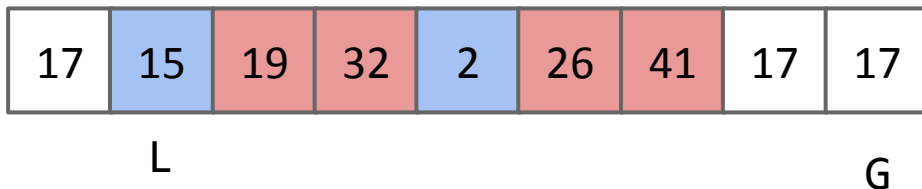


Hoare Partitioning

Create L and G pointers at left and right ends.

- L pointer is a friend to small items, and hates large or equal items.
- G pointer is a friend to large items, and hates small or equal items.
- Walk pointers towards each other, stopping on a hated item.
 - When both pointers have stopped, swap and move pointers by one.
- When pointers cross, you are done.

Input:



Hoare Partitioning

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- G pointer is a friend to large items, and hates small or equal items.
- **Walk pointers towards each other**, stopping on a hated item.
 - When both pointers have stopped, swap and move pointers by one.
- When pointers cross, you are done.

Input:

17	15	19	32	2	26	41	17	17
----	----	----	----	---	----	----	----	----

L

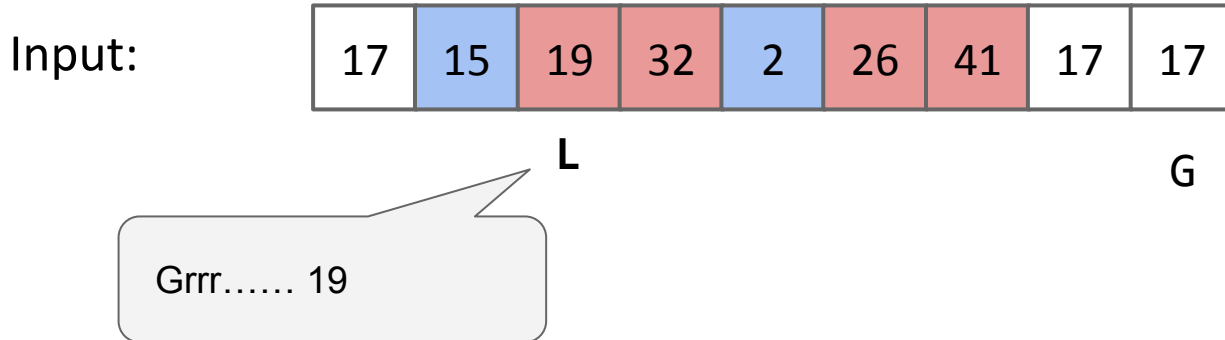
G

Hello, lovely 15.

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 - When both pointers have stopped, swap and move pointers by one.
- When pointers cross, you are done.



Hoare Partitioning

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- L pointer is a friend to small items, and hates large or equal items.
- G pointer is a friend to large items, and hates small or equal items.
- **Walk pointers towards each other, stopping on a hated item.**
 - When both pointers have stopped, swap.

Input:

