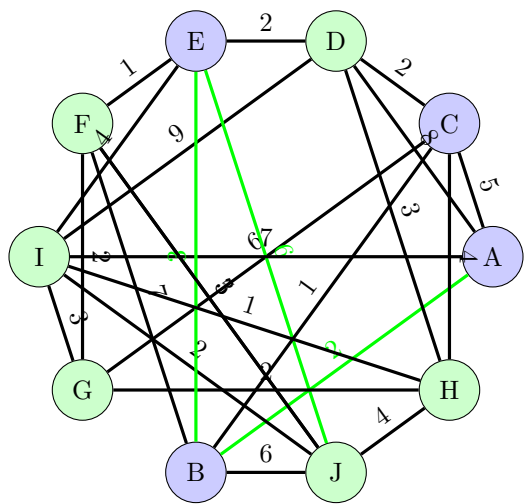


# A\* Algorithm

Log

Grabbing first node from open set

Graph



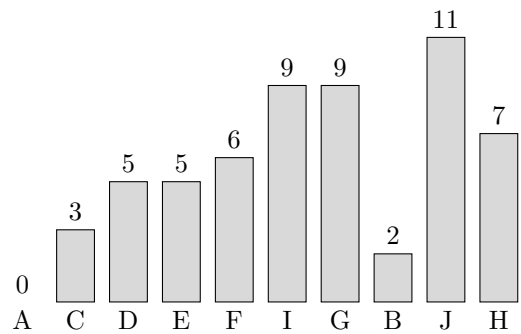
Open Set

E	F	G	H	I	J
---	---	---	---	---	---

Closed Set

A	B	C	E
---	---	---	---

Node Costs

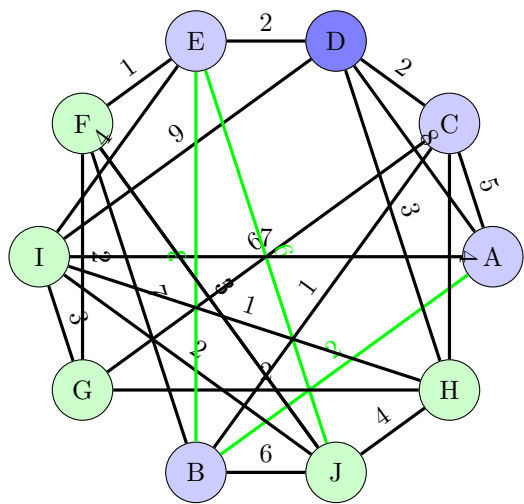


# A\* Algorithm

Log

Visiting node D and adding it to closed set

Graph



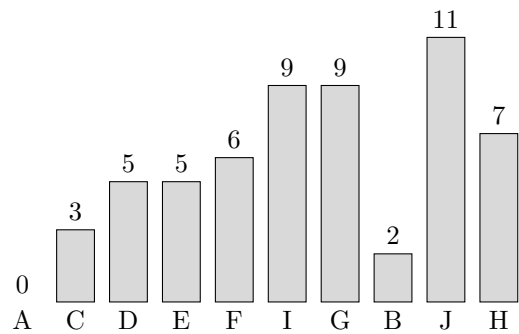
Open Set

F	G	H	I	J
---	---	---	---	---

Closed Set

A	B	C	E	D
---	---	---	---	---

Node Costs

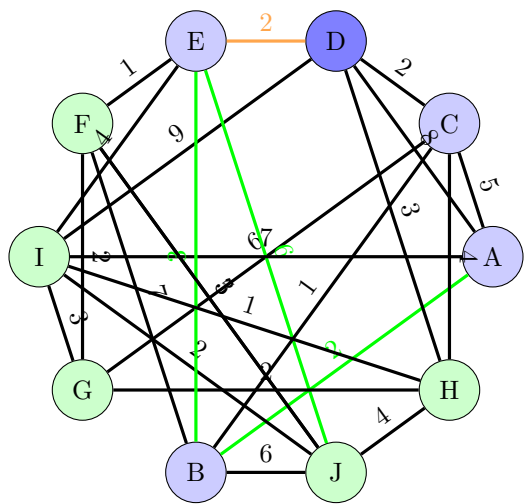


# A\* Algorithm

Log

Checking neighbor E

Graph



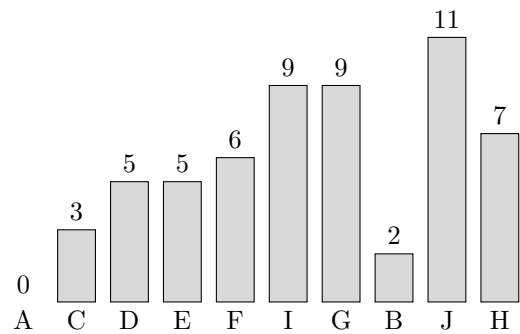
Open Set

F	G	H	I	J
---	---	---	---	---

Closed Set

A	B	C	E	D
---	---	---	---	---

Node Costs

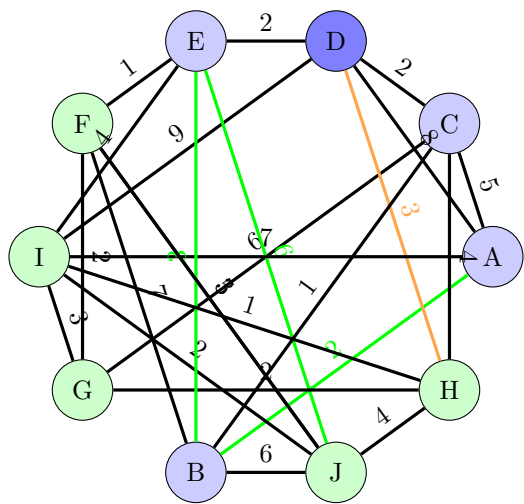


# A\* Algorithm

Log

Checking neighbor H

Graph



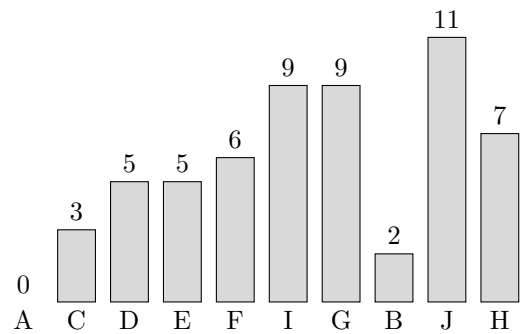
Open Set

F	G	H	I	J
---	---	---	---	---

Closed Set

A	B	C	E	D
---	---	---	---	---

Node Costs

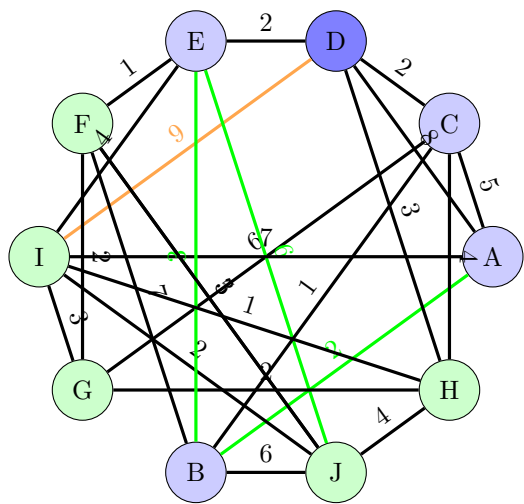


