Machine Learning

Machine Learning

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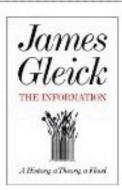
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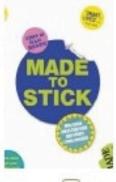
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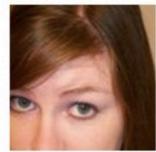
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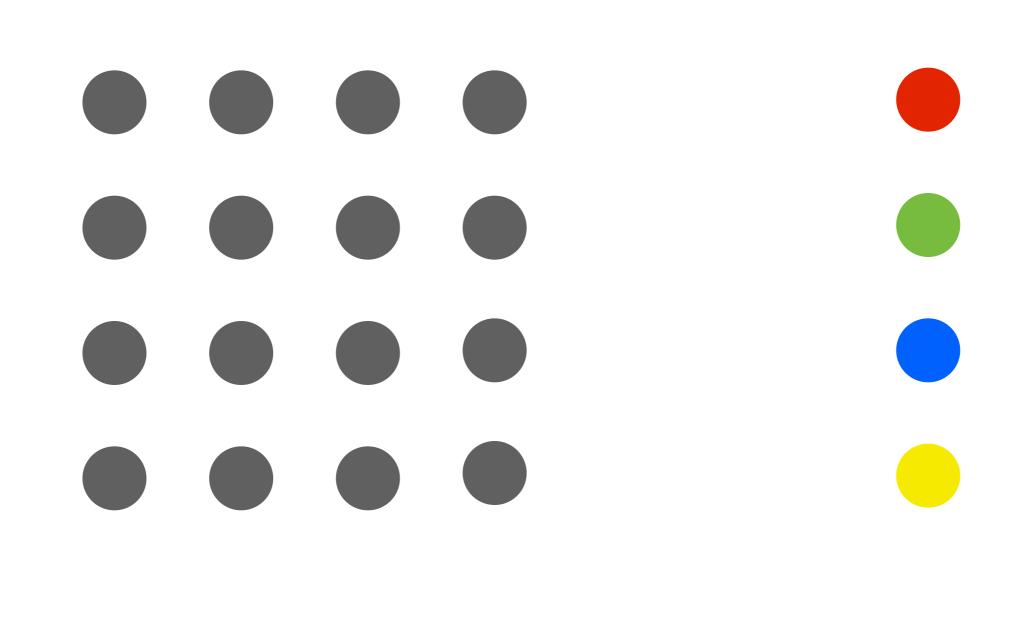
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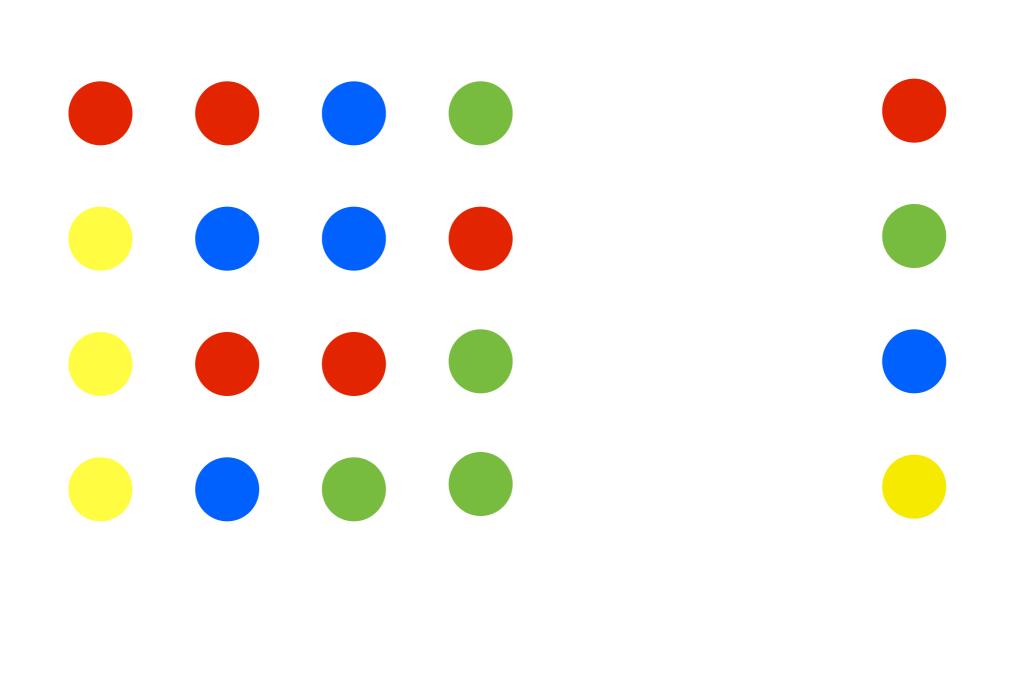


