## Merging

Merge.

- Keep track of smallest element in each sorted half.
- Insert smallest of two elements into auxiliary array.
- Repeat until done.

smallest
$\square$
$\square$

I




## Merging

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- Repeat until done.


| $\mathbf{H}$ | $\mathbf{I}$ | $\mathbf{M}$ | $\mathbf{S}$ | $\mathbf{T}$ |
| :--- | :--- | :--- | :--- | :--- |


| A | $\mathbf{G}$ | $\mathbf{H}$ | $\mathbf{I}$ | $\mathbf{L}$ | $\mathbf{M}$ |
| :--- | :--- | :--- | :--- | :--- | :--- |

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auxiliary array


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| $\mathbf{A}$ | $\mathbf{G}$ | $\mathbf{H}$ | $\mathbf{I}$ | $\mathbf{L}$ | $\mathbf{M}$ | $\mathbf{O}$ | $\mathbf{R}$ |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |

## Merging

Merge.

- Keep track of smallest element in each sorted half.
- Insert smallest of two elements into auxiliary array.
- Repeat until done.


| $\mathbf{A}$ | $\mathbf{G}$ | $\mathbf{H}$ | $\mathbf{I}$ | $\mathbf{L}$ | $\mathbf{M}$ | $\mathbf{O}$ | $\mathbf{R}$ | $\mathbf{S}$ |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
|  | auxiliary array |  |  |  |  |  |  |  |  |

## Merging

Merge.

- Keep track of smallest element in each sorted half.
- Insert smallest of two elements into auxiliary array.
- Repeat until done.


| $\mathbf{A}$ | $\mathbf{G}$ | $\mathbf{H}$ | $\mathbf{I}$ | $\mathbf{L}$ | $\mathbf{M}$ | $\mathbf{O}$ | $\mathbf{R}$ | $\mathbf{S}$ | $\mathbf{T}$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |

## Merging

Merge.

- Keep track of smallest element in each sorted half.
- Insert smallest of two elements into auxiliary array.
- Repeat until done.
first half exhausted
second half exhausted


| $\mathbf{A}$ | $\mathbf{G}$ | $\mathbf{L}$ | $\mathbf{0}$ | $\mathbf{R}$ |
| :--- | :--- | :--- | :--- | :--- |

$\square$

| $\mathbf{A}$ | $\mathbf{G}$ | $\mathbf{H}$ | $\mathbf{I}$ | $\mathbf{L}$ | $\mathbf{M}$ | $\mathbf{0}$ | $\mathbf{R}$ | $\mathbf{S}$ | $\mathbf{T}$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | auxiliary array