# A\* Algorithm

Log

Checking neighbor I

Graph



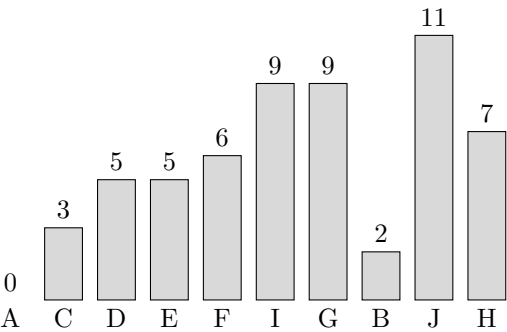
Open Set

F	G	H	I	J
---	---	---	---	---

Closed Set

A	B	C	E	D
---	---	---	---	---

Node Costs

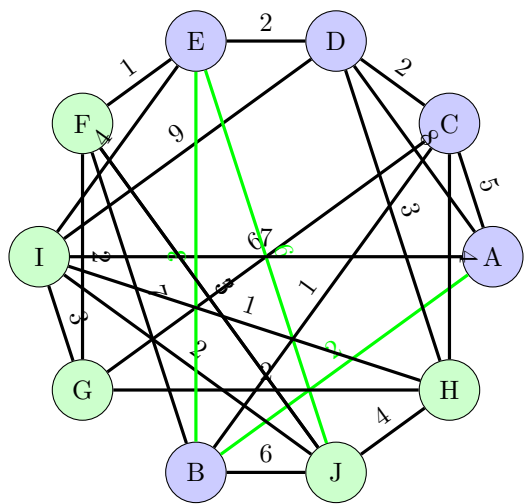


# A\* Algorithm

Log

Grabbing first node from open set

Graph



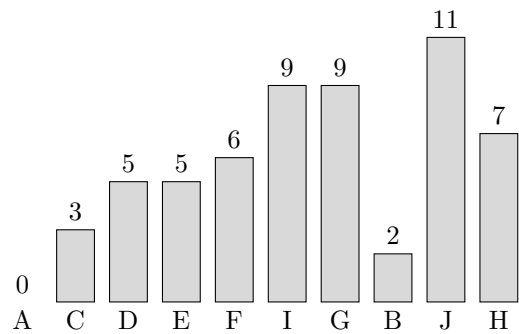
Open Set

F	G	H	I	J
---	---	---	---	---

Closed Set

A	B	C	E	D
---	---	---	---	---

Node Costs

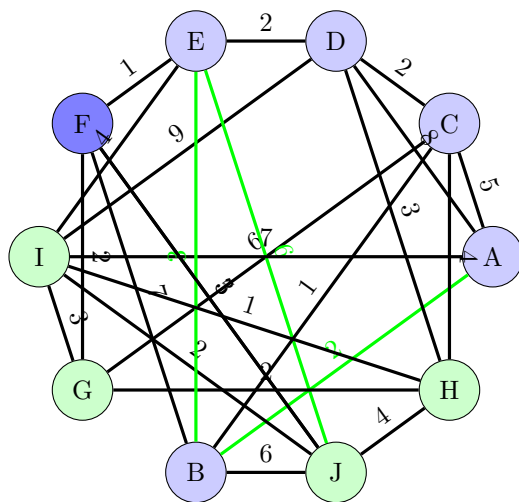




## Log

Visiting node F and adding it to closed set

## Graph



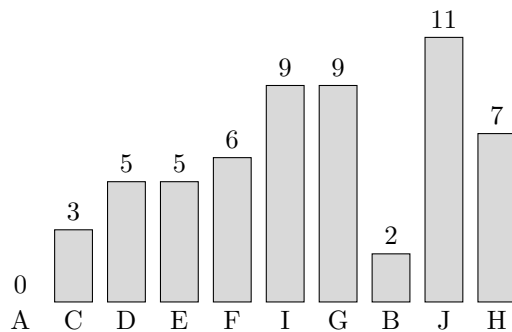
## Open Set

G	H	I	J
---	---	---	---

## Closed Set

A	B	C	E	D	F
---	---	---	---	---	---

## Node Costs

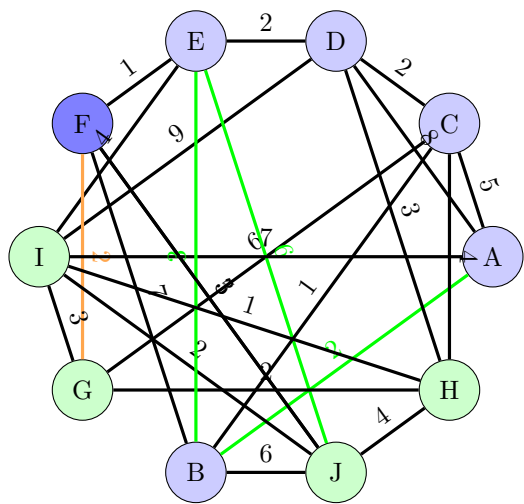


# A\* Algorithm

Log

Checking neighbor G

Graph



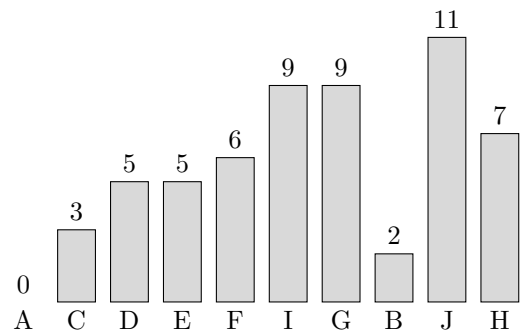
Open Set

G	H	I	J
---	---	---	---

Closed Set

A	B	C	E	D	F
---	---	---	---	---	---

Node Costs

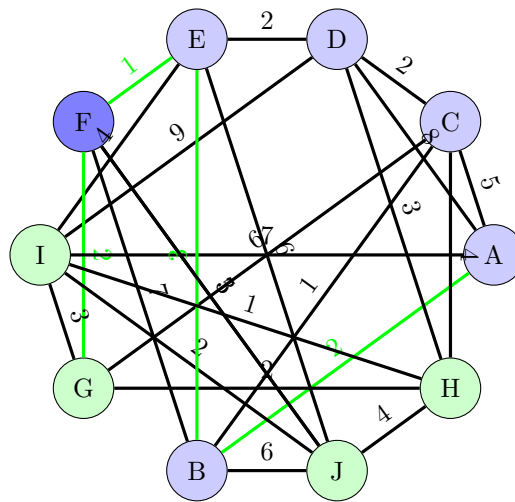


# A\* Algorithm

Log

Updating cost for neighbor G (cost: 8)