Sophie Morris
1 mutual friend
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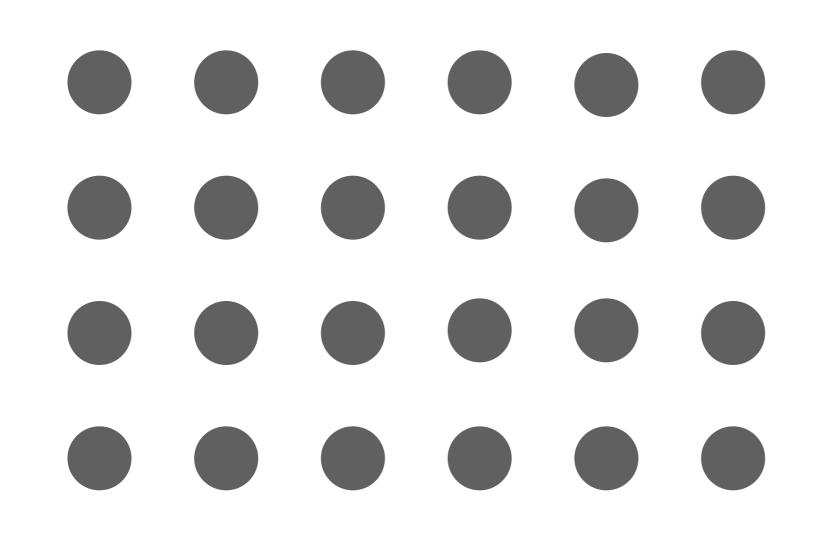
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