

Name: Sovichea Cheth

ID: 985421

W2D1 Assignment

Compute Relative Frequencies

Number of Input-Splits: 2

Number of Reducers: 1

Input Split 0

15 91 80 12 19 80

17 15 80 18 91 18

Input Split 1

19 15 80 18 91 18

18 15 18 18 80 18

- A. Pair Approach
- B. Stripe Approach

Answer:

A. Pair Approach

15 91 80 12 19 80	19 15 80 18 91 18
17 15 80 18 91 18	18 15 18 18 80 18
Mapper Output 1	Mapper Output 2
((15, 91), 1) ((15, 80), 1) ((15, 12), 1) ((15, 19), 1) ((15, 80), 1) ((91, 80), 1) ((91, 12), 1) ((91, 19), 1) ((91, 80), 1) ((80, 12), 1) ((80, 19), 1) ((12, 19), 1) ((12, 80), 1) ((19, 80), 1)	((19, 15), 1) ((19, 80), 1) ((19, 18), 1) ((19, 91), 1) ((19, 18), 1) ((15, 80), 1) ((15, 18), 1) ((15, 91), 1) ((15, 18), 1) ((80, 18), 1) ((80, 91), 1) ((80, 18), 1) ((18, 91), 1) ((91, 18), 1)

((17, 15), 1) ((17, 80), 1) ((17, 18), 1) ((17, 91), 1) ((17, 18), 1) ((15, 80), 1) ((15, 18), 1) ((15, 91), 1) ((15, 18), 1) ((80, 18), 1) ((80, 91), 1) ((80, 18), 1) ((18, 91), 1) ((91, 18), 1)	((18, 15), 1) ((15, 18), 1) ((15, 18), 1) ((15, 80), 1) ((15, 18), 1) ((18, 80), 1) ((80, 18), 1)
Shuffle-Sort	
((12, *), [1,1]) ((12, 19), [1]) ((12, 80), [1]) ((15, *), [1,1,1,1,1,1,1,1,1,1,1,1,1,1,1]) ((15, 12), [1]) ((15, 18), [1,1, 1, 1,1,1,1]) ((15, 19), [1]) ((15, 80), [1, 1, 1, 1, 1]) ((15, 91), [1, 1, 1]) ((17, *), [1,1,1,1,1]) ((17, 15), [1]) ((17, 80), [1]) ((17, 18), [1]) ((17, 91), [1]) ((17, 18), [1]) ((18, *), [1,1,1,1]) ((18,15), [1]) ((18, 80), [1]) ((18, 91), [1,1]) ((19, *), [1,1,1,1,1,1]) ((19, 15), [1]) ((19, 18), [1,1]) ((19, 80), [1,1]) ((19, 91), [1]) ((80, *), [1,1,1,1,1,1,1,1,1]) ((80, 12), [1])	

((80, 18), [1,1,1,1,1])
((80, 19), [1])
((80, 91), [1,1])

((91, *), [1,1,1,1,1,1])
((91, 12), [1])
((91, 18), [1,1])
((91, 19), [1])
((91, 80), [1,1])

Reducer Output

((12, *), 2)
((12, 19), 1/2)
((12, 80), 1/2)

((15, *), 17)
((15, 12), 1/17)
((15, 18), 7/17)
((15, 19), 1/17)
((15, 80), 5/17)
((15, 91), 3/17)

((17, *), 5)
((17, 15), 1/5)
((17, 80), 1/5)
((17, 18), 1/5)
((17, 91), 1/5)
((17, 18), 1/5)

((18, *), 4)
((18, 15), 1/4)
((18, 80), 1/4)
((18, 91), 2/4)

((19, *), 6)
((19, 15), 1/6)
((19, 18), 2/6)
((19, 80), 2/6)
((19, 91), 1/6)

((80, *), 9)
((80, 12), 1/9)
((80, 18), 5/9)
((80, 19), 1/9)
((80, 91), 2/9)

((91, *), 6)
 ((91, 12), 1/6)
 ((91, 18), 2/6)
 ((91, 19), 1/6)
 ((91, 80), 2/6)