Graph



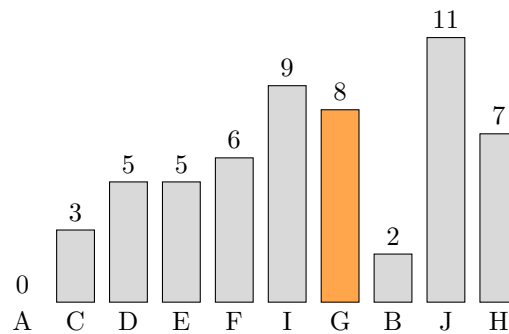
Open Set

G	H	I	J
---	---	---	---

Closed Set

A	B	C	E	D	F
---	---	---	---	---	---

Node Costs

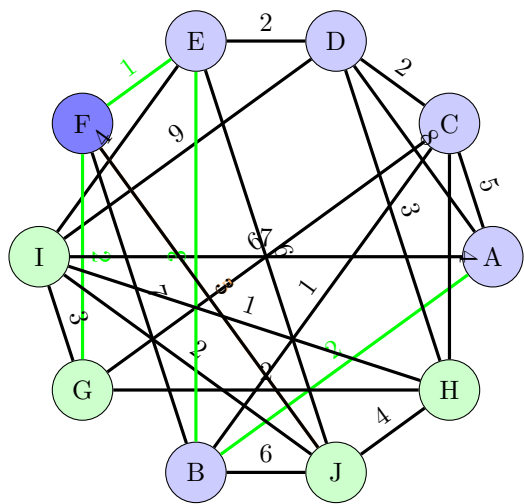


# A\* Algorithm

Log

Checking neighbor J

Graph



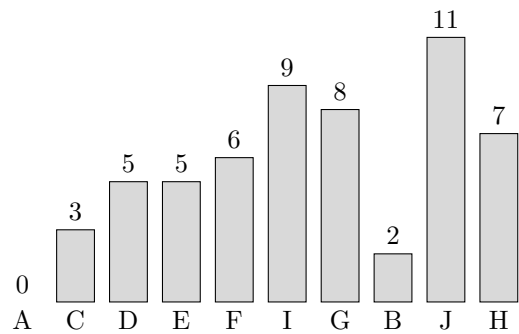
Open Set

G	H	I	J
---	---	---	---

Closed Set

A	B	C	E	D	F
---	---	---	---	---	---

Node Costs

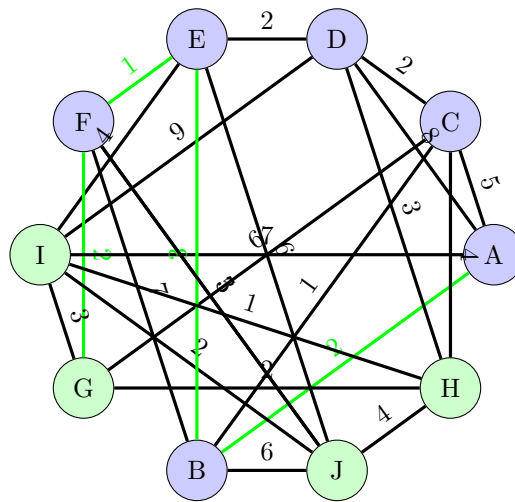


# A\* Algorithm

Log

Grabbing first node from open set

Graph



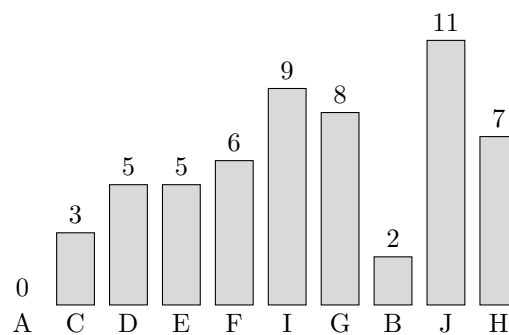
Open Set

G	H	I	J
---	---	---	---

Closed Set

A	B	C	E	D	F
---	---	---	---	---	---

Node Costs

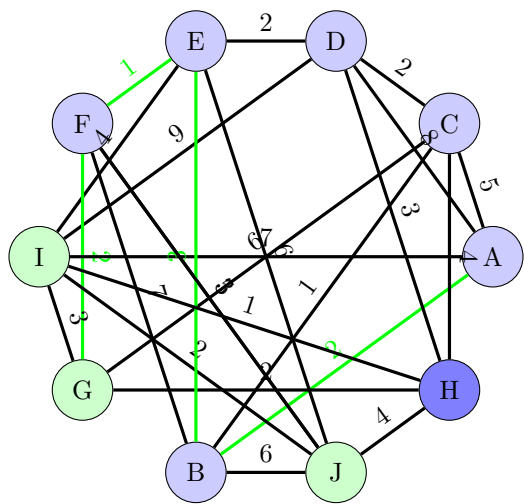


# A\* Algorithm

Log

Visiting node H and adding it to closed set

Graph



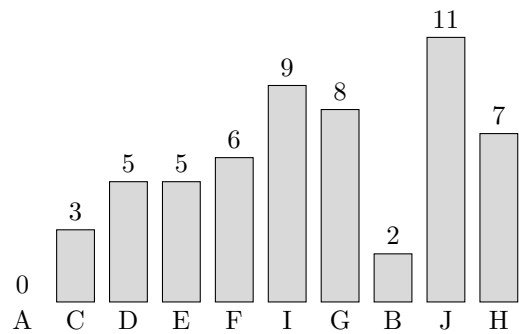
Open Set

H	I	J
---	---	---

Closed Set

A	B	C	E	D	F	H
---	---	---	---	---	---	---

Node Costs

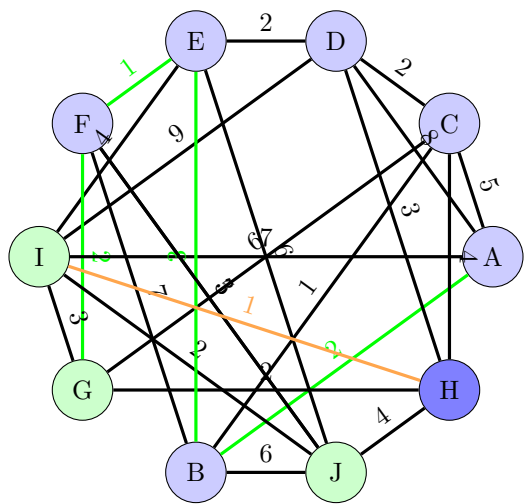


# A\* Algorithm

Log

Checking neighbor I

Graph



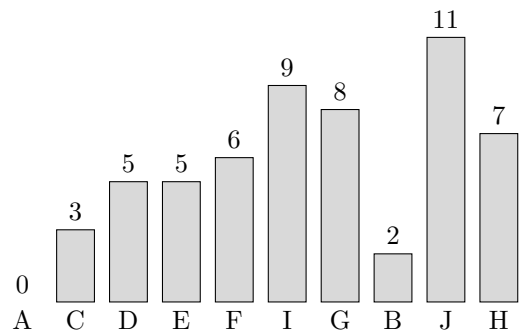
Open Set

H	I	J
---	---	---

Closed Set

A	B	C	E	D	F	H
---	---	---	---	---	---	---

Node Costs

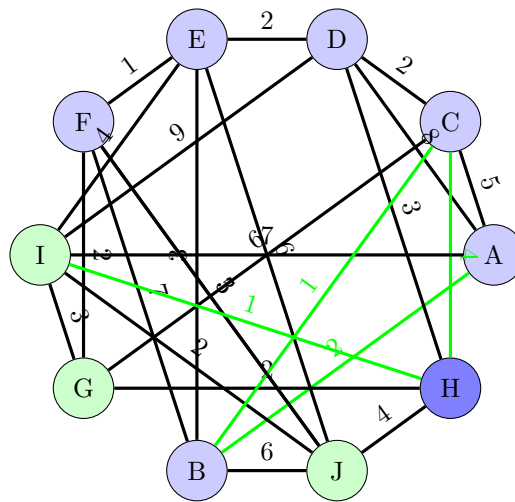


# A\* Algorithm

## Log

Updating cost for neighbor I (cost: 8)

