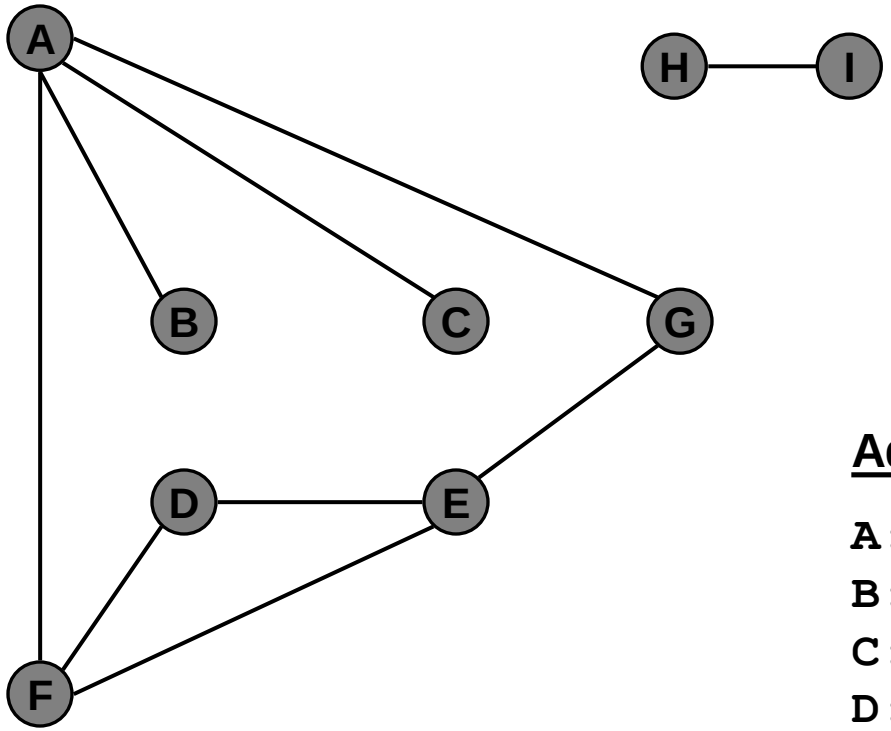
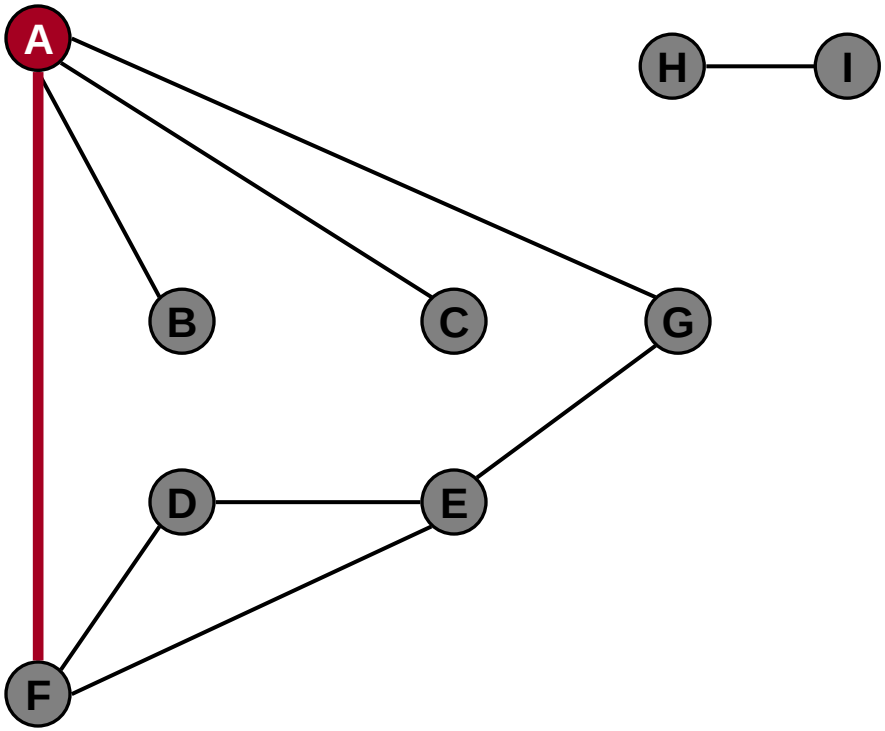
# Undirected Depth First Search