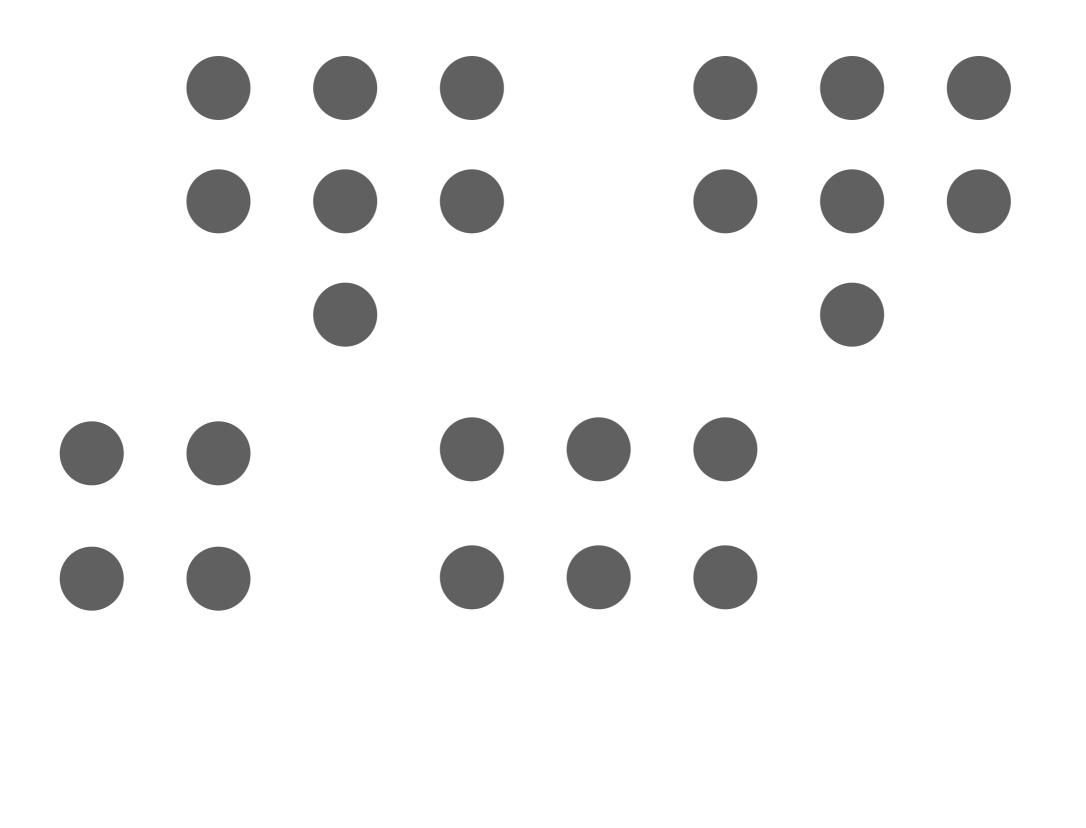
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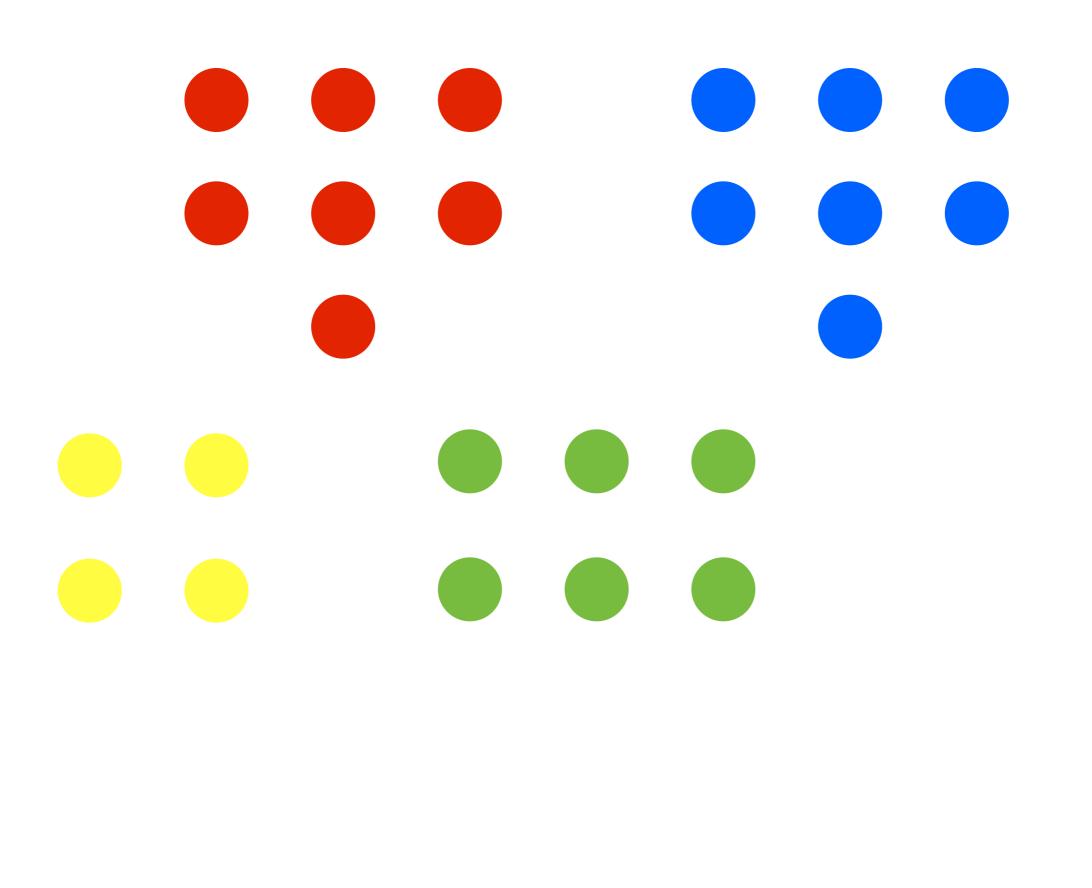