## Graph



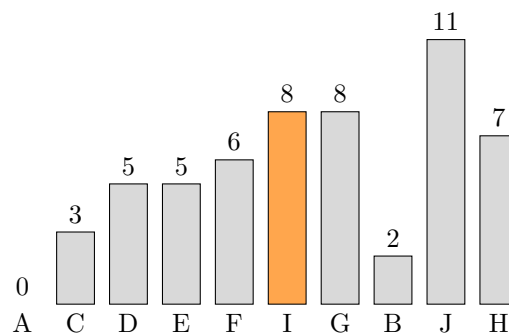
## Open Set

H	I	J
---	---	---

## Closed Set

A	B	C	E	D	F	H
---	---	---	---	---	---	---

## Node Costs



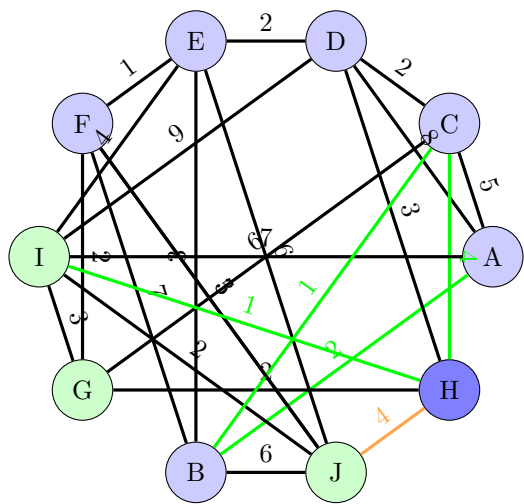


# A\* Algorithm

Log

Checking neighbor J

Graph



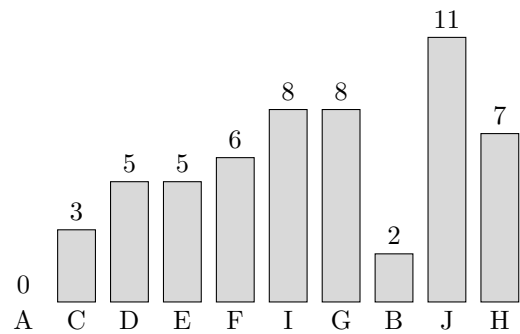
Open Set

H	I	J
---	---	---

Closed Set

A	B	C	E	D	F	H
---	---	---	---	---	---	---

Node Costs

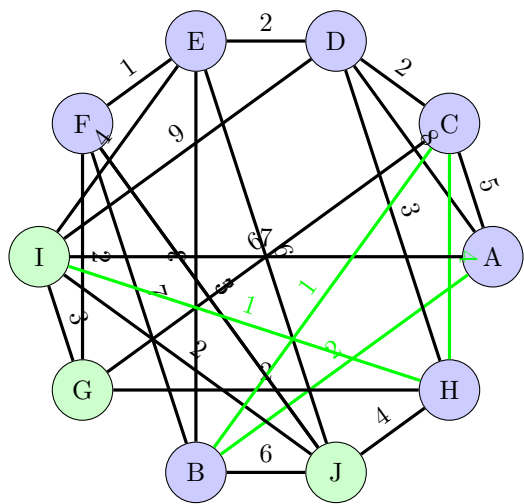


# A\* Algorithm

Log

Grabbing first node from open set

Graph



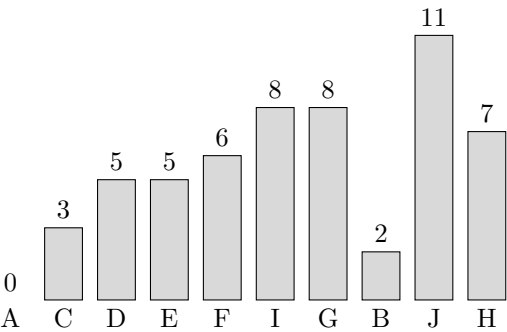
Open Set

H	I	J
---	---	---

Closed Set

A	B	C	E	D	F	H
---	---	---	---	---	---	---

Node Costs

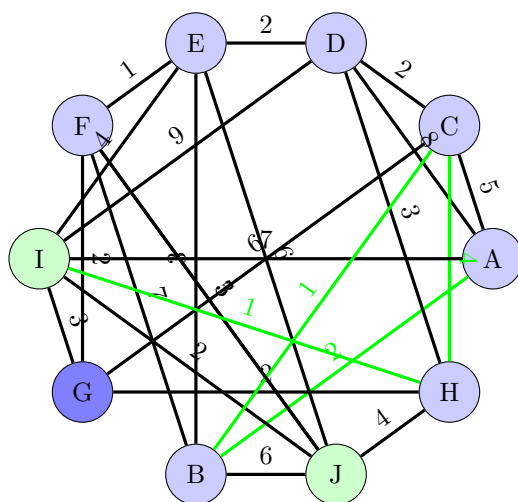


## A\* Algorithm

Log

Visiting node G and adding it to closed set