**Adjacency Lists**

```
A:  F C B G
B:  A
C:  A
D:  F E
E:  G F D
F:  A E D
G:  E A
H:  I
I:  H
```

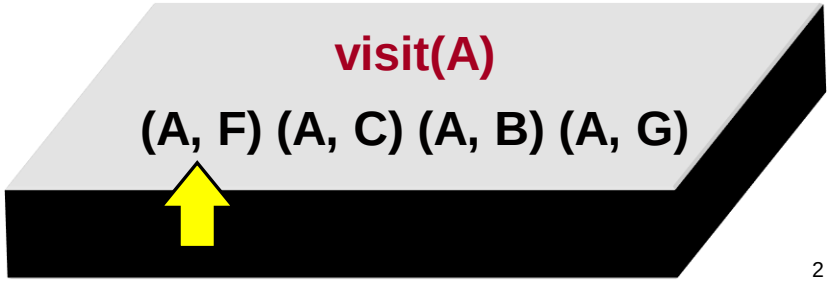
# Undirected Depth First Search




F newly discovered

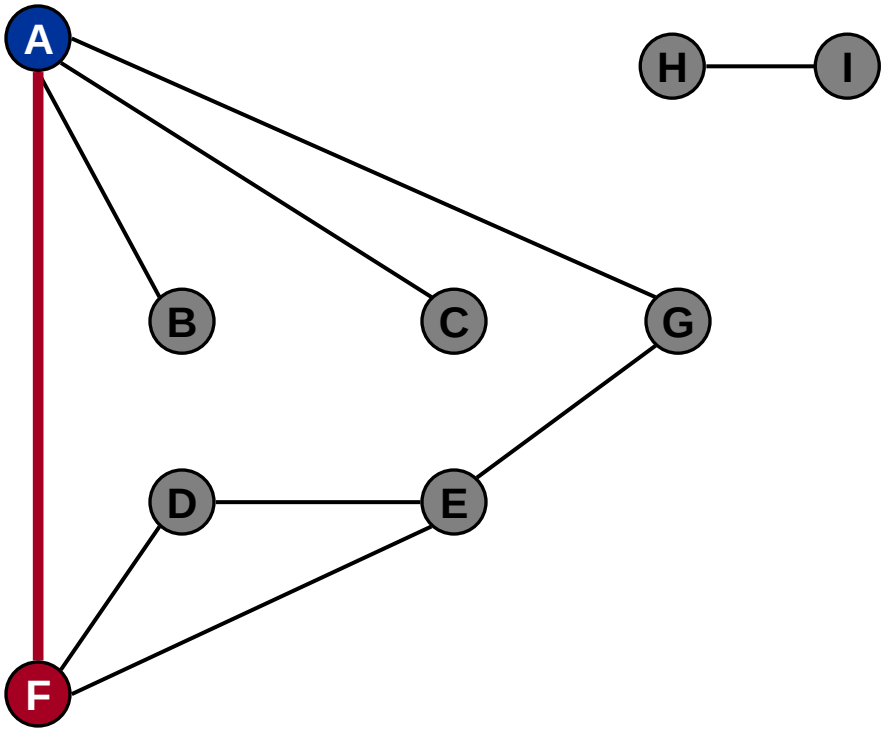
Undiscovered
Marked
Active
Finished

Stack



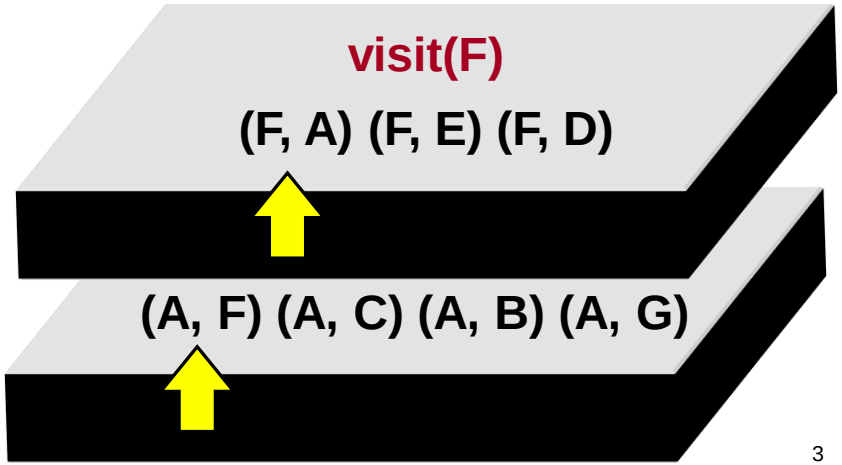
# Undirected Depth First Search

A already marked

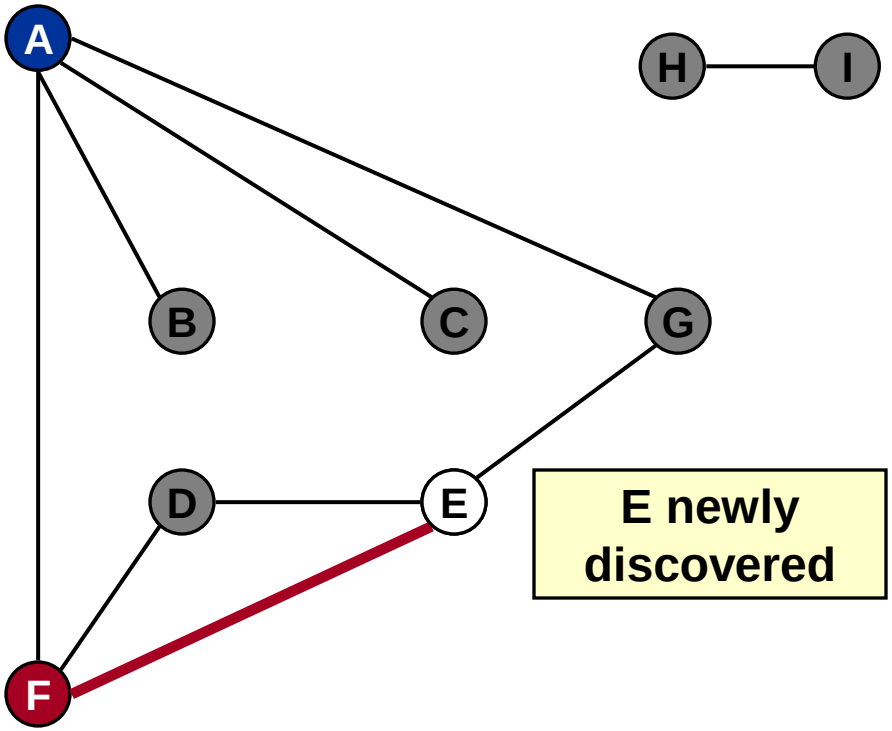



Undiscovered
Marked
Active
Finished

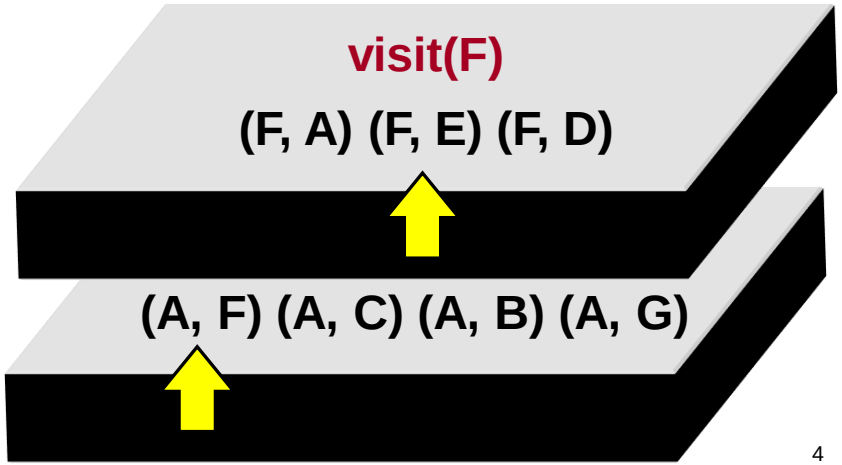
Stack



# Undirected Depth First Search

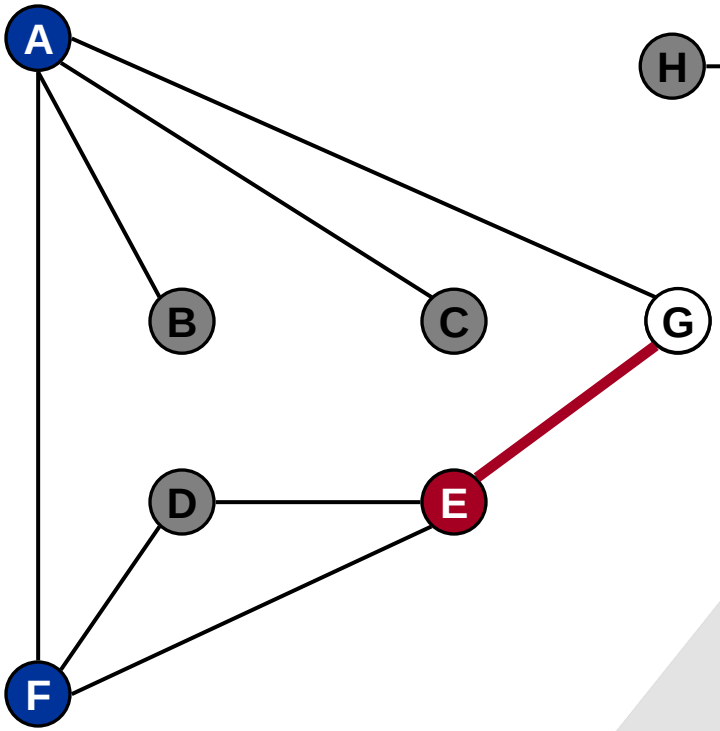



Undiscovered
Marked
Active
Finished

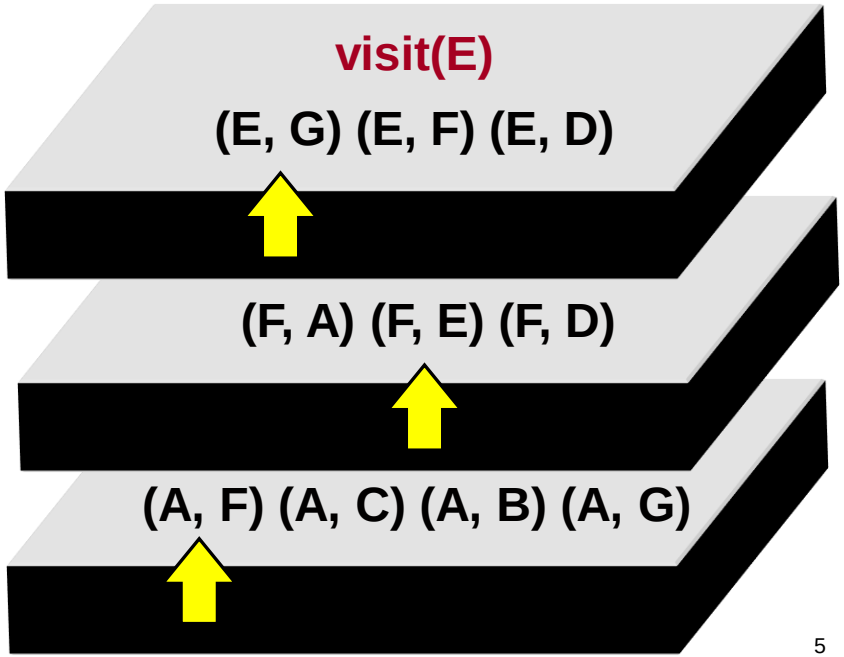



Stack

