MIN-Hash Example

By Malene Sjørslev Søholm

$h1(x) = x + 1 \bmod 5$

id	*k*-shingle	baaa	accc	abba	baac	*h1*	*h2*	*h3*
1	aa	1	0	0	1			
2	ab	0	0	1	0			
3	ac	0	1	0	1			
4	ba	1	0	1	1			
5	bb	0	0	1	0			
6	cc	0	1	0	0			

$h1(x) = x + 1 \bmod 5$

id	*k*-shingle	baaa	accc	abba	baac	*h1*	*h2*	*h3*
1	aa	1	0	0	1	2		
2	ab	0	0	1	0	3		
3	ac	0	1	0	1	4		
4	ba	1	0	1	1	0		
5	bb	0	0	1	0	1		
6	cc	0	1	0	0	2		

$h1(x) = x + 1 \bmod 5$
$h2(x) = 3x + 1 \bmod 5$

id	*k*-shingle	baaa	accc	abba	baac	*h1*	*h2*	*h3*
1	aa	1	0	0	1	2		
2	ab	0	0	1	0	3		
3	ac	0	1	0	1	4		
4	ba	1	0	1	1	0		
5	bb	0	0	1	0	1		
6	cc	0	1	0	0	2		

$h1(x) = x + 1 \bmod 5$
$h2(x) = 3x + 1 \bmod 5$

id	*k*-shingle	baaa	accc	abba	baac	*h1*	*h2*	*h3*
1	aa	1	0	0	1	2	4	
2	ab	0	0	1	0	3	2	
3	ac	0	1	0	1	4	0	
4	ba	1	0	1	1	0	3	
5	bb	0	0	1	0	1	1	
6	cc	0	1	0	0	2	4	

$h1(x) = x + 1 \bmod 5$
$h2(x) = 3x + 1 \bmod 5$
$h3(x) = 2x + 4 \bmod 5$

id	*k*-shingle	baaa	accc	abba	baac	*h1*	*h2*	*h3*
1	aa	1	0	0	1	2	4	
2	ab	0	0	1	0	3	2	
3	ac	0	1	0	1	4	0	
4	ba	1	0	1	1	0	3	
5	bb	0	0	1	0	1	1	
6	cc	0	1	0	0	2	4	

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id	*k*-shingle	baaa	accc	abba	baac	*h1*	*h2*	*h3*
1	aa	1	0	0	1	2	4	1
2	ab	0	0	1	0	3	2	3
3	ac	0	1	0	1	4	0	0
4	ba	1	0	1	1	0	3	2
5	bb	0	0	1	0	1	1	4
6	cc	0	1	0	0	2	4	1

$h1(x) = x + 1 \bmod 5$
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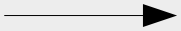
1	aa	1	0	0	1	2	4	1
2	ab	0	0	1	0	3	2	3
3	ac	0	1	0	1	4	0	0
4	ba	1	0	1	1	0	3	2
5	bb	0	0	1	0	1	1	4
6	cc	0	1	0	0	2	4	1

	s1	*s2*	*s3*	*s4*
h1	∞	∞	∞	∞
h2	∞	∞	∞	∞
h3	∞	∞	∞	∞

$h1(x) = x + 1 \bmod 5$
$h2(x) = 3x + 1 \bmod 5$
$h3(x) = 2x + 4 \bmod 5$



id	*k*-shingle	baaa	accc	abba	baac	*h1*	*h2*	*h3*
1	aa	1	0	0	1	2	4	1
2	ab	0	0	1	0	3	2	3
3	ac	0	1	0	1	4	0	0
4	ba	1	0	1	1	0	3	2
5	bb	0	0	1	0	1	1	4
6	cc	0	1	0	0	2	4	1

	s1	*s2*	*s3*	*s4*
h1	∞	∞	∞	∞
h2	∞	∞	∞	∞
h3	∞	∞	∞	∞

$h1(x) = x + 1 \bmod 5$
$h2(x) = 3x + 1 \bmod 5$
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id	*k*-shingle	baaa	accc	abba	baac	*h1*	*h2*	*h3*
1	aa	1	0	0	1	2	4	1
2	ab	0	0	1	0	3	2	3
3	ac	0	1	0	1	4	0	0
4	ba	1	0	1	1	0	3	2
5	bb	0	0	1	0	1	1	4
6	cc	0	1	0	0	2	4	1

	s1	*s2*	*s3*	*s4*
h1	2	∞	∞	2
h2	4	∞	∞	4
h3	1	∞	∞	1

$h1(x) = x + 1 \bmod 5$
$h2(x) = 3x + 1 \bmod 5$
$h3(x) = 2x + 4 \bmod 5$

id	*k*-shingle	baaa	accc	abba	baac	*h1*	*h2*	*h3*
1	aa	1	0	0	1	2	4	1
2	ab	0	0	1	0	3	2	3
3	ac	0	1	0	1	4	0	0
4	ba	1	0	1	1	0	3	2
5	bb	0	0	1	0	1	1	4
6	cc	0	1	0	0	2	4	1