## Graph



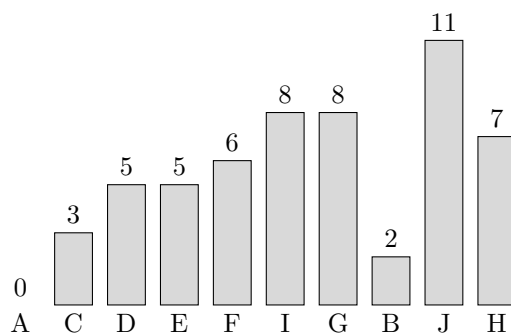
## Open Set

I	J
---	---

## Closed Set

A	B	C	E	D	F	H	G
---	---	---	---	---	---	---	---

## Node Costs

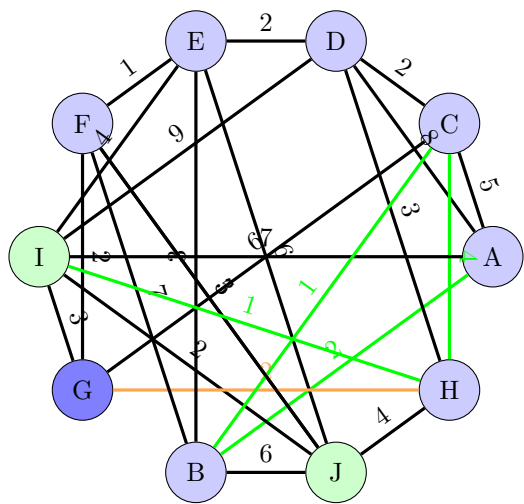


# A\* Algorithm

Log

Checking neighbor H

Graph



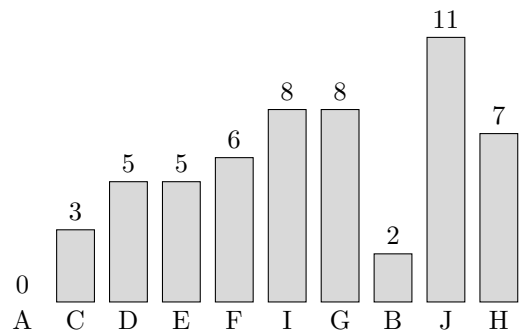
Open Set

I	J
---	---

Closed Set

A	B	C	E	D	F	H	G
---	---	---	---	---	---	---	---

Node Costs

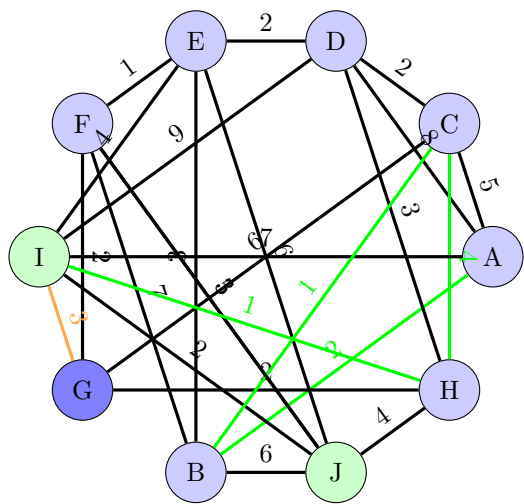


# A\* Algorithm

Log

Checking neighbor I

Graph



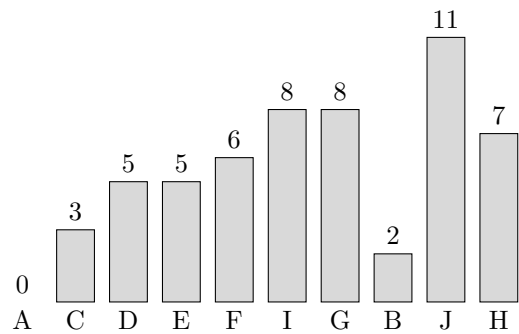
Open Set

I	J
---	---

Closed Set

A	B	C	E	D	F	H	G
---	---	---	---	---	---	---	---

Node Costs

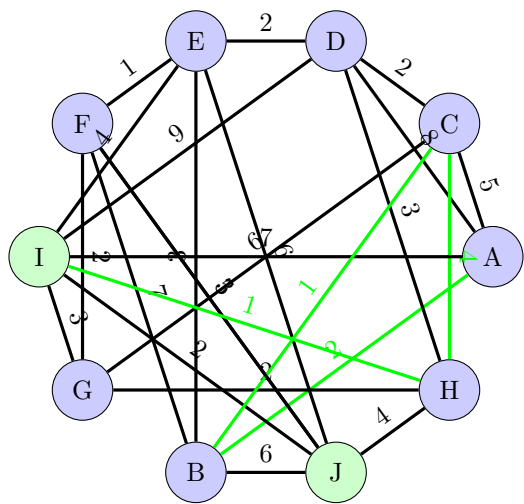


# A\* Algorithm

Log

Grabbing first node from open set