# Undirected Depth First Search

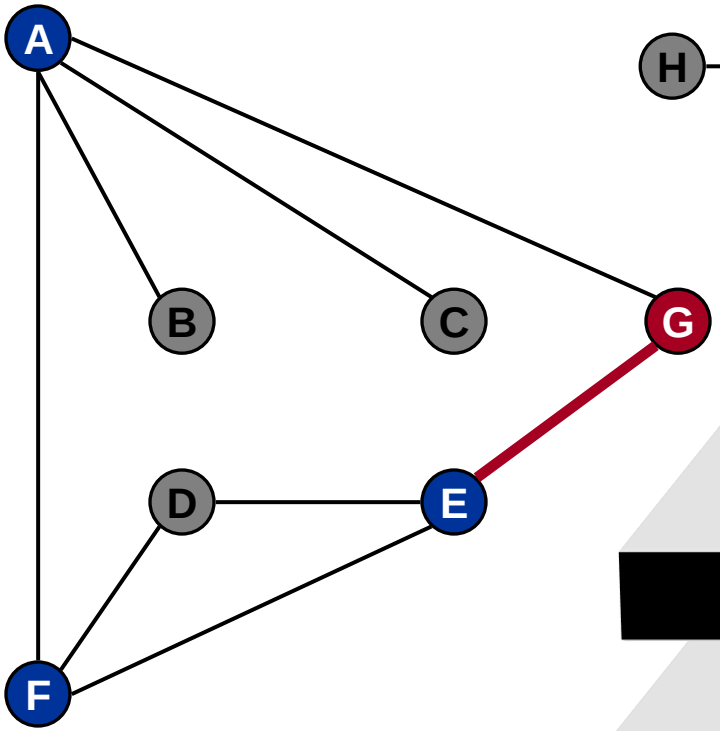



G newly discovered



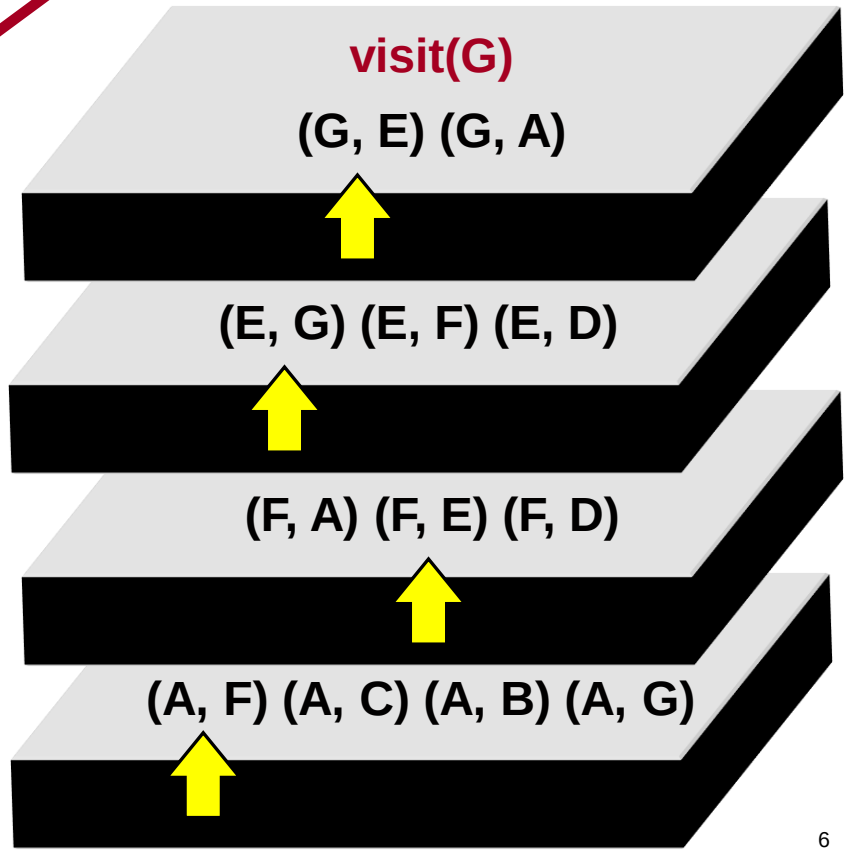

Stack

# Undirected Depth First Search



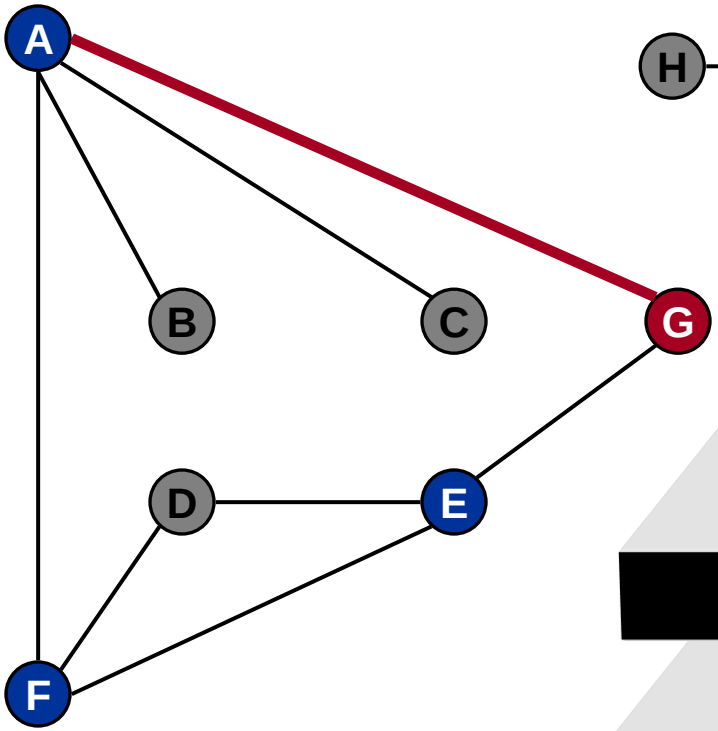

E already marked

Undiscovered
Marked
Active
Finished



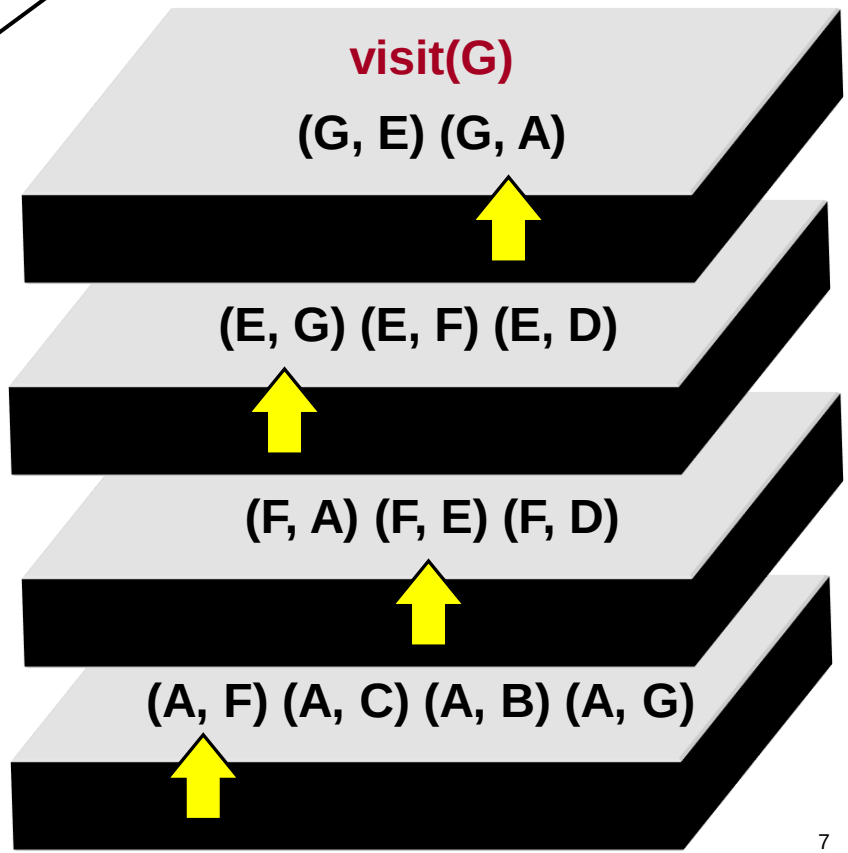

Stack

# Undirected Depth First Search



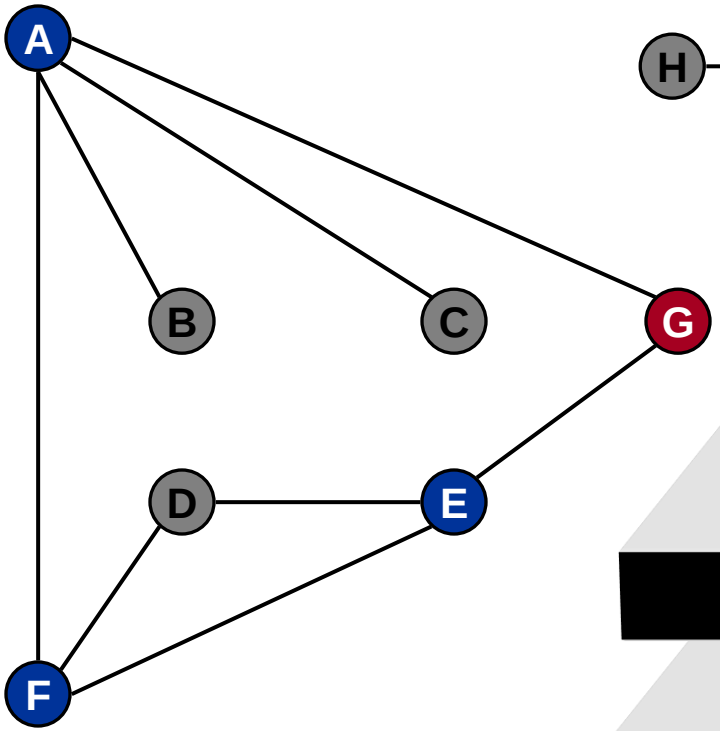

A already marked

Undiscovered
Marked
Active
Finished

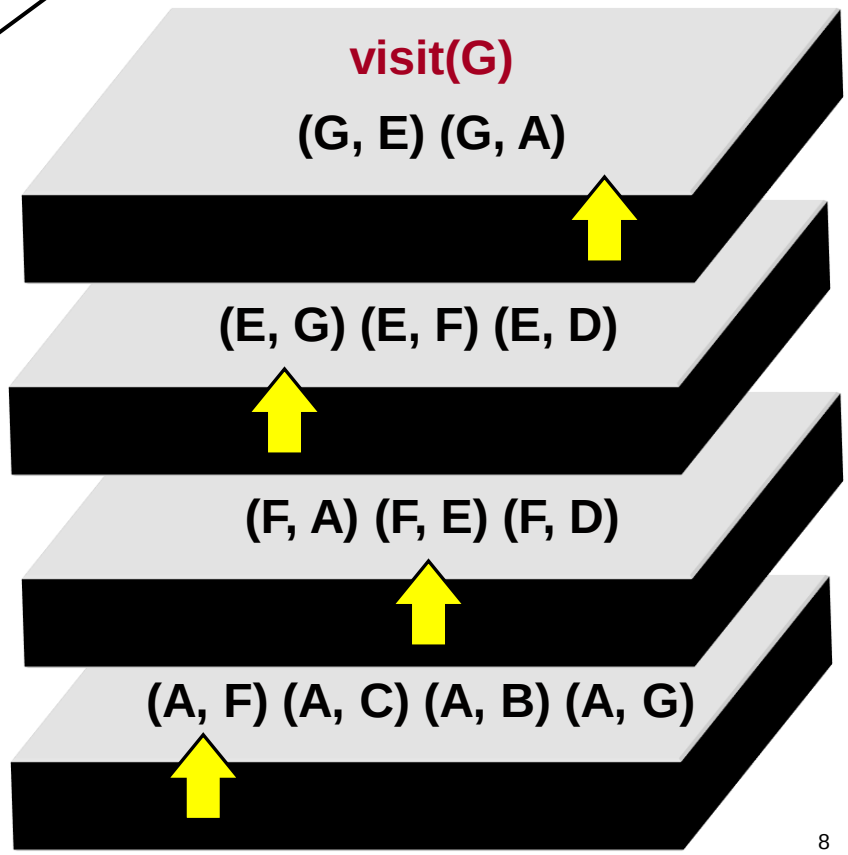



Stack

# Undirected Depth First Search



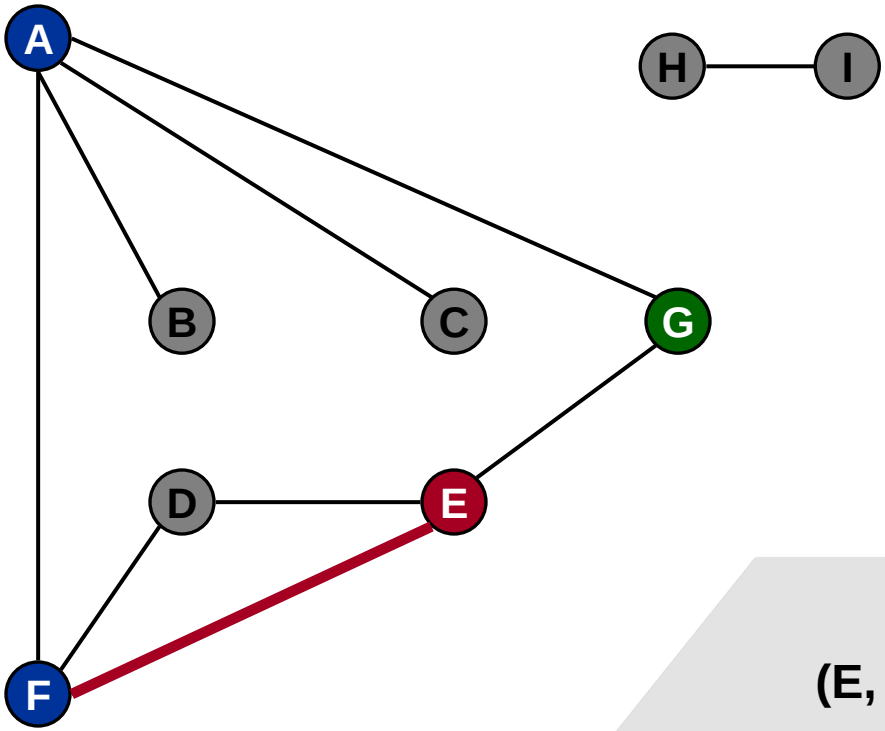

Finished G




Undiscovered
Marked
Active
Finished

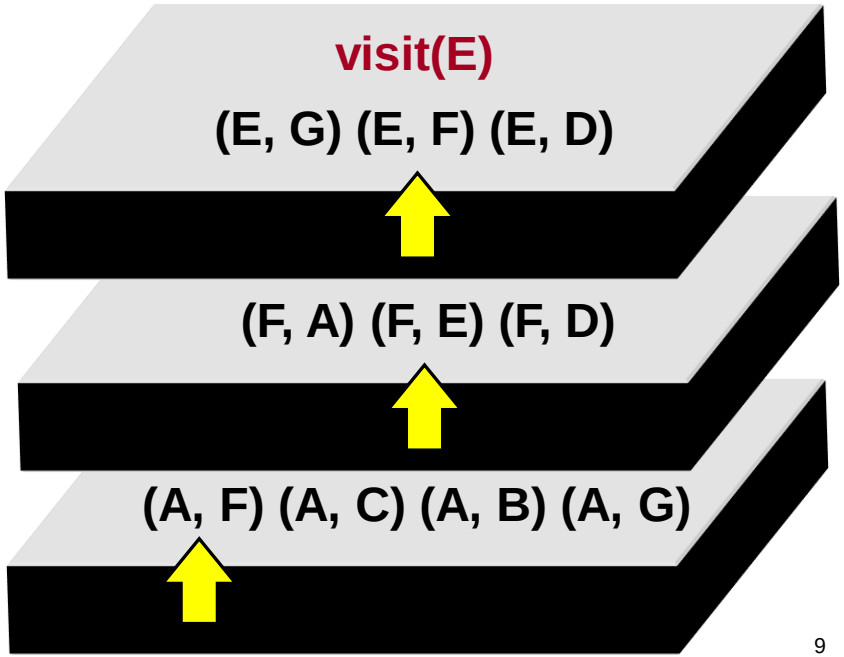
Stack