17	15	19	32	2	26	41	17	17
----	----	----	----	---	----	----	----	----

L

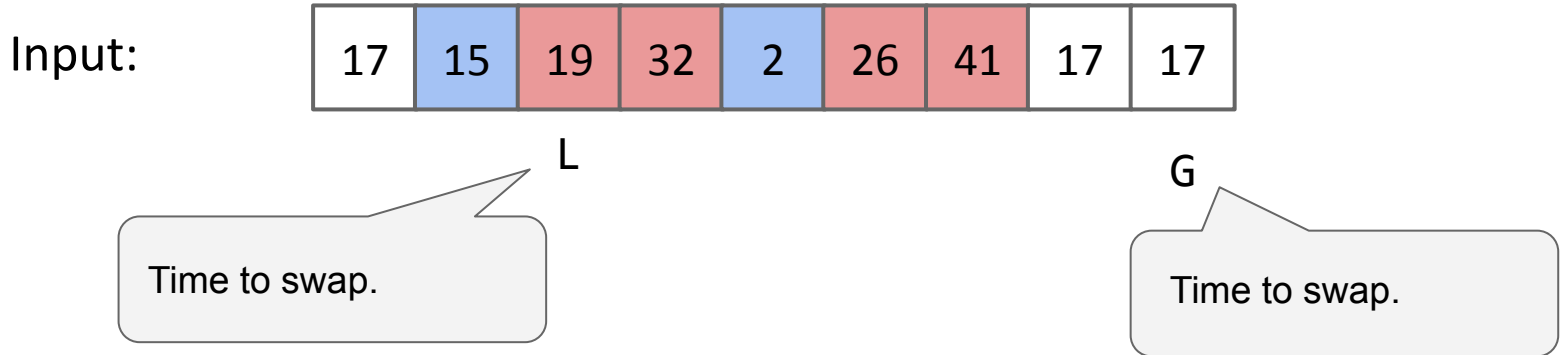
G

I dislike 17.

Hoare Partitioning

Create L and G pointers at left and right ends.

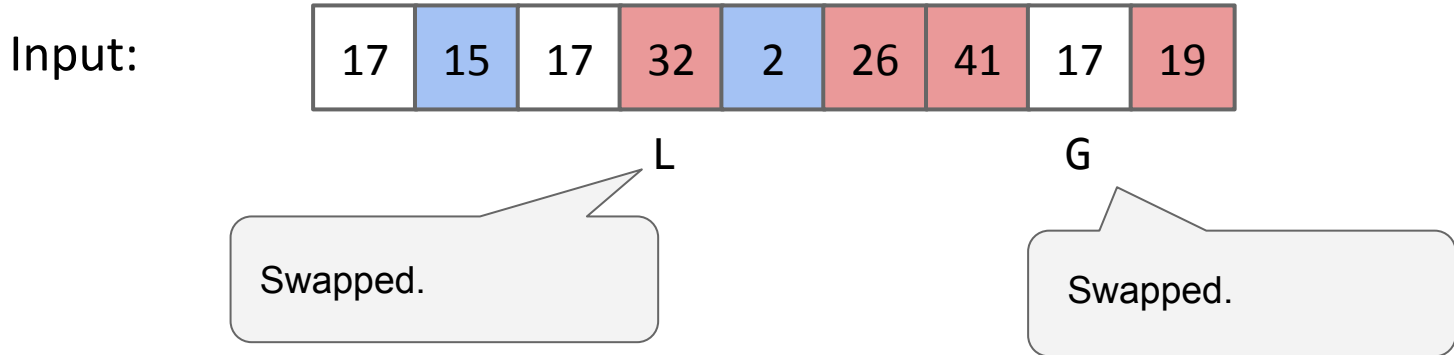
- L pointer is a friend to small items, and hates large or equal items.
- G pointer is a friend to large items, and hates small or equal items.
- Walk pointers towards each other, stopping on a hated item.
 - **When both pointers have stopped, swap and move pointers by one.**
- When pointers cross, you are done.



Hoare Partitioning

Create L and G pointers at left and right ends.

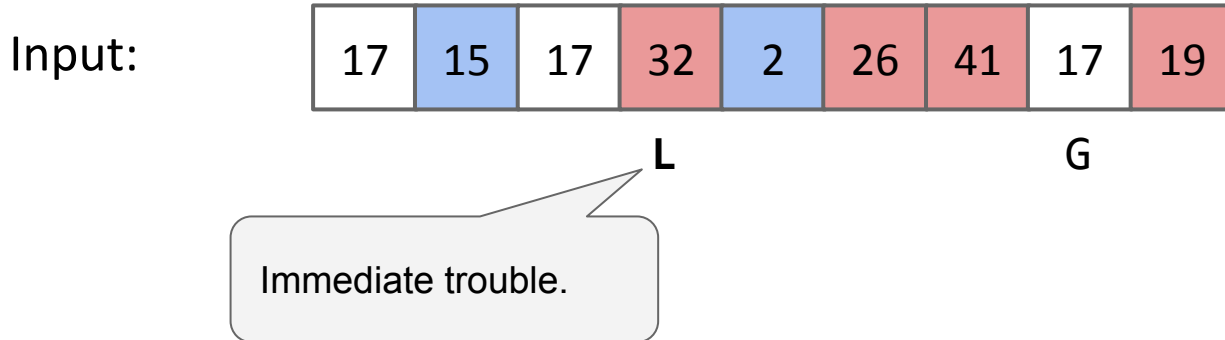
- L pointer is a friend to small items, and hates large or equal items.
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Input:

17	15	17	32	2	26	41	17	19
----	----	----	----	---	----	----	----	----

L

G

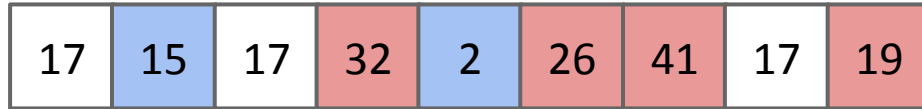
Trouble here, too.