Clustering

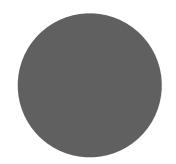


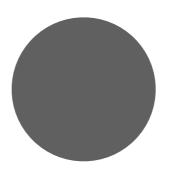


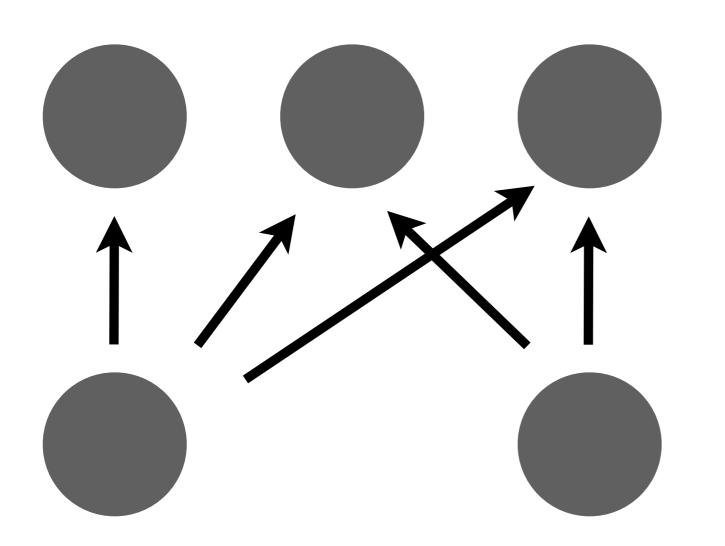


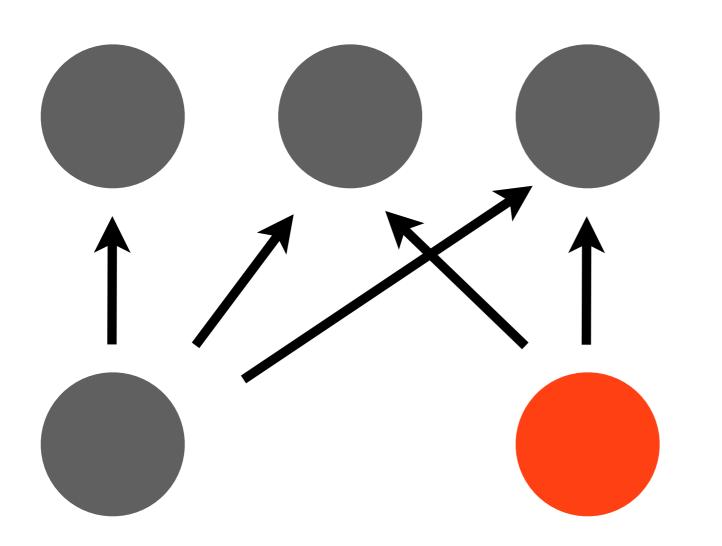
Recommending

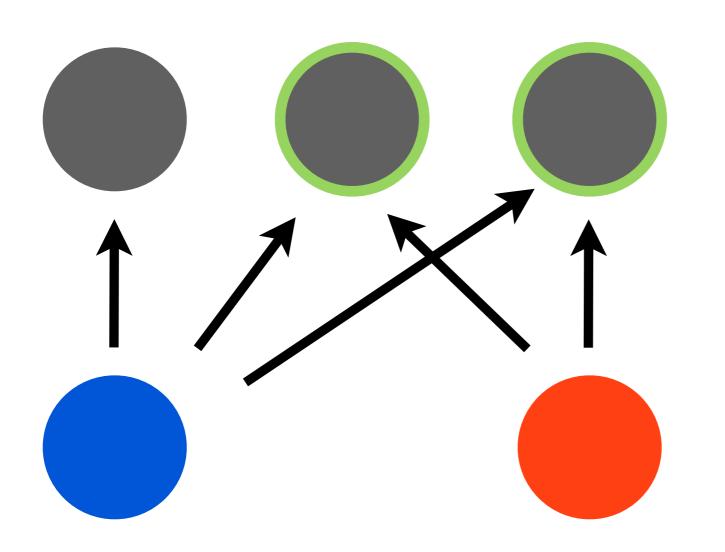


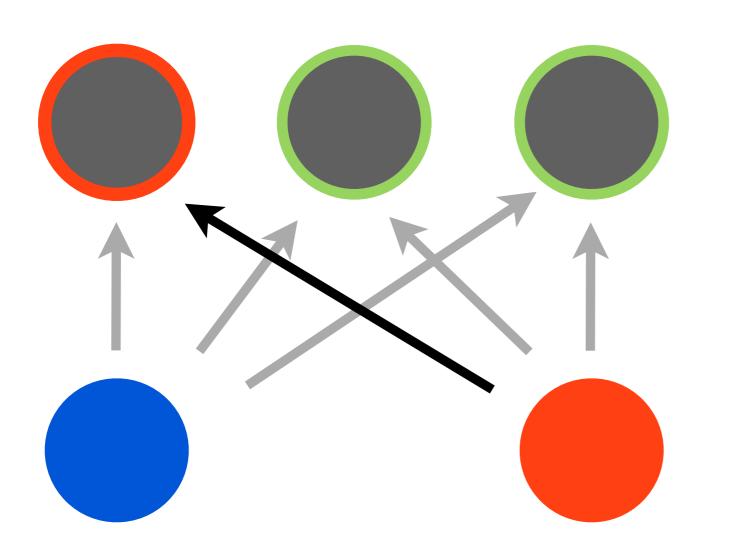








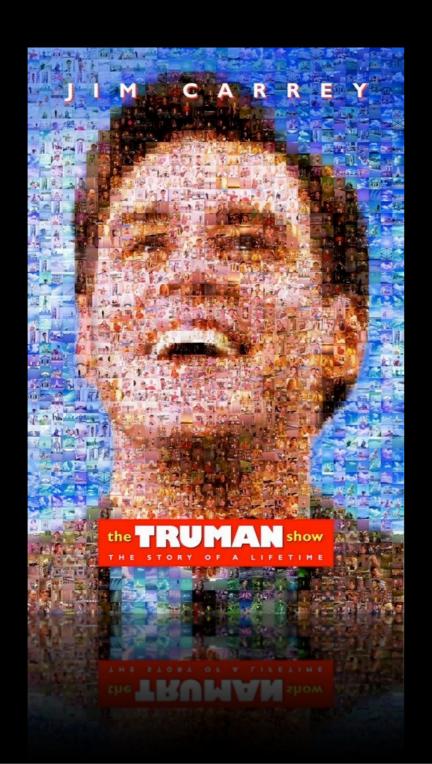




Modeling

Similarity

Movies





Collaborative

How to represent our data?

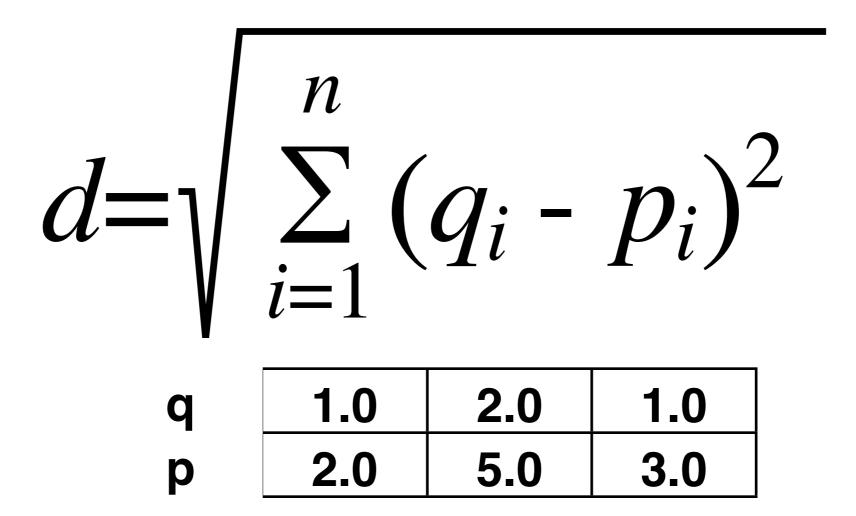
Data

	User A	User B	User C
Item 1	1.0	3.0	5.0

Similarity?

	User A	User B	User C
Item 1	1.0	3.0	5.0
Item 2	2.0	5.0	2.0
Item 3	1.0	3.0	1.0

$$d=\sqrt{\sum_{i=1}^{n}(q_i-p_i)^2}$$



	User A	User B	User C	d
Item 1	1.0	3.0	5.0	4
Item 2	2.0	5.0	2.0	2.45
Item 3	1.0	3.0	1.0	