Graph



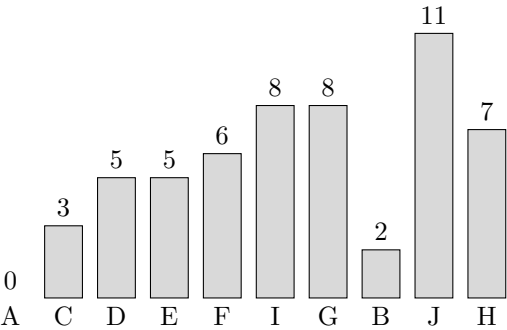
Open Set

I	J
---	---

Closed Set

A	B	C	E	D	F	H	G
---	---	---	---	---	---	---	---

Node Costs

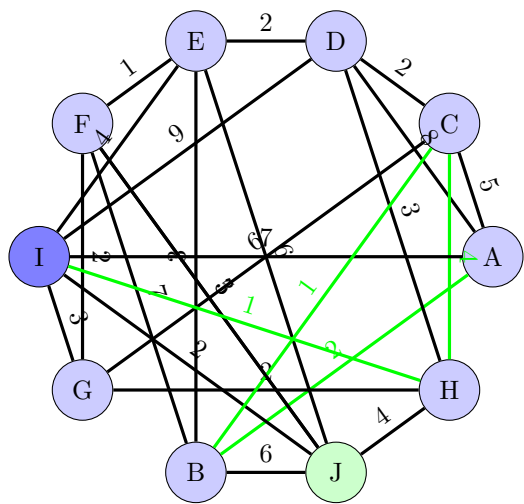


# A\* Algorithm

Log

Visiting node I and adding it to closed set

Graph



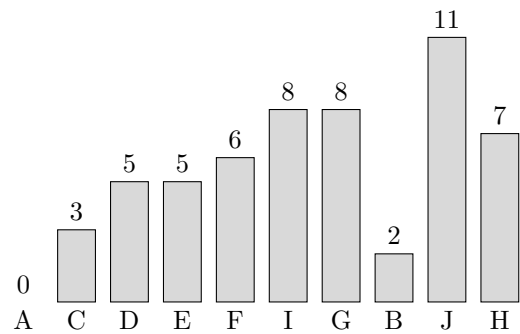
Open Set

J

Closed Set

A	B	C	E	D	F	H	G	I
---	---	---	---	---	---	---	---	---

Node Costs

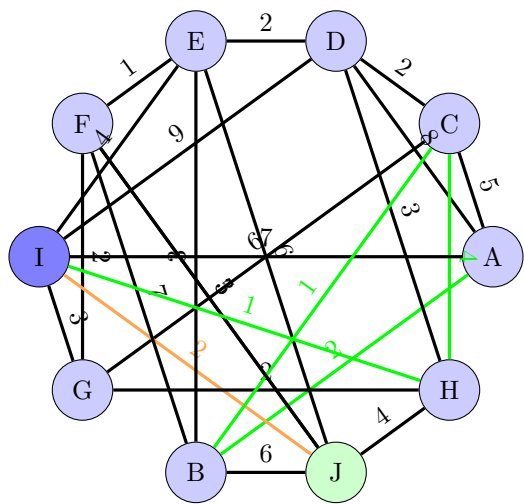


# A\* Algorithm

Log

Checking neighbor J

Graph



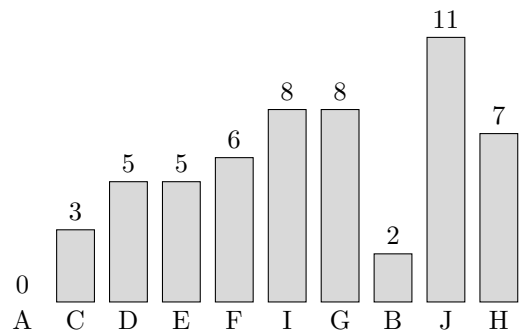
Open Set

J

Closed Set

A	B	C	E	D	F	H	G	I
---	---	---	---	---	---	---	---	---

Node Costs



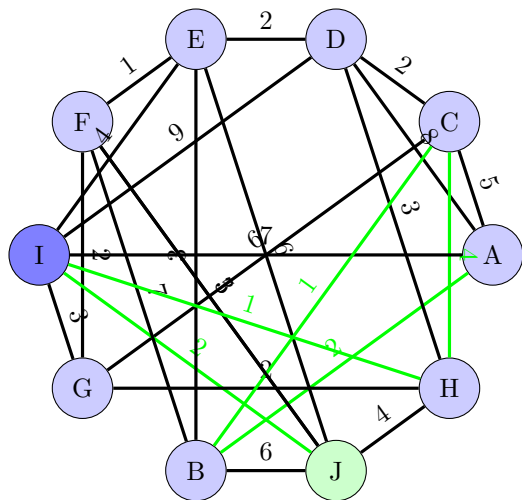


# A\* Algorithm

Log

Updating cost for neighbor J (cost: 10)