# Undirected Depth First Search



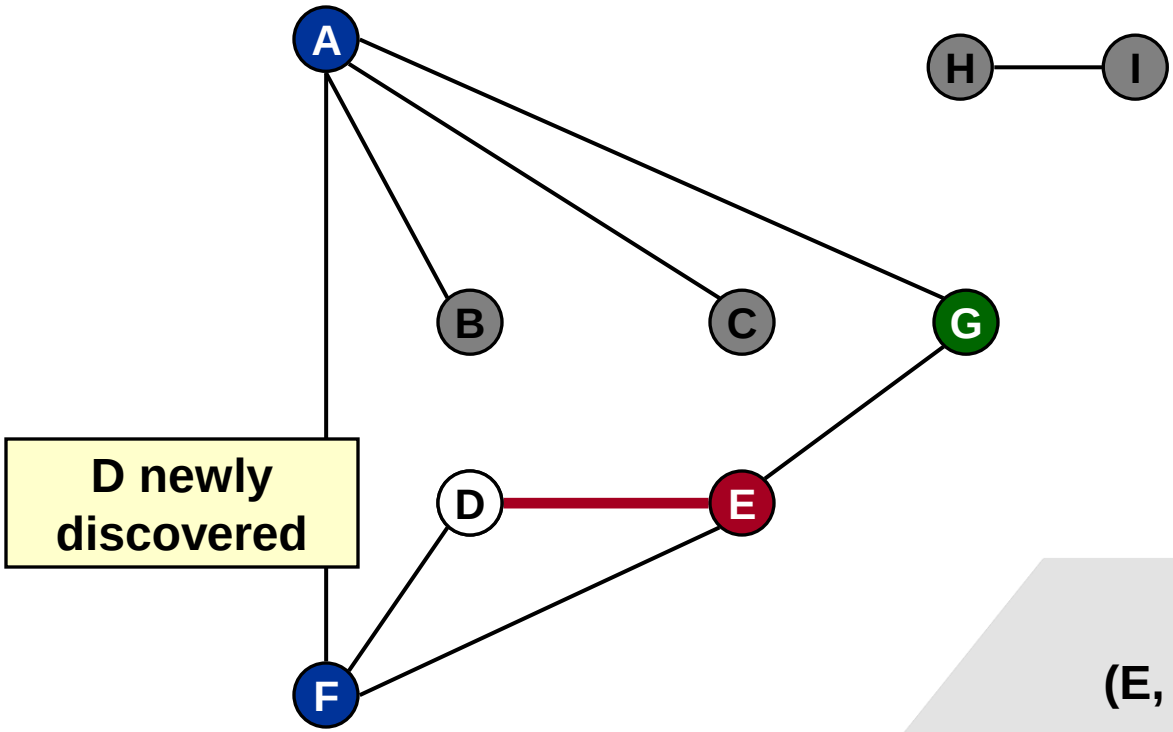

F already marked

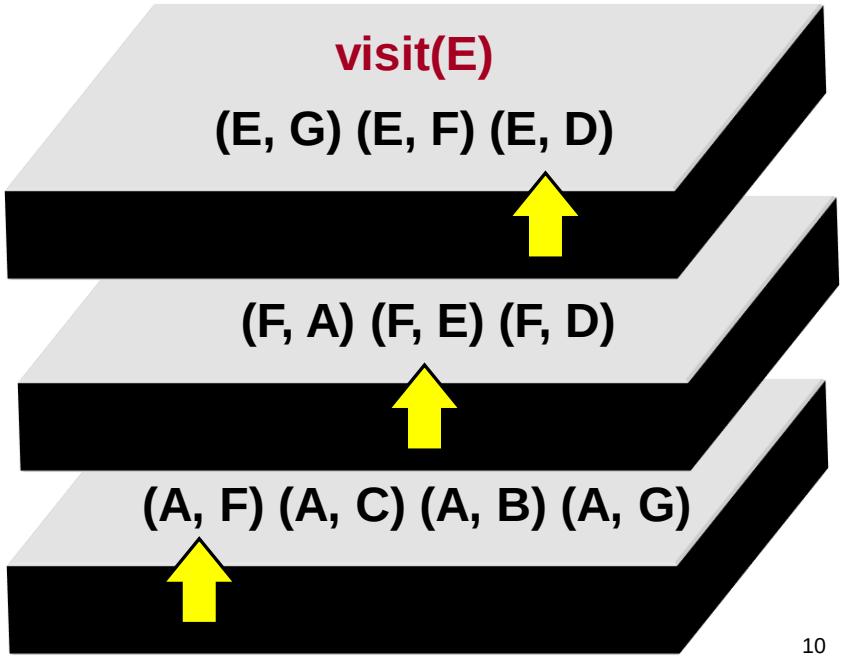
Undiscovered
Marked
Active
Finished




Stack

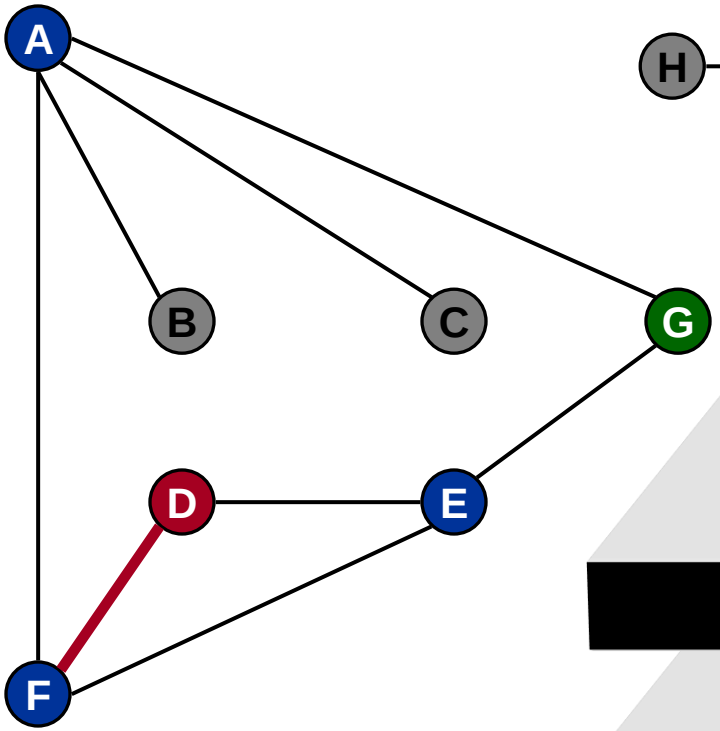
# Undirected Depth First Search



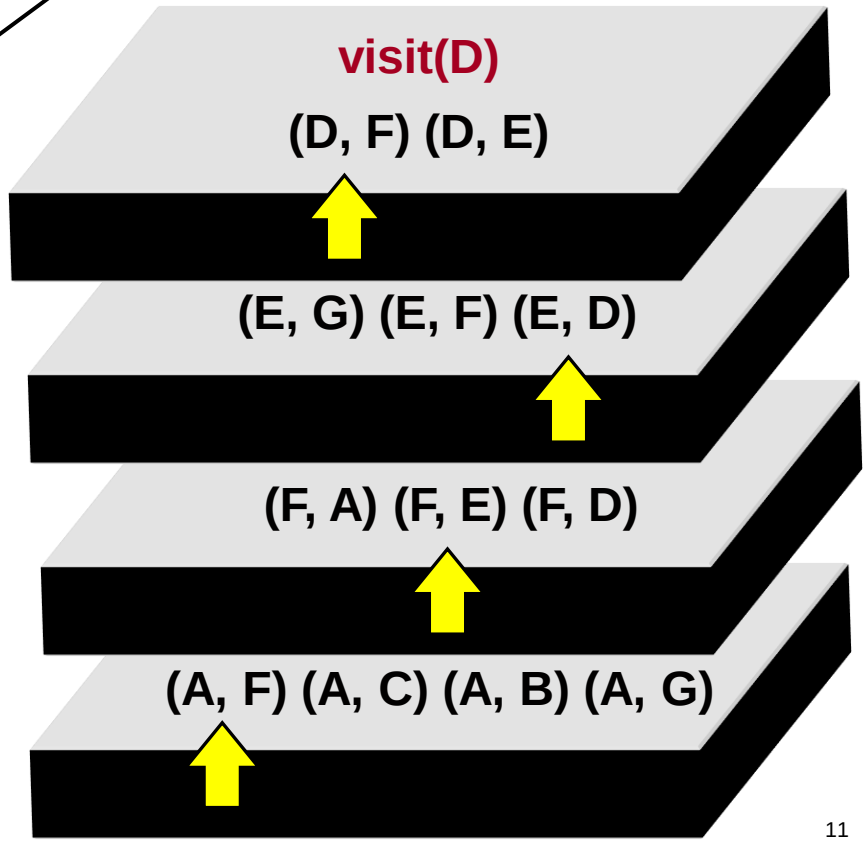



Stack

# Undirected Depth First Search



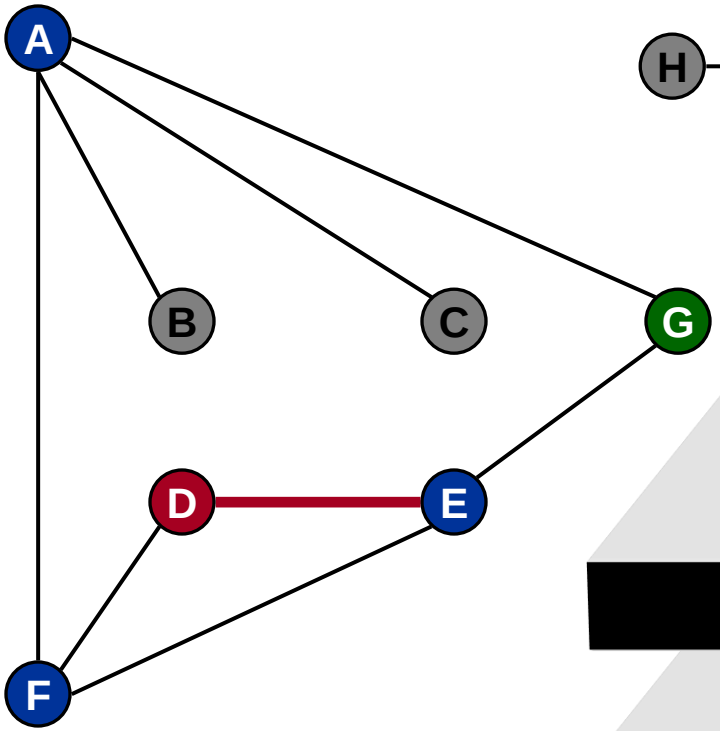

F already marked




Stack

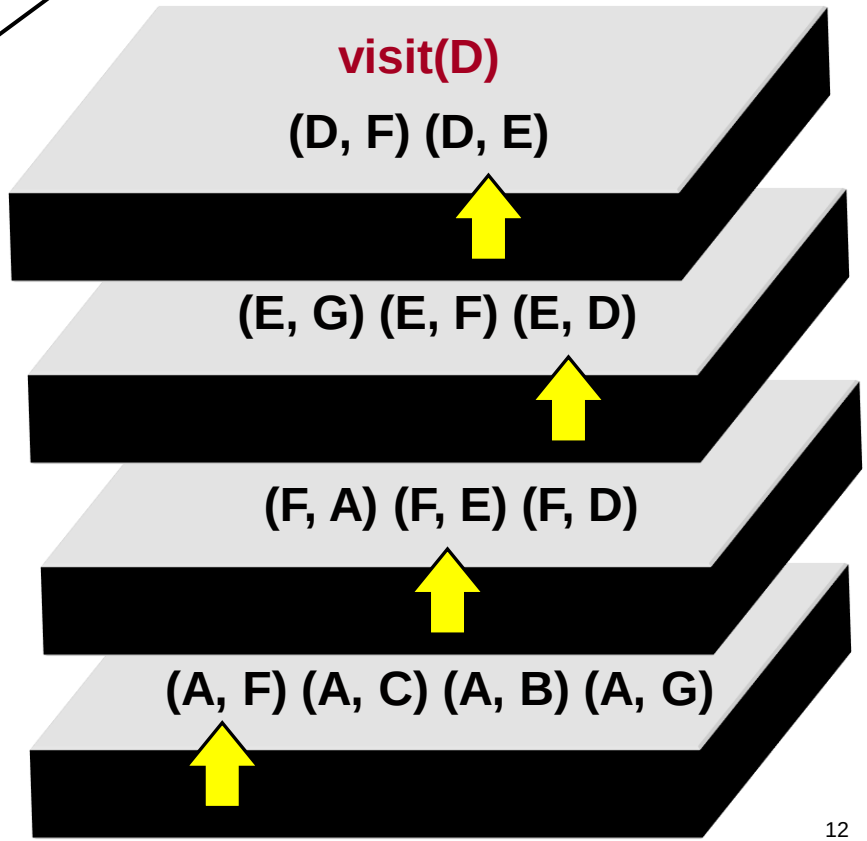
Undiscovered
Marked
Active
Finished

# Undirected Depth First Search



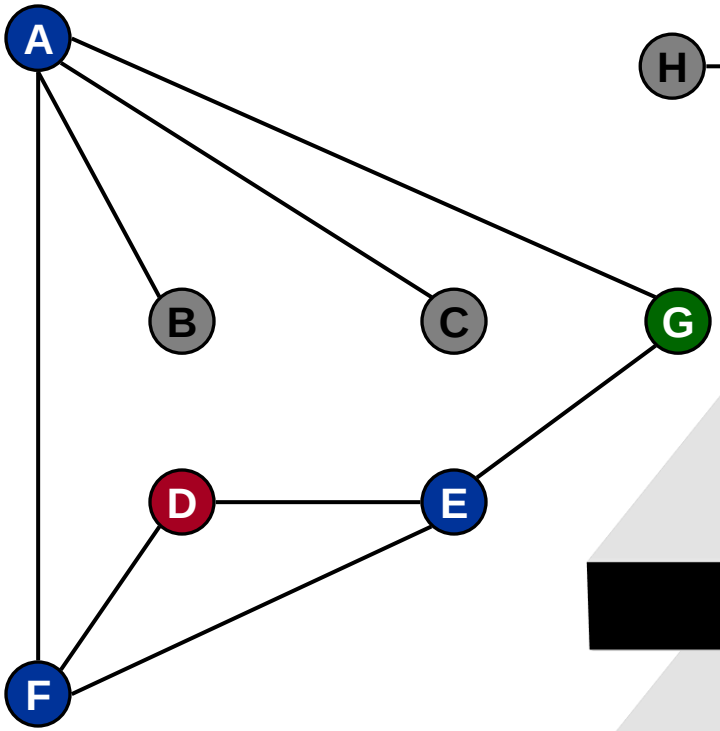

E already marked

Undiscovered
Marked
Active
Finished




Stack

# Undirected Depth First Search




Finished D

visit(D)