$$d=\sqrt{\sum_{i=1}^{n}(q_i-p_i)^2}$$



Content Based

Distance

	User A	User B	User C
Item 1	1.0	3.0	5.0
Item 2	2.0	5.0	2.0
Item 3	1.0	3.0	1.0

Distance

	Feature A	Feature B	Feature C
Item 1	1.0	3.0	5.0
Item 2	2.0	5.0	2.0
Item 3	1.0	3.0	1.0

Classification Algorithm

k-nearest neighbours

Our Data

	A	В	С	d
Item 1	1.0	3.0	5.0	4
Item 2	2.0	5.0	2.0	2.45
Item 3	1.0	3.0	1.0	

			A	В	С	d	Label
Trained	5	Item 1	1.0	3.0	5.0	4	Spam
Trai	J	Item 2	2.0	5.0	2.0	2.45	Ham
-		Item 3	1.0	3.0	1.0		

		Label	d
Trained \	Item 1	Spam	4
Taj	Item 2	Ham	2.45
•	Item 3		

k-nn Classifier



Evaluation

		Label	d
Trained \	Item 1	Spam	4
Taj	Item 2	Ham	2.45
•	Item 3		

Trained	
Test	

	Observed Label	Calculated Label
Item 1	Spam	
Item 2	Ham	
Item 3	Ham	Ham

Kthx