B. Stripe Approach

<div>15 91 80 12 19 80</div> <div>17 15 80 18 91 18</div>	<div>19 15 80 18 91 18</div> <div>18 15 18 18 80 18</div>																																															
Mapper Output 1	Mapper Output 2																																															
<div>91 80 12 19 80</div> <div>(15, <table><tr><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td></tr></table>)</div> <div>80 12 19 80</div> <div>(91, <table><tr><td>1</td><td>1</td><td>1</td><td>1</td><td></td></tr></table>)</div> <div>12 19</div> <div>(80, <table><tr><td>1</td><td></td><td>1</td></tr></table>)</div> <div>19 80</div> <div>(12, <table><tr><td>1</td><td>1</td></tr></table>)</div> <div>80</div> <div>(19, <table><tr><td>1</td></tr></table>)</div> <div>15 80 18 91 18</div> <div>(17, <table><tr><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td></tr></table>)</div> <div>80 18 91 18</div> <div>(15, <table><tr><td>1</td><td>1</td><td>1</td><td>1</td></tr></table>)</div> <div>18 91 18</div> <div>(80, <table><tr><td>1</td><td>1</td><td>1</td></tr></table>)</div> <div>91</div> <div>(18, <table><tr><td>1</td></tr></table>)</div> <div>18</div> <div>(91, <table><tr><td>1</td></tr></table>)</div>	1	1	1	1	1	1	1	1	1		1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	<div>15 80 18 91 18</div> <div>(19, <table><tr><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td></tr></table>)</div> <div>80 18 91 18</div> <div>(15, <table><tr><td>1</td><td>1</td><td>1</td><td>1</td></tr></table>)</div> <div>18 91 18</div> <div>(80, <table><tr><td>1</td><td>1</td><td>1</td></tr></table>)</div> <div>91</div> <div>(18, <table><tr><td>1</td></tr></table>)</div> <div>18</div> <div>(91, <table><tr><td>1</td></tr></table>)</div> <div>15</div> <div>(18, <table><tr><td>1</td></tr></table>)</div> <div>80</div> <div>(18, <table><tr><td>1</td></tr></table>)</div> <div>18</div> <div>(80, <table><tr><td>1</td></tr></table>)</div>	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
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Shuffle Sort						
	19 80					
(12,	<table><tr><td>1</td><td>1</td></tr></table>)	1	1			
1	1					
	12 18 19 80 91					
(15,	<table><tr><td>1</td><td>4</td><td>1</td><td>4</td><td>3</td></tr></table>)	1	4	1	4	3
1	4	1	4	3		
	15 18 80 91					
(17,	<table><tr><td>1</td><td>2</td><td>1</td><td>1</td></tr></table>)	1	2	1	1	
1	2	1	1			
	15 80 91					
(18,	<table><tr><td>1</td><td>1</td><td>2</td></tr></table>)	1	1	2		
1	1	2				
	15 18 80 91					
(19,	<table><tr><td>1</td><td>2</td><td>2</td><td>1</td></tr></table>)	1	2	2	1	
1	2	2	1			
	12 18 19 91					
(80,	<table><tr><td>1</td><td>5</td><td>1</td><td>2</td></tr></table>)	1	5	1	2	
1	5	1	2			
	12 18 19 80					
(91,	<table><tr><td>1</td><td>2</td><td>1</td><td>2</td></tr></table>)	1	2	1	2	
1	2	1	2			
Reducer Output						
	19 80					
(12,	<table><tr><td>1/2</td><td>1/2</td></tr></table>)	1/2	1/2			
1/2	1/2					
	12 18 19 80 91					
(15,	<table><tr><td>1/13</td><td>4/13</td><td>1/13</td><td>4/13</td><td>3/13</td></tr></table>)	1/13	4/13	1/13	4/13	3/13
1/13	4/13	1/13	4/13	3/13		
	15 18 80 91					
(17,	<table><tr><td>1/5</td><td>2/5</td><td>1/5</td><td>1/5</td></tr></table>)	1/5	2/5	1/5	1/5	
1/5	2/5	1/5	1/5			
	15 80 91					
(18,	<table><tr><td>1/4</td><td>1/4</td><td>2/4</td></tr></table>)	1/4	1/4	2/4		
1/4	1/4	2/4				
	15 18 80 91					
(19,	<table><tr><td>1/6</td><td>2/6</td><td>2/6</td><td>1/6</td></tr></table>)	1/6	2/6	2/6	1/6	
1/6	2/6	2/6	1/6			

<div><div><div>12181991</div><div>(80,1/95/91/92/9)</div></div><div><div>12181980</div><div>(91,1/62/61/62/6)</div></div></div>									