(D, F) (D, E)

(E, G) (E, F) (E, D)

(F, A) (F, E) (F, D)

(A, F) (A, C) (A, B) (A, G)

Stack

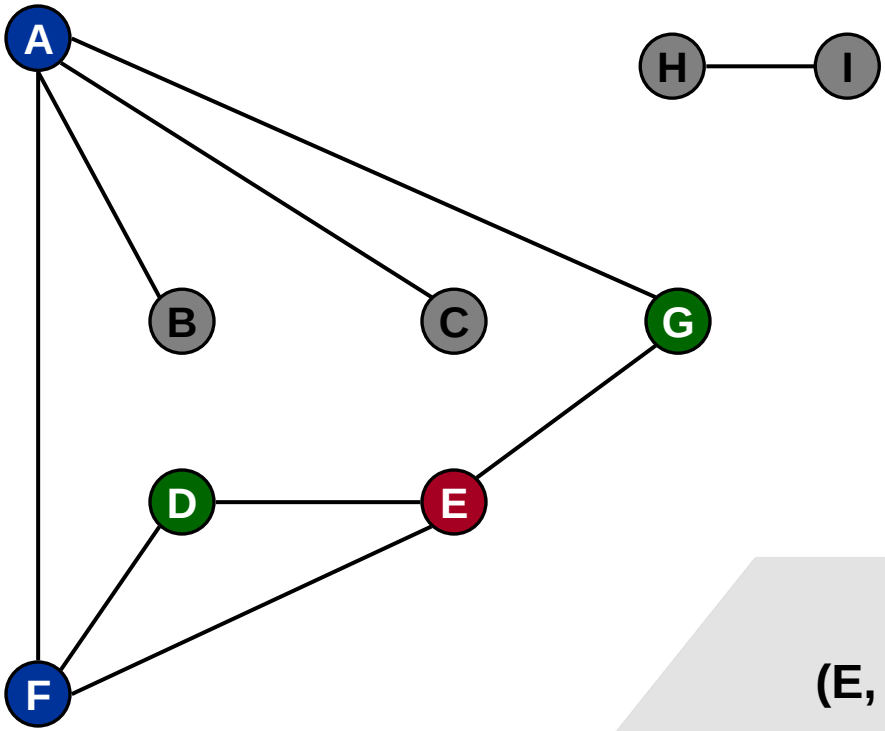
Undiscovered

Marked

Active

Finished

# Undirected Depth First Search




Finished E

visit(E)

(E, G) (E, F) (E, D)

(F, A) (F, E) (F, D)

(A, F) (A, C) (A, B) (A, G)

Undiscovered

Marked

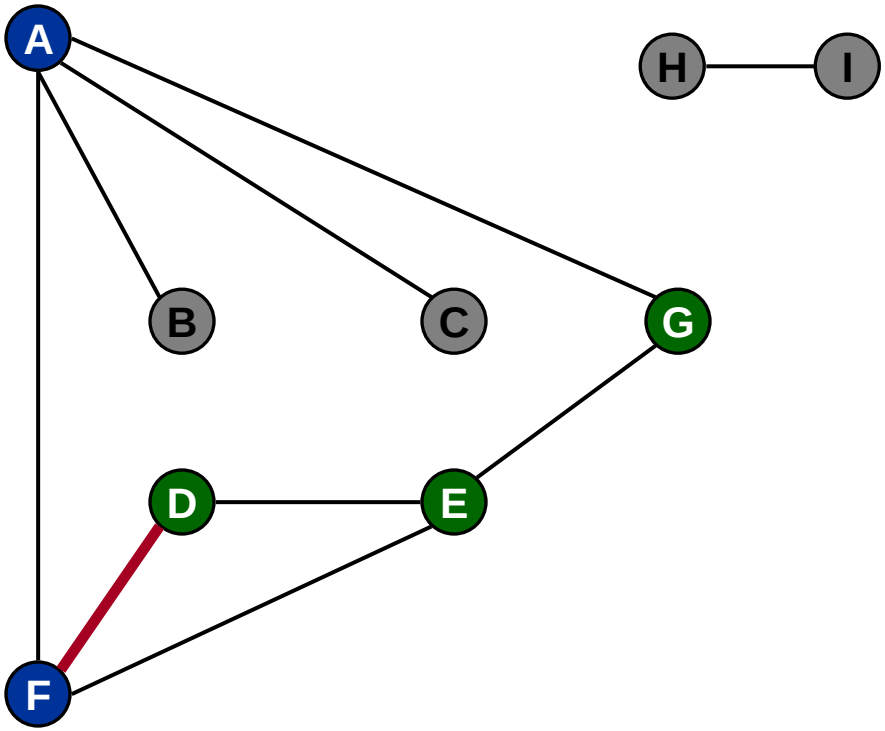
Active

Finished

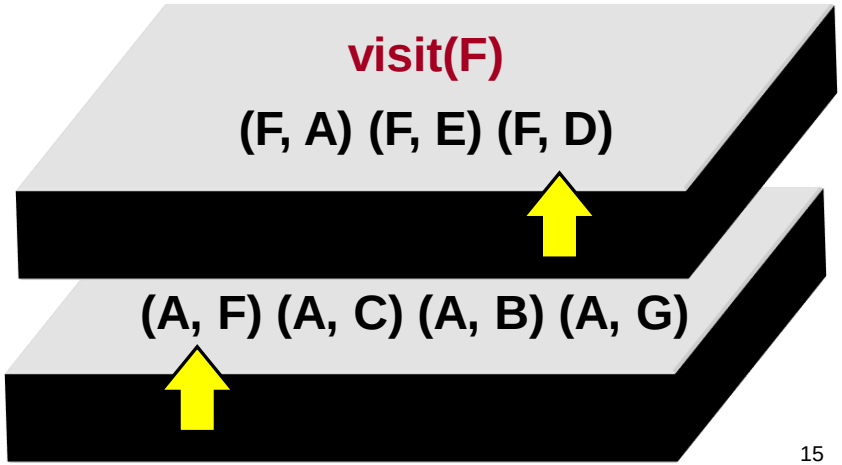
Stack

# Undirected Depth First Search

D already marked

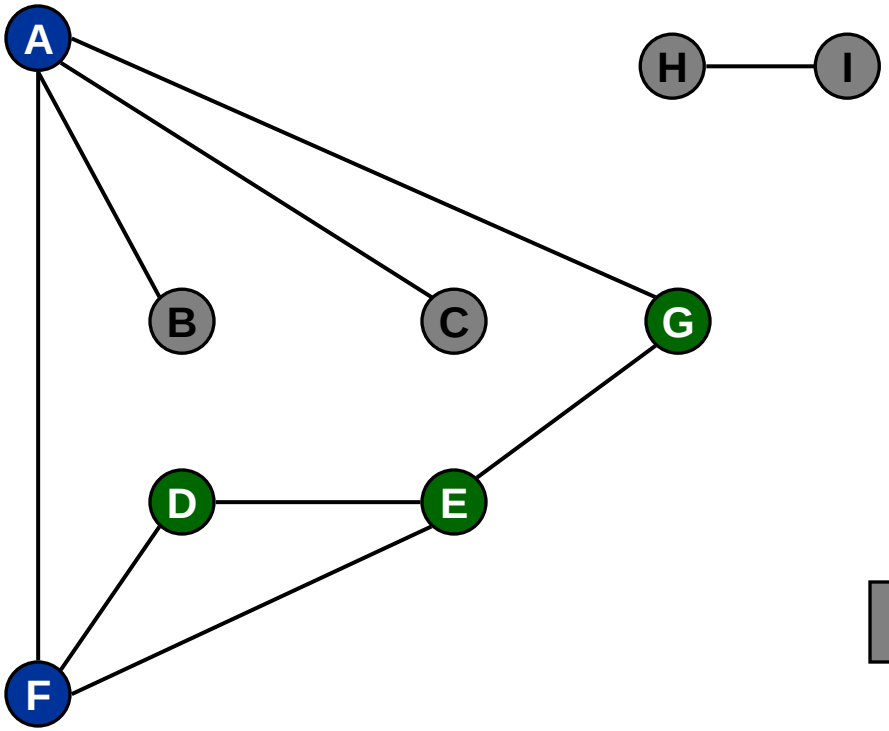



Undiscovered
Marked
Active
Finished




Stack

# Undirected Depth First Search




Finished F

visit(F)

(F, A) (F, E) (F, D)

(A, F) (A, C) (A, B) (A, G)