Graph



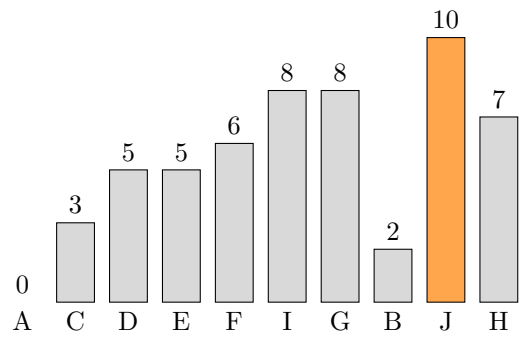
Open Set

J

Closed Set

A	B	C	E	D	F	H	G	I
---	---	---	---	---	---	---	---	---

Node Costs

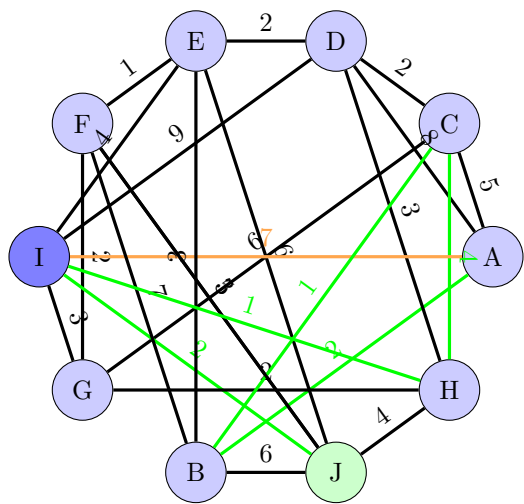


# A\* Algorithm

Log

Checking neighbor A

Graph



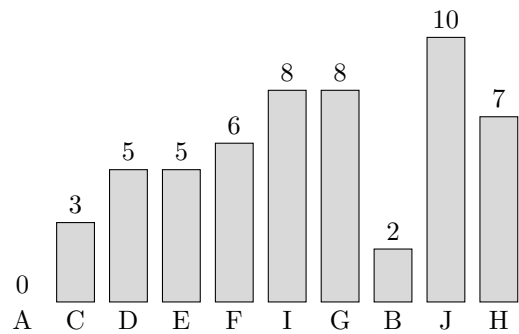
Open Set

J

Closed Set

A	B	C	E	D	F	H	G	I
---	---	---	---	---	---	---	---	---

Node Costs

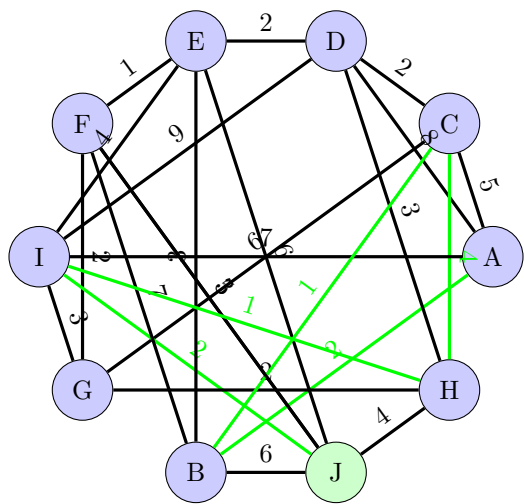


# A\* Algorithm

Log

Grabbing first node from open set

Graph



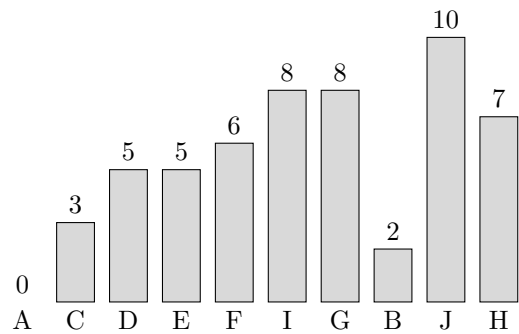
Open Set



Closed Set

A	B	C	E	D	F	H	G	I
---	---	---	---	---	---	---	---	---

Node Costs

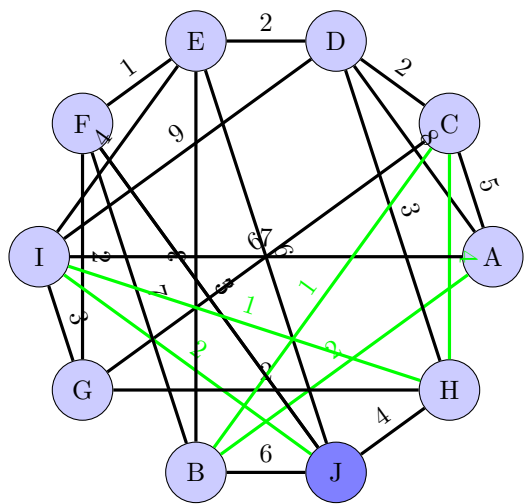


# A\* Algorithm

Log

Visiting node J and adding it to closed set

Graph

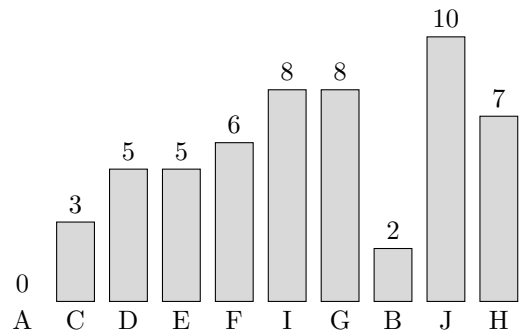


Open Set