	s1	*s2*	*s3*	*s4*
h1	2	∞	∞	2
h2	4	∞	∞	4
h3	1	∞	∞	1

$h1(x) = x + 1 \bmod 5$
$h2(x) = 3x + 1 \bmod 5$
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1	aa	1	0	0	1	2	4	1
2	ab	0	0	1	0	3	2	3
3	ac	0	1	0	1	4	0	0
4	ba	1	0	1	1	0	3	2
5	bb	0	0	1	0	1	1	4
6	cc	0	1	0	0	2	4	1

	s1	*s2*	*s3*	*s4*
h1	2	∞	3	2
h2	4	∞	2	4
h3	1	∞	3	1

$h1(x) = x + 1 \bmod 5$
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1	aa	1	0	0	1	2	4	1
2	ab	0	0	1	0	3	2	3
3	ac	0	1	0	1	4	0	0
4	ba	1	0	1	1	0	3	2
5	bb	0	0	1	0	1	1	4
6	cc	0	1	0	0	2	4	1

	s1	*s2*	*s3*	*s4*
h1	2	∞	3	2
h2	4	∞	2	4
h3	1	∞	3	1

$h1(x) = x + 1 \bmod 5$
$h2(x) = 3x + 1 \bmod 5$
$h3(x) = 2x + 4 \bmod 5$

id	*k*-shingle	baaa	accc	abba	baac	*h1*	*h2*	*h3*
1	aa	1	0	0	1	2	4	1
2	ab	0	0	1	0	3	2	3
3	ac	0	1	0	1	4	0	0
4	ba	1	0	1	1	0	3	2
5	bb	0	0	1	0	1	1	4
6	cc	0	1	0	0	2	4	1

	s1	*s2*	*s3*	*s4*
h1	2	4	3	2
h2	4	0	2	0
h3	1	0	3	0

$h1(x) = x + 1 \bmod 5$
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id	*k*-shingle	baaa	accc	abba	baac	*h1*	*h2*	*h3*
1	aa	1	0	0	1	2	4	1
2	ab	0	0	1	0	3	2	3
3	ac	0	1	0	1	4	0	0
4	ba	1	0	1	1	0	3	2
5	bb	0	0	1	0	1	1	4
6	cc	0	1	0	0	2	4	1

	s1	*s2*	*s3*	*s4*
h1	2	4	3	2
h2	4	0	2	0
h3	1	0	3	0

$h1(x) = x + 1 \bmod 5$
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id	*k*-shingle	baaa	accc	abba	baac	*h1*	*h2*	*h3*
1	aa	1	0	0	1	2	4	1
2	ab	0	0	1	0	3	2	3
3	ac	0	1	0	1	4	0	0
4	ba	1	0	1	1	0	3	2
5	bb	0	0	1	0	1	1	4
6	cc	0	1	0	0	2	4	1

	s1	*s2*	*s3*	*s4*
h1	0	4	0	0
h2	3	0	2	0
h3	1	0	2	0

$h1(x) = x + 1 \bmod 5$
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1	aa	1	0	0	1	2	4	1
2	ab	0	0	1	0	3	2	3
3	ac	0	1	0	1	4	0	0
4	ba	1	0	1	1	0	3	2
5	bb	0	0	1	0	1	1	4
6	cc	0	1	0	0	2	4	1

	s1	*s2*	*s3*	*s4*
h1	0	4	0	0
h2	3	0	2	0
h3	1	0	2	0

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1	aa	1	0	0	1	2	4	1
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3	ac	0	1	0	1	4	0	0
4	ba	1	0	1	1	0	3	2
5	bb	0	0	1	0	1	1	4
6	cc	0	1	0	0	2	4	1

	s1	*s2*	*s3*	*s4*
h1	0	4	0	0
h2	3	0	1	0
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3	ac	0	1	0	1	4	0	0
4	ba	1	0	1	1	0	3	2
5	bb	0	0	1	0	1	1	4
6	cc	0	1	0	0	2	4	1

	s1	*s2*	*s3*	*s4*
h1	0	4	0	0
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1	aa	1	0	0	1	2	4	1
2	ab	0	0	1	0	3	2	3
3	ac	0	1	0	1	4	0	0
4	ba	1	0	1	1	0	3	2
5	bb	0	0	1	0	1	1	4
6	cc	0	1	0	0	2	4	1

	s1	*s2*	*s3*	*s4*
h1	0	2	0	0
h2	3	0	1	0
h3	1	0	2	0

$h1(x) = x + 1 \bmod 5$
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id	*k*-shingle	baaa	accc	abba	baac	*h1*	*h2*	*h3*
1	aa	1	0	0	1	2	4	1
2	ab	0	0	1	0	3	2	3
3	ac	0	1	0	1	4	0	0
4	ba	1	0	1	1	0	3	2
5	bb	0	0	1	0	1	1	4
6	cc	0	1	0	0	2	4	1

	s1	*s2*	*s3*	*s4*
h1	0	2	0	0
h2	3	0	1	0
h3	1	0	2	0