Stack

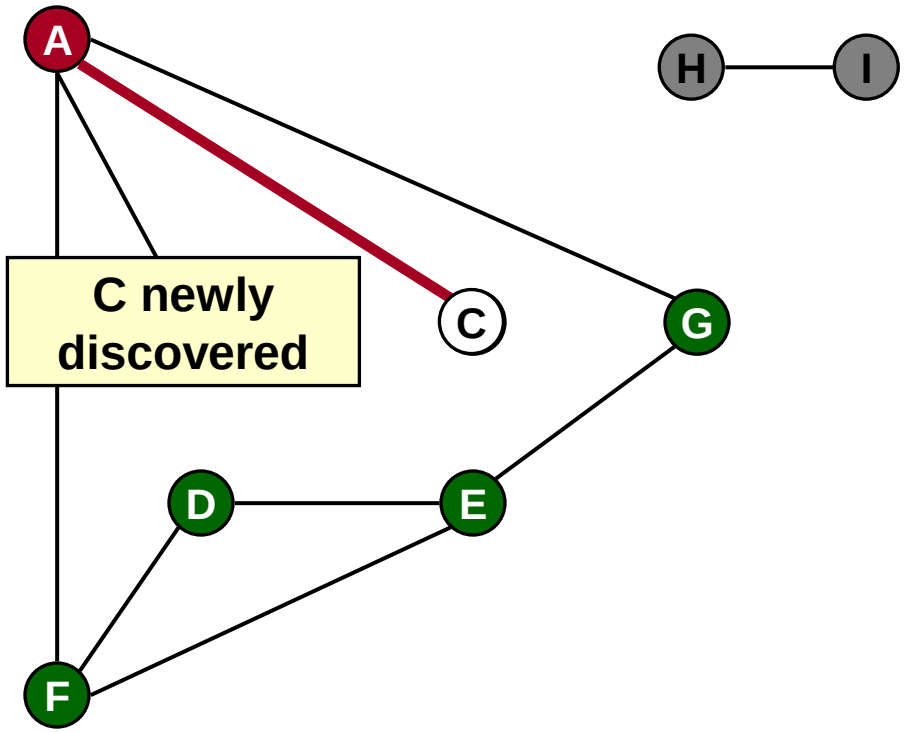
Undiscovered

Marked

Active

Finished

# Undirected Depth First Search



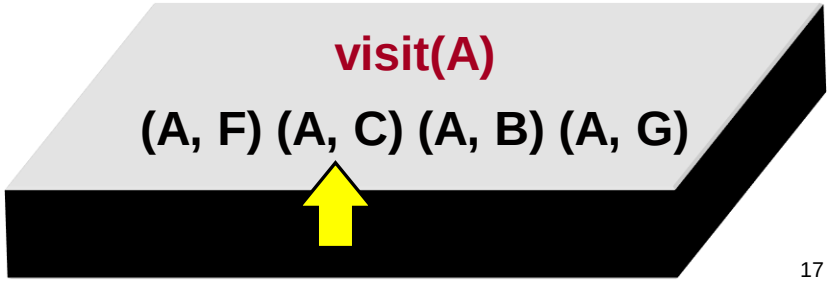

Undiscovered

Marked

Active

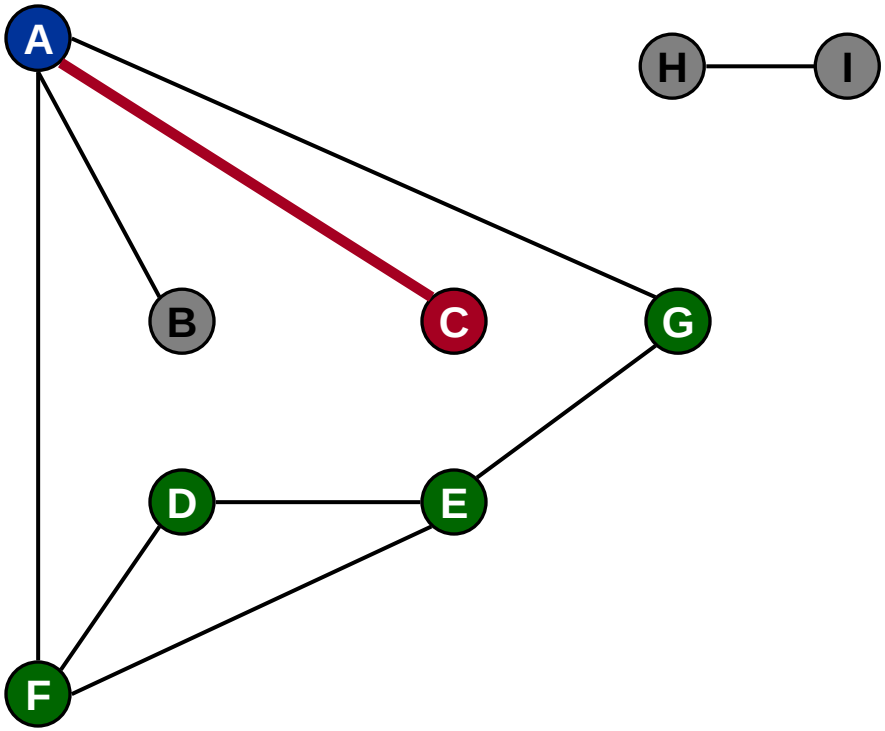
Finished

Stack



# Undirected Depth First Search

A already marked

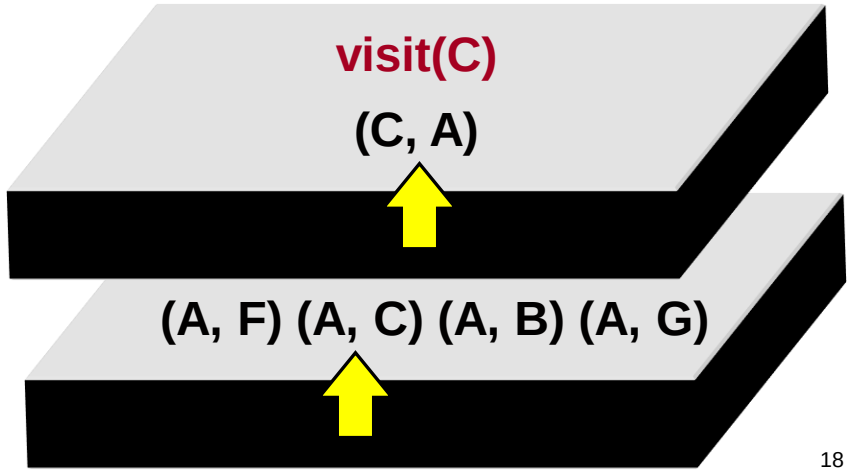



Undiscovered

Marked

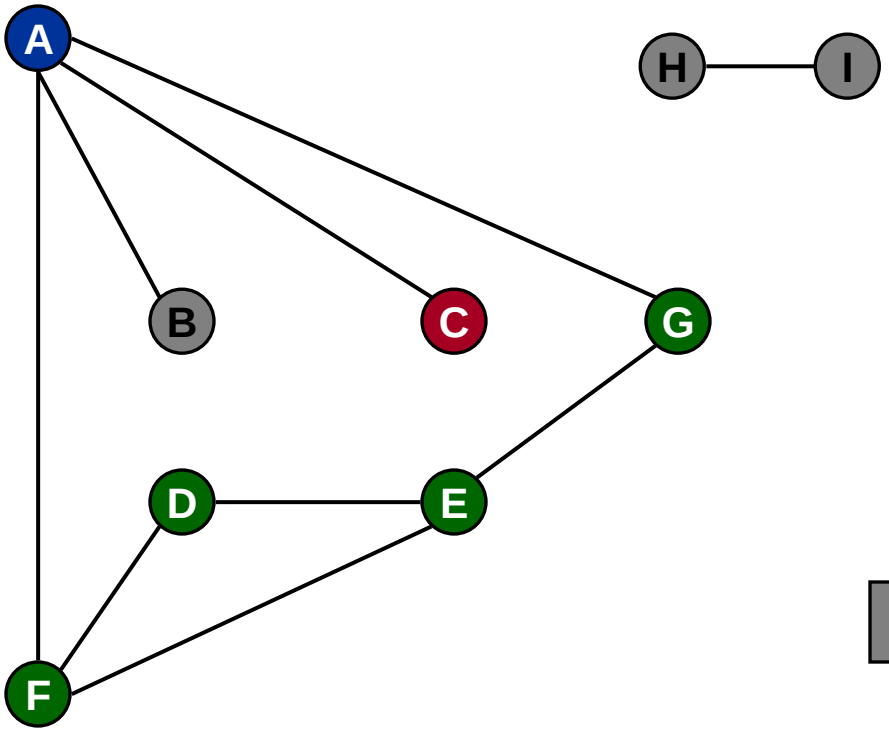
Active

Finished




Stack

# Undirected Depth First Search




Finished C

visit(C)

(C, A)

(A, F) (A, C) (A, B) (A, G)