Closed Set

A	B	C	E	D	F	H	G	I	J
---	---	---	---	---	---	---	---	---	---

Node Costs

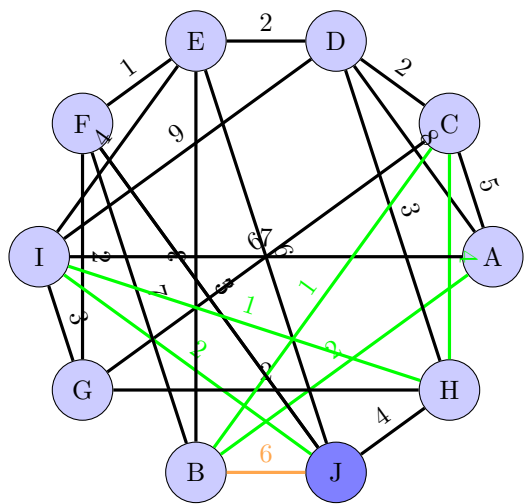


# A\* Algorithm

Log

Checking neighbor B

Graph

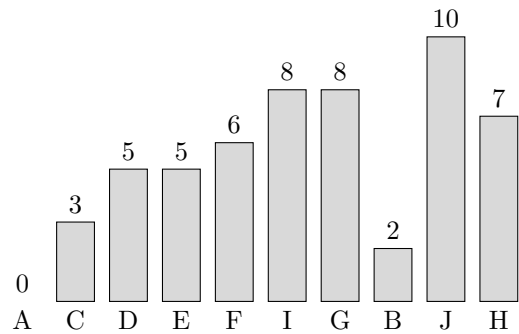


Open Set

Closed Set

A	B	C	E	D	F	H	G	I	J
---	---	---	---	---	---	---	---	---	---

Node Costs

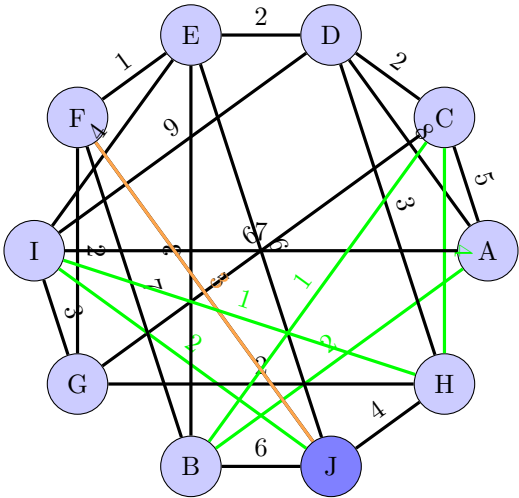


# A\* Algorithm

Log

Checking neighbor F

Graph

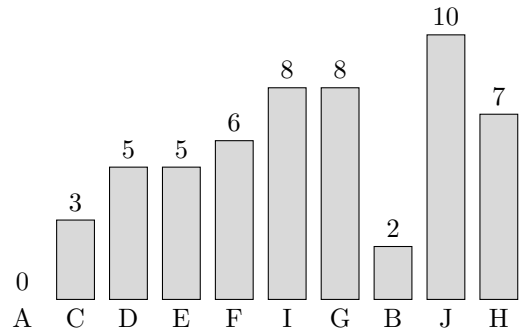


Open Set

Closed Set

A	B	C	E	D	F	H	G	I	J
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Node Costs

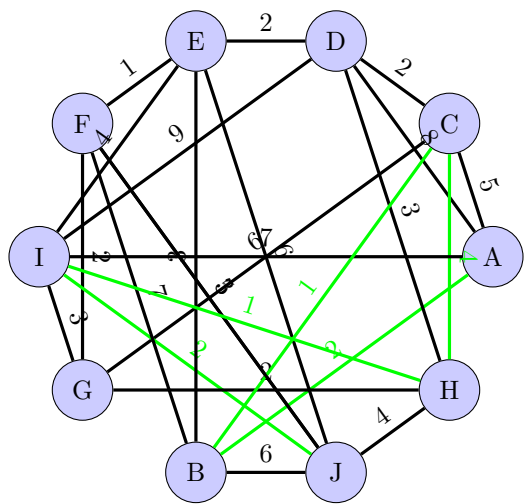


# A\* Algorithm

Log

Complex A\* simulation complete

Graph



Open Set

Closed Set

A	B	C	E	D	F	H	G	I	J
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Node Costs

