

Mergesort: sort a collection of given integers in increasing order

Example: { 4, 7, 2, 3, 0, 1, 9, 11, 5, 12, 13, 6, 15, 8, 10, 14 }

sorts to

{ 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15 }

Merge: given two lists of numbers in increasing order, produce a list of numbers in increasing order which contains all the numbers of the given lists.

Merge: given two lists of numbers in increasing order, produce a list of numbers in increasing order which contains all the numbers of the given lists.

3, 5, 7, 11, 16, 24

1, 2, 6, 10, 12, 16, 32, 36

Merge: given two lists of numbers in increasing order, produce a list of numbers in increasing order which contains all the numbers of the given lists.



3, 5, 7, 11, 16, 24

1, 2, 6, 10, 12, 16, 32, 36



Merge: given two lists of numbers in increasing order, produce a list of numbers in increasing order which contains all the numbers of the given lists.



3, 5, 7, 11, 16, 24

1, 2, 6, 10, 12, 16, 32, 36



1,

Merge: given two lists of numbers in increasing order, produce a list of numbers in increasing order which contains all the numbers of the given lists.



3, 5, 7, 11, 16, 24

1, 2, 6, 10, 12, 16, 32, 36



1, 2,

Merge: given two lists of numbers in increasing order, produce a list of numbers in increasing order which contains all the numbers of the given lists.

↓
3, 5, 7, 11, 16, 24

1, 2, 6, 10, 12, 16, 32, 36
↑

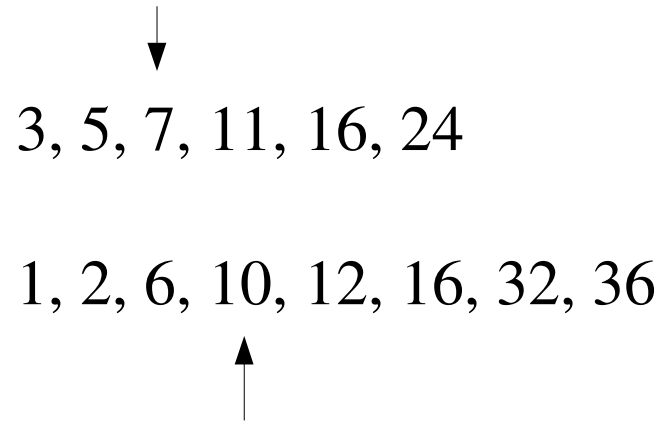
1, 2, 3,

Merge: given two lists of numbers in increasing order, produce a list of numbers in increasing order which contains all the numbers of the given lists.

↓
3, 5, 7, 11, 16, 24
1, 2, 6, 10, 12, 16, 32, 36
↑

1, 2, 3, 5,

Merge: given two lists of numbers in increasing order, produce a list of numbers in increasing order which contains all the numbers of the given lists.



1, 2, 3, 5, 6,

Merge: given two lists of numbers in increasing order, produce a list of numbers in increasing order which contains all the numbers of the given lists.

↓
3, 5, 7, 11, 16, 24

1, 2, 6, 10, 12, 16, 32, 36
↑

1, 2, 3, 5, 6, 7,

Merge: given two lists of numbers in increasing order, produce a list of numbers in increasing order which contains all the numbers of the given lists.

↓
3, 5, 7, 11, 16, 24

1, 2, 6, 10, 12, 16, 32, 36
↑

1, 2, 3, 5, 6, 7, 10,

Merge: given two lists of numbers in increasing order, produce a list of numbers in increasing order which contains all the numbers of the given lists.

↓
3, 5, 7, 11, 16, 24

1, 2, 6, 10, 12, 16, 32, 36
↑

1, 2, 3, 5, 6, 7, 10, 11,

Merge: given two lists of numbers in increasing order, produce a list of numbers in increasing order which contains all the numbers of the given lists.

↓

3, 5, 7, 11, 16, 24

1, 2, 6, 10, 12, 16, 32, 36

↑

1, 2, 3, 5, 6, 7, 10, 11, 12,

Merge: given two lists of numbers in increasing order, produce a list of numbers in increasing order which contains all the numbers of the given lists.

↓

3, 5, 7, 11, 16, 24

1, 2, 6, 10, 12, 16, 32, 36

↑

1, 2, 3, 5, 6, 7, 10, 11, 12, 16,

Merge: given two lists of numbers in increasing order, produce a list of numbers in increasing order which contains all the numbers of the given lists.

↓
3, 5, 7, 11, 16, 24

1, 2, 6, 10, 12, 16, 32, 36
↑

1, 2, 3, 5, 6, 7, 10, 11, 12, 16, 16,

Merge: given two lists of numbers in increasing order, produce a list of numbers in increasing order which contains all the numbers of the given lists.

3, 5, 7, 11, 16, 24
↓
1, 2, 6, 10, 12, 16, 32, 36
↑

1, 2, 3, 5, 6, 7, 10, 11, 12, 16, 16, 24,

Merge: given two lists of numbers in increasing order, produce a list of numbers in increasing order which contains all the numbers of the given lists.