Stack

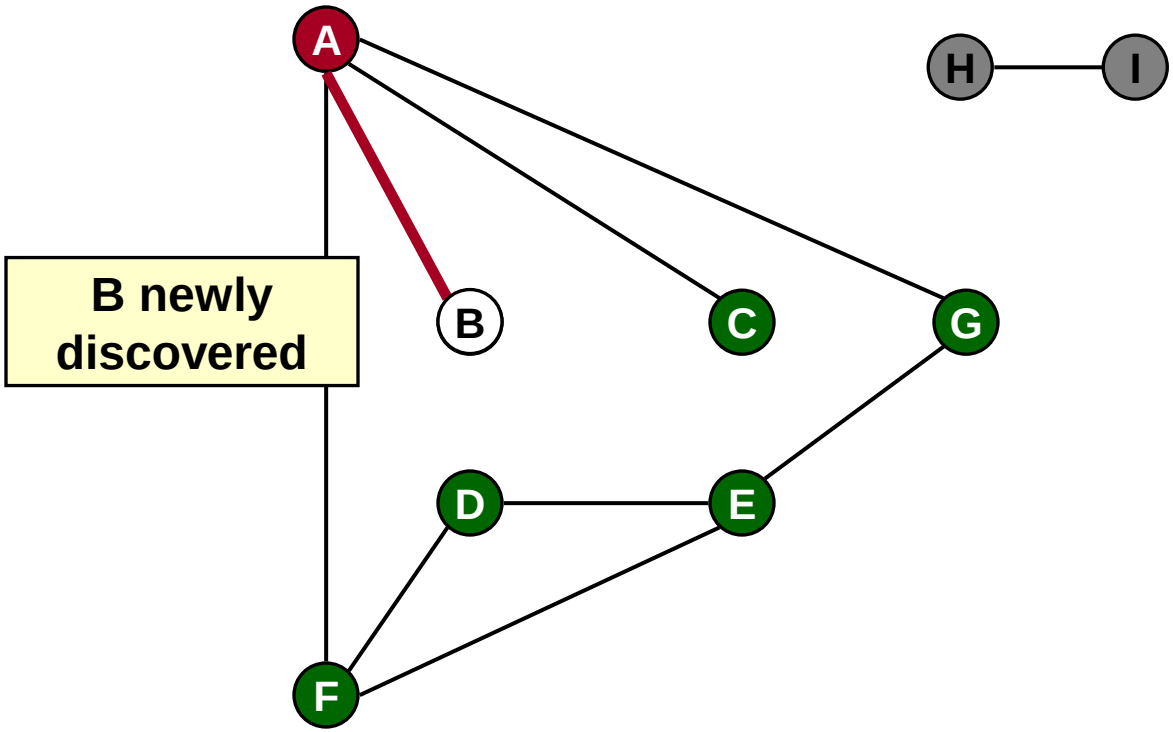
Undiscovered

Marked

Active

Finished

# Undirected Depth First Search



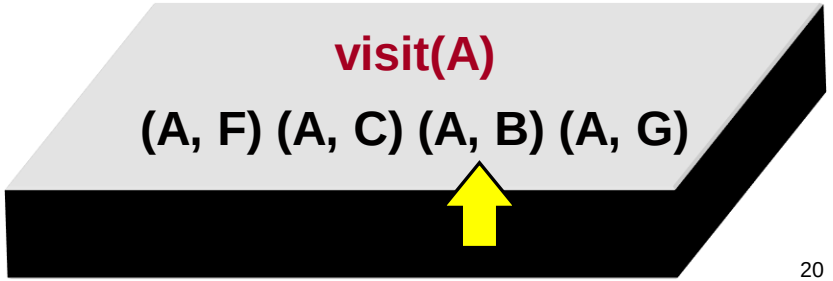

Undiscovered

Marked

Active

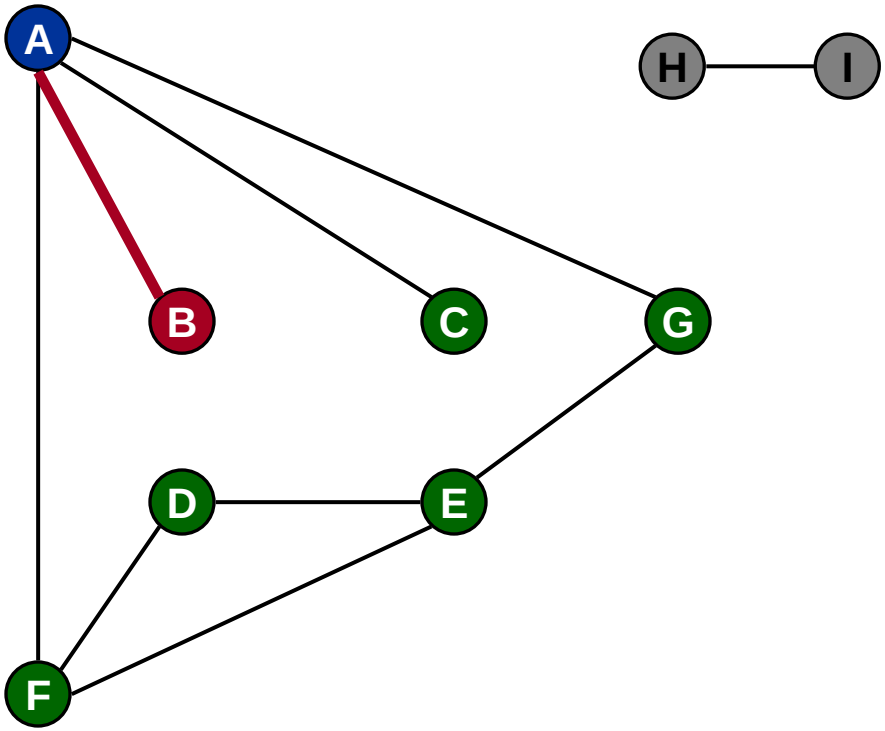
Finished

Stack

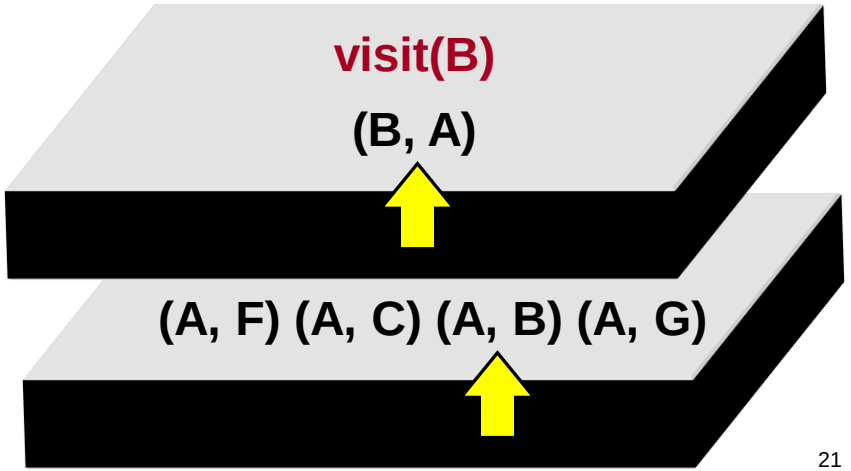


# Undirected Depth First Search

A already marked

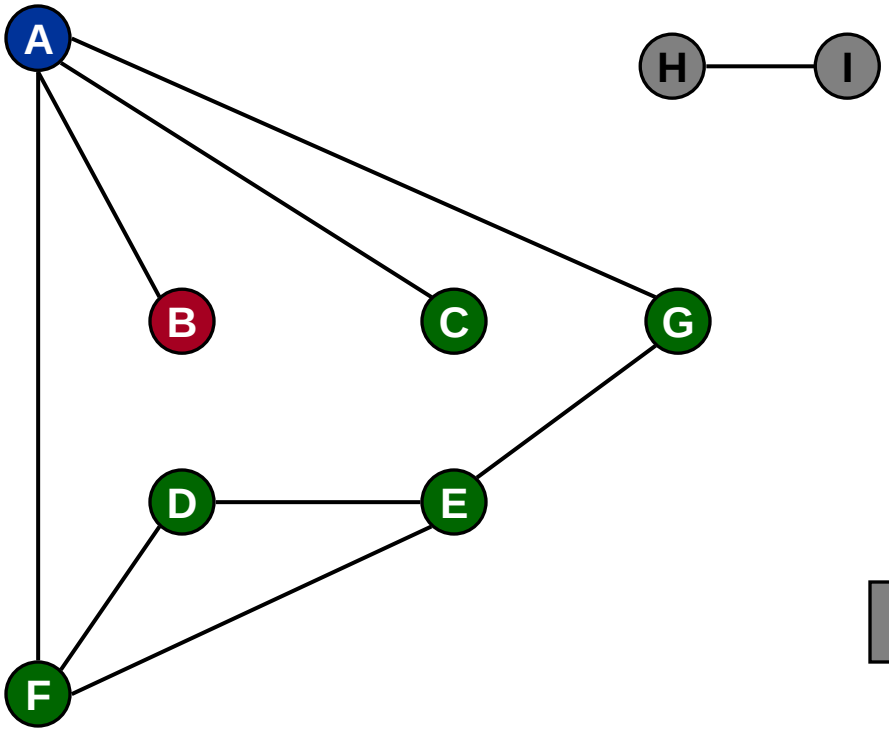



Undiscovered
Marked
Active
Finished




Stack

# Undirected Depth First Search




Finished B

visit(B)

(B, A)

(A, F) (A, C) (A, B) (A, G)

Stack

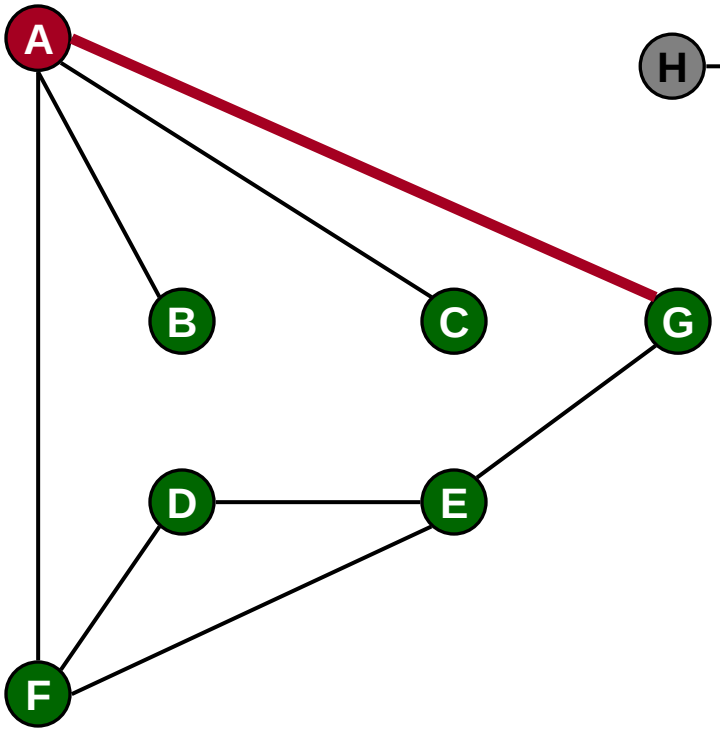
Undiscovered

Marked

Active

Finished

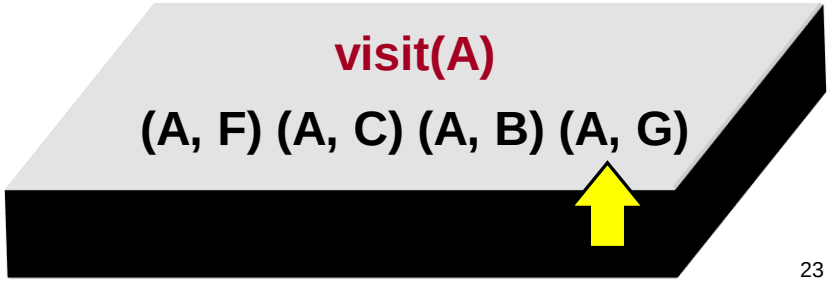
# Undirected Depth First Search



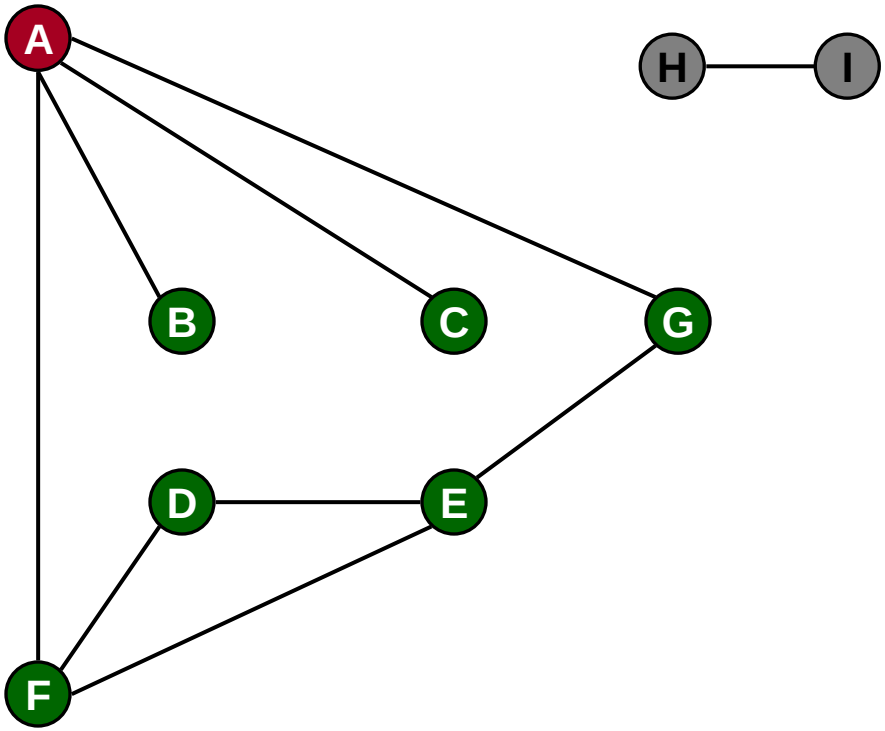

G already finished

Undiscovered
Marked
Active
Finished

Stack



# Undirected Depth First Search




Undiscovered

Marked

Active

Finished

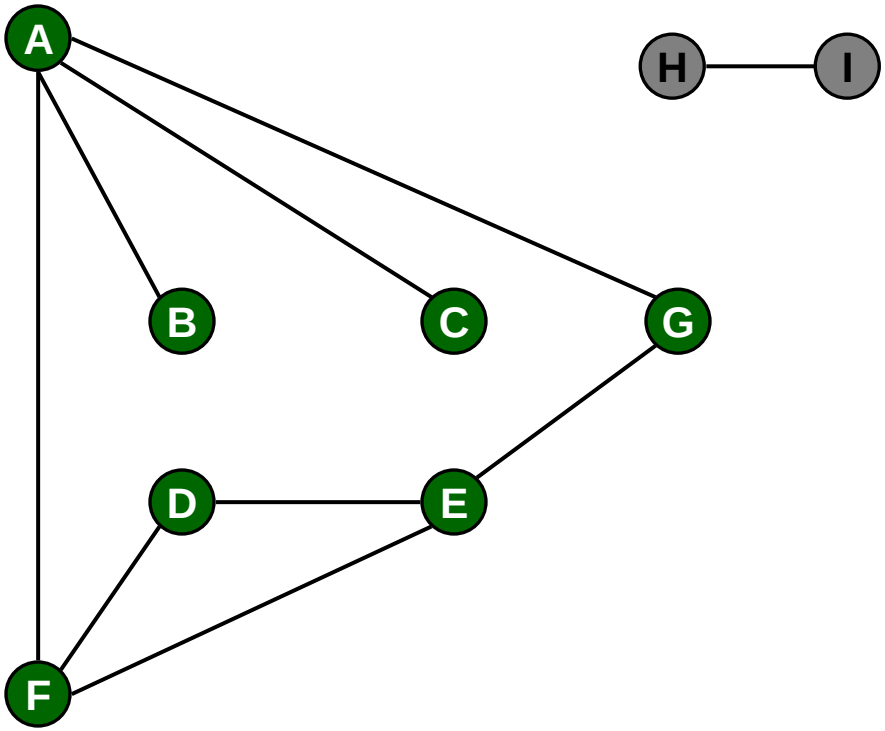
Finished A

visit(A)

(A, F) (A, C) (A, B) (A, G)

