

Counting Sort

Example:

- Alphabet: {♣, ♠, ♥, ♦}

♠	Lauren
♥	Delbert
♦	Glaser
♣	Edith
♠	JS
♦	Sandra
♥	Swimp
♥	James
♣	Lee
♥	Dave
♣	Bearman
♦	Lisa

Counting Sort

Example:

- Alphabet: {♣, ♠, ♥, ♦}

♠	Lauren
♥	Delbert
♦	Glaser
♣	Edith
♠	JS
♦	Sandra
♥	Swimp
♥	James
♣	Lee
♥	Dave
♣	Bearman
♦	Lisa



0	♣	3
1	♠	2
2	♥	4
3	♦	3

Counts

Counting Sort

Example:

- Alphabet: {♣, ♠, ♥, ♦}

♠	Lauren
♥	Delbert
♦	Glaser
♣	Edith
♠	JS
♦	Sandra
♥	Swimp
♥	James
♣	Lee
♥	Dave
♣	Bearman
♦	Lisa

0	♣	3
1	♠	2
2	♥	4
3	♦	3
Counts		

0	♣	0
1	♠	3
2	♥	5
3	♦	9
Starting Points		

Counting Sort

Example:

- Alphabet: {♣, ♠, ♥, ♦}

♠	Lauren
♥	Delbert
♦	Glaser
♣	Edith
♠	JS
♦	Sandra
♥	Swimp
♥	James
♣	Lee
♥	Dave
♣	Bearman
♦	Lisa

0	♣	3
1	♠	2
2	♥	4
3	♦	3

Counts

0	♣	0
1	♠	3
2	♥	5
3	♦	9

Starting Points

0		
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		

Sorted

Counting Sort

Example:

- Alphabet: {♣, ♠, ♥, ♦}

♠	Lauren
♥	Delbert
♦	Glaser
♣	Edith
♠	JS
♦	Sandra
♥	Swimp
♥	James
♣	Lee
♥	Dave
♣	Bearman
♦	Lisa

0	♣	3
1	♠	2
2	♥	4
3	♦	3

Counts

0	♣	0
1	♠	4
2	♥	5
3	♦	9

Starting Points

0		
1		
2		
3	♠	Lauren
4		
5		
6		
7		
8		
9		
10		
11		

Sorted

Counting Sort

Example:

- Alphabet: {♣, ♠, ♥, ♦}

♠	Lauren
♥	Delbert
♦	Glaser
♣	Edith
♠	JS
♦	Sandra
♥	Swimp
♥	James
♣	Lee
♥	Dave
♣	Bearman
♦	Lisa

0	♣	3
1	♠	2
2	♥	4
3	♦	3

Counts

0	♣	0
1	♠	4
2	♥	6
3	♦	9

Starting Points

0		
1		
2		
3	♠	Lauren
4		
5	♥	Delbert
6		
7		
8		
9		
10		
11		

Sorted

Counting Sort

Example:

- Alphabet: {♣, ♠, ♥, ♦}

♠	Lauren
♥	Delbert
♦	Glaser
♣	Edith
♠	JS
♦	Sandra
♥	Swimp
♥	James
♣	Lee
♥	Dave
♣	Bearman
♦	Lisa

0	♣	3
1	♠	2
2	♥	4
3	♦	3

Counts

0	♣	0
1	♠	4
2	♥	6
3	♦	10

Starting Points

0		
1		
2		
3	♠	Lauren
4		
5	♥	Delbert
6		
7		
8		
9	♦	Glaser
10		
11		

Sorted

Counting Sort

Example:

- Alphabet: {♣, ♠, ♥, ♦}

♠	Lauren
♥	Delbert
♦	Glaser
♣	Edith
♠	JS
♦	Sandra
♥	Swimp
♥	James
♣	Lee
♥	Dave
♣	Bearman
♦	Lisa

0	♣	3
1	♠	2
2	♥	4
3	♦	3

Counts

0	♣	1
1	♠	4
2	♥	6
3	♦	10

Starting Points

0	♣	Edith
1		
2		
3	♠	Lauren
4		
5	♥	Delbert
6		
7		
8		
9	♦	Glaser
10		
11		

Sorted

Counting Sort

Example:

- Alphabet: {♣, ♠, ♥, ♦}

♠	Lauren
♥	Delbert
♦	Glaser
♣	Edith
♠	JS
♦	Sandra
♥	Swimp
♥	James
♣	Lee
♥	Dave
♣	Bearman
♦	Lisa

0	♣	3
1	♠	2
2	♥	4
3	♦	3

Counts

0	♣	1
1	♠	5
2	♥	6
3	♦	10

Starting Points

0	♣	Edith
1		
2		
3	♠	Lauren
4	♠	JS
5	♥	Delbert
6		
7		
8		
9	♦	Glaser
10		
11		

Sorted

Counting Sort

Example:

- Alphabet: {♣, ♠, ♥, ♦}

♠	Lauren
♥	Delbert
♦	Glaser
♣	Edith
♠	JS
♦	Sandra
♥	Swimp
♥	James
♣	Lee
♥	Dave
♣	Bearman
♦	Lisa

0	♣	3
1	♠	2
2	♥	4
3	♦	3

Counts

0	♣	1
1	♠	5
2	♥	6
3	♦	11

Starting Points

0	♣	Edith
1		
2		
3	♠	Lauren
4	♠	JS
5	♥	Delbert
6		
7		
8		
9	♦	Glaser
10	♦	Sandra
11		

Sorted

Counting Sort

Example:

- Alphabet: {♣, ♠, ♥, ♦}

♠	Lauren
♥	Delbert
♦	Glaser
♣	Edith
♠	JS
♦	Sandra
♥	Swimp
♥	James
♣	Lee
♥	Dave
♣	Bearman
♦	Lisa

0	♣	3
1	♠	2
2	♥	4
3	♦	3

Counts

0	♣	1
1	♠	5
2	♥	7
3	♦	11

Starting Points

0	♣	Edith
1		
2		
3	♠	Lauren
4	♠	JS
5	♥	Delbert
6	♥	Swimp
7		
8		
9	♦	Glaser
10	♦	Sandra
11		

Sorted

Counting Sort

Example:

- Alphabet: {♣, ♠, ♥, ♦}

♠	Lauren
♥	Delbert
♦	Glaser
♣	Edith
♠	JS
♦	Sandra
♥	Swimp
♥	James
♣	Lee
♥	Dave
♣	Bearman
♦	Lisa

0	♣	3
1	♠	2
2	♥	4
3	♦	3

Counts

0	♣	1
1	♠	5
2	♥	8
3	♦	11

Starting Points

0	♣	Edith
1		
2		
3	♠	Lauren
4	♠	JS
5	♥	Delbert
6	♥	Swimp
7	♥	James
8		
9	♦	Glaser
10	♦	Sandra
11		

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Example:

- Alphabet: {♣, ♠, ♥, ♦}

♠	Lauren
♥	Delbert
♦	Glaser
♣	Edith
♠	JS
♦	Sandra
♥	Swimp
♥	James
♣	Lee
♥	Dave
♣	Bearman
♦	Lisa

0	♣	3
1	♠	2
2	♥	4
3	♦	3

Counts

0	♣	2
1	♠	5
2	♥	8
3	♦	11

Starting Points

0	♣	Edith
1	♣	Lee
2		
3	♠	Lauren
4	♠	JS
5	♥	Delbert
6	♥	Swimp
7	♥	James
8		
9	♦	Glaser
10	♦	Sandra
11		

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Example:

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♠	Lauren
♥	Delbert
♦	Glaser
♣	Edith
♠	JS
♦	Sandra
♥	Swimp
♥	James
♣	Lee
♥	Dave
♣	Bearman
♦	Lisa

0	♣	3
1	♠	2
2	♥	4
3	♦	3

Counts

0	♣	2
1	♠	5
2	♥	9
3	♦	11

Starting Points

0	♣	Edith
1	♣	Lee
2		
3	♠	Lauren
4	♠	JS
5	♥	Delbert
6	♥	Swimp
7	♥	James
8	♥	Dave
9	♦	Glaser
10	♦	Sandra
11		

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♥	Swimp
♥	James
♣	Lee
♥	Dave
♣	Bearman
♦	Lisa

0	♣	3
1	♠	2
2	♥	4
3	♦	3

Counts

0	♣	3
1	♠	5
2	♥	9
3	♦	11

Starting Points

0	♣	Edith
1	♣	Lee
2	♣	Bearman
3	♠	Lauren
4	♠	JS
5	♥	Delbert
6	♥	Swimp
7	♥	James
8	♥	Dave
9	♦	Glaser
10	♦	Sandra
11		

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♣	Edith
♠	JS
♦	Sandra
♥	Swimp
♥	James
♣	Lee
♥	Dave
♣	Bearman
♦	Lisa

0	♣	3
1	♠	2
2	♥	4
3	♦	3

Counts

0	♣	3
1	♠	5
2	♥	9
3	♦	12

Starting Points

0	♣	Edith
1	♣	Lee
2	♣	Bearman
3	♠	Lauren
4	♠	JS
5	♥	Delbert
6	♥	Swimp
7	♥	James
8	♥	Dave
9	♦	Glaser
10	♦	Sandra
11	♦	Lisa

Sorted