Hoare Partitioning

Create L and G pointers at left and right ends.

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- G pointer is a friend to large items, and hates small or equal items.
- Walk pointers towards each other, stopping on a hated item.
 - **When both pointers have stopped, swap and move pointers by one.**
 - When pointers cross, you are done walking.
- Swap pivot with G.

Input:



L

G

Time to swap.

Time to swap.

Hoare Partitioning

Create L and G pointers at left and right ends.

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- G pointer is a friend to large items, and hates small or equal items.
- Walk pointers towards each other, stopping on a hated item.
 - **When both pointers have stopped, swap and move pointers by one.**
 - When pointers cross, you are done walking.
- Swap pivot with G.

Input:

17	15	17	17	2	26	41	32	19
----	----	----	----	---	----	----	----	----

L

G

Swapped!

Swapped!

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 - When both pointers have stopped, swap and move pointers by one.
 - When pointers cross, you are done walking.
- Swap pivot with G.

Input:

17	15	17	17	2	26	41	32	19
----	----	----	----	---	----	----	----	----

L

G

2 is cool.

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 - When both pointers have stopped, swap and move pointers by one.
 - When pointers cross, you are done walking.
- Swap pivot with G.

Input:

17	15	17	17	2	26	41	32	19
----	----	----	----	---	----	----	----	----

L G

26 is grossly large.

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 - When both pointers have stopped, swap and move pointers by one.
 - When pointers cross, you are done walking.
- Swap pivot with G.

Input:

17	15	17	17	2	26	41	32	19
----	----	----	----	---	----	----	----	----

L

G

41 is fine.

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 - When both pointers have stopped, swap and move pointers by one.
 - When pointers cross, you are done walking.
- Swap pivot with G.

Input:

17	15	17	17	2	26	41	32	19
----	----	----	----	---	----	----	----	----

L

G

26 is fine.

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 - When pointers cross, you are done walking.
- Swap pivot with G.

Input:

17	15	17	17	2	26	41	32	19
----	----	----	----	---	----	----	----	----

G **L**

2 is no good...
also hi L!!

Hoare Partitioning

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Input:

17	15	17	17	2	26	41	32	19
----	----	----	----	---	----	----	----	----

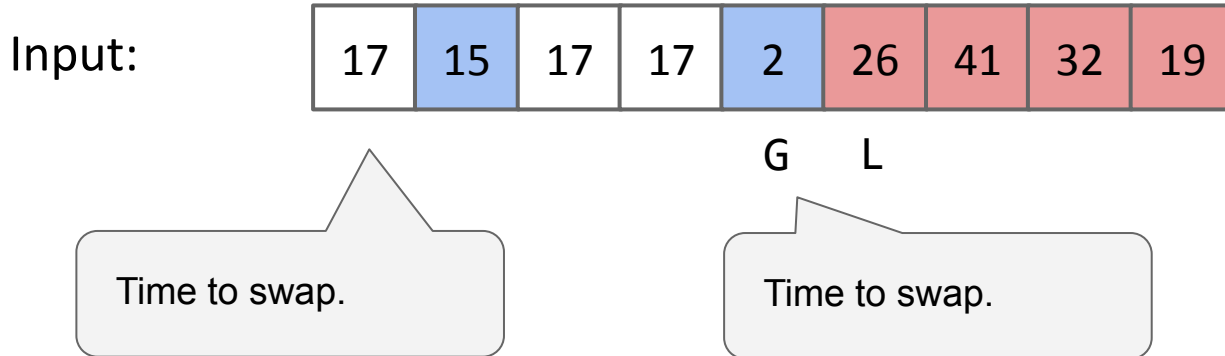
G L

2 is no good...
also hi L!!

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- **Swap pivot with G.**



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