Stack

# Undirected Depth First Search




Undiscovered

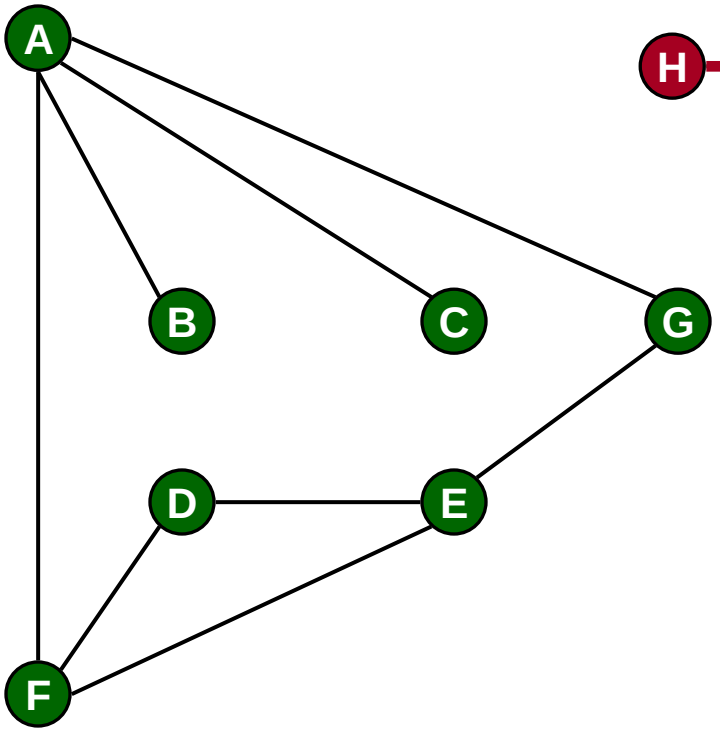
Marked

Active

Finished

**Stack**

# Undirected Depth First Search



I newly discovered

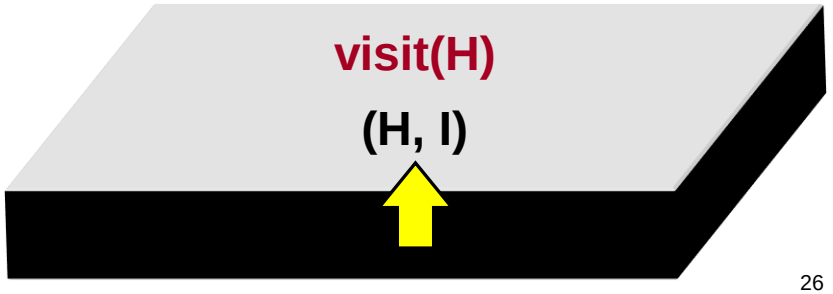
Undiscovered

Marked

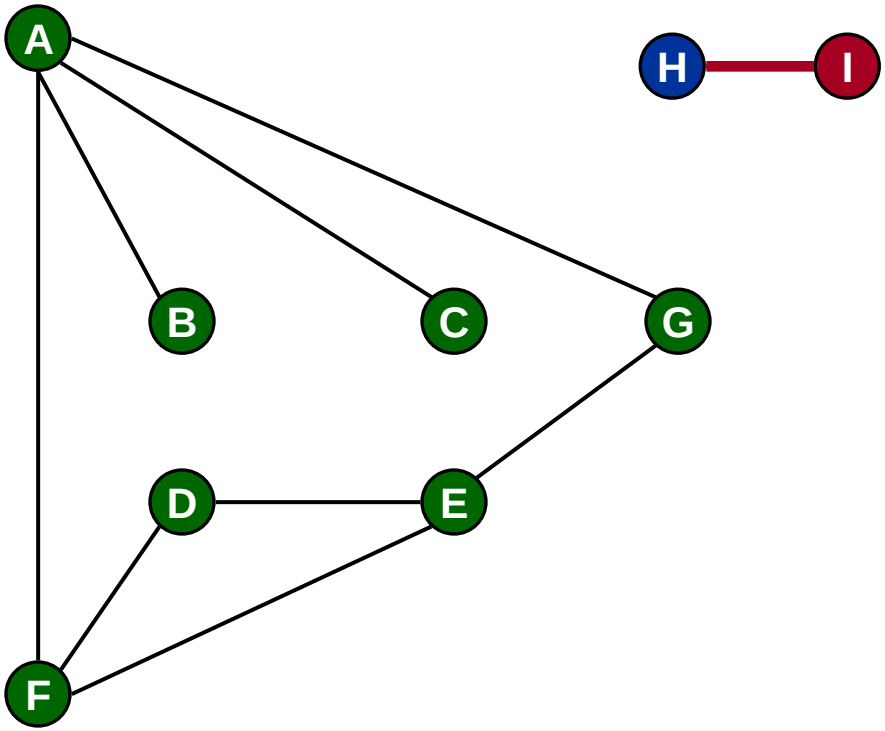
Active

Finished

Stack



# Undirected Depth First Search

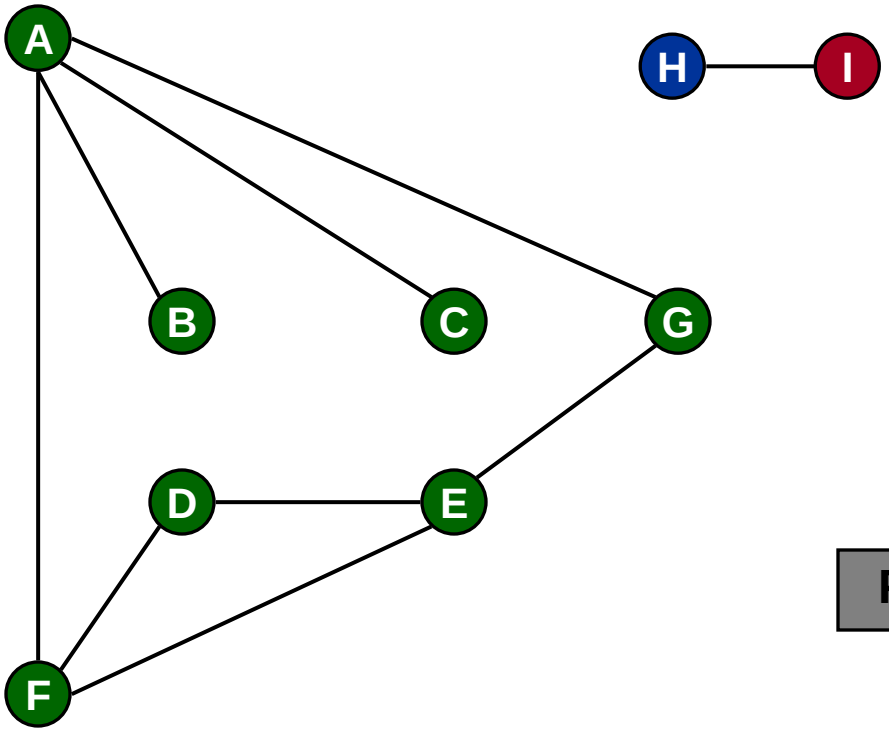



H already marked

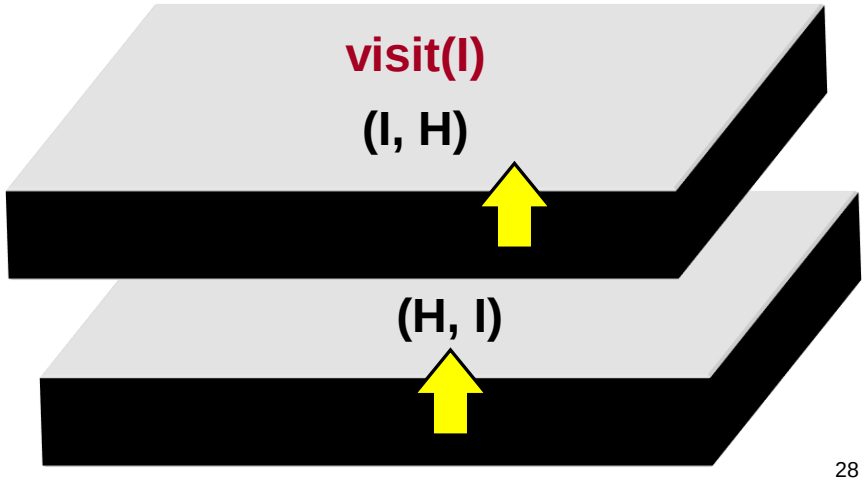
Undiscovered
Marked
Active
Finished

Stack

# Undirected Depth First Search




Finished I




Undiscovered

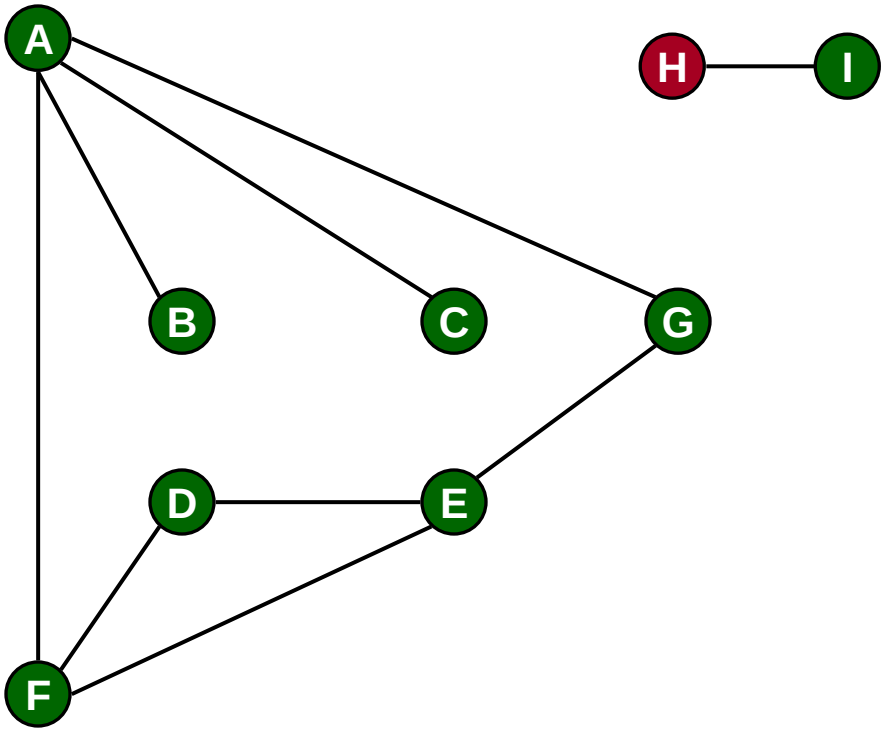
Marked

Active

Finished

Stack

# Undirected Depth First Search




Undiscovered
Marked
Active
Finished

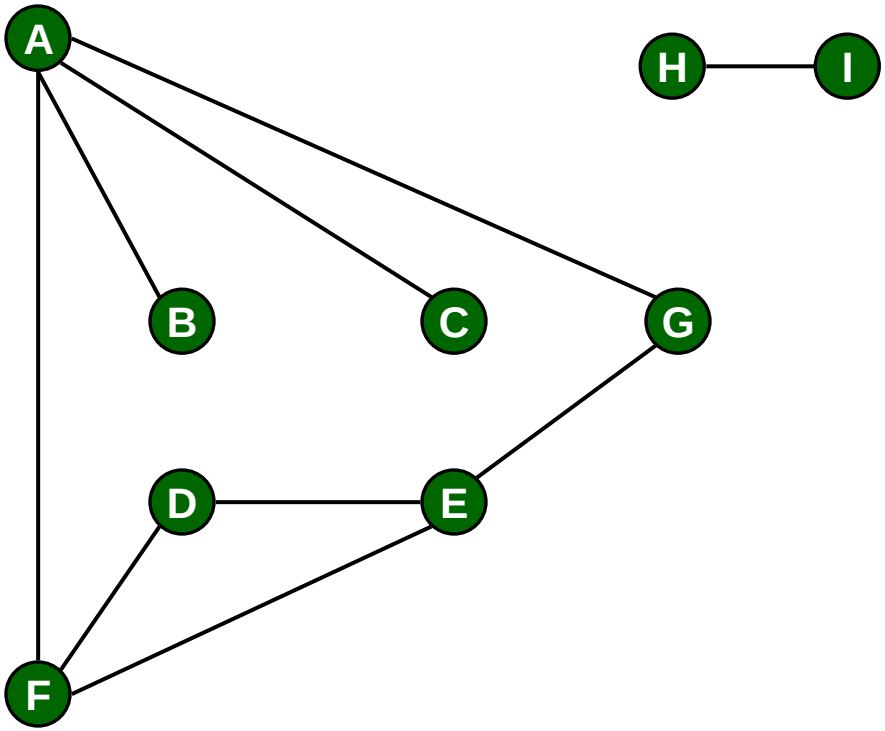
FinishedH

visit(H)

(H, I)

Stack

# Undirected Depth First Search




Undiscovered

Marked

Active

Finished

**Stack**