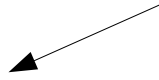
3, 5, 7, 11, 16, 24

1, 2, 6, 10, 12, 16, 32, 36

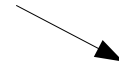
1, 2, 3, 5, 6, 7, 10, 11, 12, 16, 16, 24, 32, 36

{ 4, 7, 2, 3, 0, 1, 9, 11, 5, 12, 13, 6, 15, 8, 10, 14 }

{ 4, 7, 2, 3, 0, 1, 9, 11, 5, 12, 13, 6, 15, 8, 10, 14 }

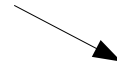
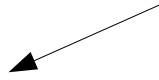


{ 4, 7, 2, 3, 0, 1, 9, 11 }



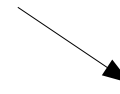
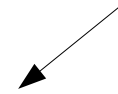
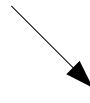
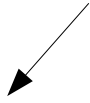
{ 5, 12, 13, 6, 15, 8, 10, 14 }

{ 4, 7, 2, 3, 0, 1, 9, 11, 5, 12, 13, 6, 15, 8, 10, 14 }



{ 4, 7, 2, 3, 0, 1, 9, 11 }

{ 5, 12, 13, 6, 15, 8, 10, 14 }



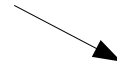
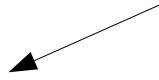
{ 4, 7, 2, 3 }

{ 0, 1, 9, 11 }

{ 5, 12, 13, 6 }

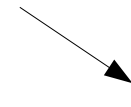
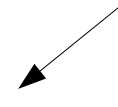
{ 15, 8, 10, 14 }

{ 4, 7, 2, 3, 0, 1, 9, 11, 5, 12, 13, 6, 15, 8, 10, 14 }



{ 4, 7, 2, 3, 0, 1, 9, 11 }

{ 5, 12, 13, 6, 15, 8, 10, 14 }

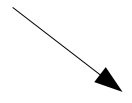
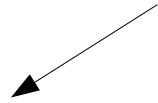


{ 4, 7, 2, 3 }

{ 0, 1, 9, 11 }

{ 5, 12, 13, 6 }

{ 15, 8, 10, 14 }



{ 4, 7 }

{ 2, 3 }

{ 0, 1 }

{ 9, 11 }

{ 5, 12 }

{ 13, 6 }

{ 15, 8 }

{ 10, 14 }

{ 4, 7, 2, 3, 0, 1, 9, 11, 5, 12, 13, 6, 15, 8, 10, 14 }

{ 4, 7, 2, 3, 0, 1, 9, 11 }

{ 5, 12, 13, 6, 15, 8, 10, 14 }

{ 4, 7, 2, 3 }

{ 0, 1, 9, 11 }

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{ 4, 7 } { 2, 3 } { 0, 1 } { 9, 11 } { 5, 12 } { 13, 6 } { 15, 8 } { 10, 14 }

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{ 4, 7 } { 2, 3 } { 0, 1 } { 9, 11 } { 5, 12 } { 13, 6 } { 15, 8 } { 10, 14 }

{ 4, 7 } { 2, 3 } { 0, 1 } { 9, 11 } { 5, 12 } { 6, 13 } { 8, 15 } { 10, 14 }

{ 2, 3, 4, 7 }

{ 0, 1, 9, 11 }

{ 5, 6, 12, 13 }

{ 8, 10, 14, 15 }

{ 4, 7, 2, 3, 0, 1, 9, 11, 5, 12, 13, 6, 15, 8, 10, 14 }

{ 4, 7, 2, 3, 0, 1, 9, 11 }

{ 5, 12, 13, 6, 15, 8, 10, 14 }

{ 4, 7, 2, 3 }

{ 0, 1, 9, 11 }

{ 5, 12, 13, 6 }

{ 15, 8, 10, 14 }

{ 4, 7 } { 2, 3 } { 0, 1 } { 9, 11 } { 5, 12 } { 13, 6 } { 15, 8 } { 10, 14 }

{ 4, 7 } { 2, 3 } { 0, 1 } { 9, 11 } { 5, 12 } { 6, 13 } { 8, 15 } { 10, 14 }

{ 2, 3, 4, 7 }

{ 0, 1, 9, 11 }

{ 5, 6, 12, 13 }

{ 8, 10, 14, 15 }

{ 0, 1, 2, 3, 4, 7, 9, 11 }

{ 5, 6, 8, 10, 12, 13, 14, 15 }

{ 4, 7, 2, 3, 0, 1, 9, 11, 5, 12, 13, 6, 15, 8, 10, 14 }

{ 4, 7, 2, 3, 0, 1, 9, 11 }

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{ 4, 7 } { 2, 3 } { 0, 1 } { 9, 11 } { 5, 12 } { 6, 13 } { 8, 15 } { 10, 14 }

{ 2, 3, 4, 7 }

{ 0, 1, 9, 11 }

{ 5, 6, 12, 13 }

{ 8, 10, 14, 15 }

{ 0, 1, 2, 3, 4, 7, 9, 11 }

{ 5, 6, 8, 10, 12, 13, 14, 15 }

{ 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15 }