



SKILLPILLS

Skill Pill: Database Manipulation

NoSQL databases



A Problem with RD

bill

納品明細書 (文具)

学校法人 沖縄科学技術大学院大学学園 様
Resarch Supply Store

部署コード 20121013
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customer

トミー沖縄ノボサイエンス株式会社

お取り寄せ 分

	伝票日付	伝票No.+行	品番	商品名	数量	単価	金額
1	2016/6/7	001-1606-000083-1	***ONLINE	R400tレーザーポインター	1	6,413	6,413
2							
3							
4							

order

product

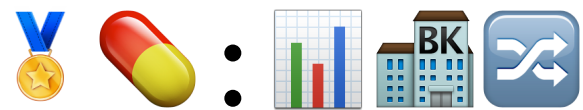


- Does not work very well on clusters
- Big data needs clusters

- NoSQL databases have different models than relational databases
- There are many models, hard to define
- Fairly common characteristics:
 - ★ Non-relational
 - ★ Open source
 - ★ Cluster friendly
 - ★ Schema-less
 - ★ Comes from the web

- Four main types:
 - ★ Key-value
 - ★ Document
 - ★ Column family
 - ★ Graph

Key value

Key	Value
hello	world
I	500
user1	Guido
user2	Jeremie, 1984
user1_year	1927
user1_eyes	blue
SP_emoji	
Skill Pill_value	0xFFFFFFFFFFFF



Document

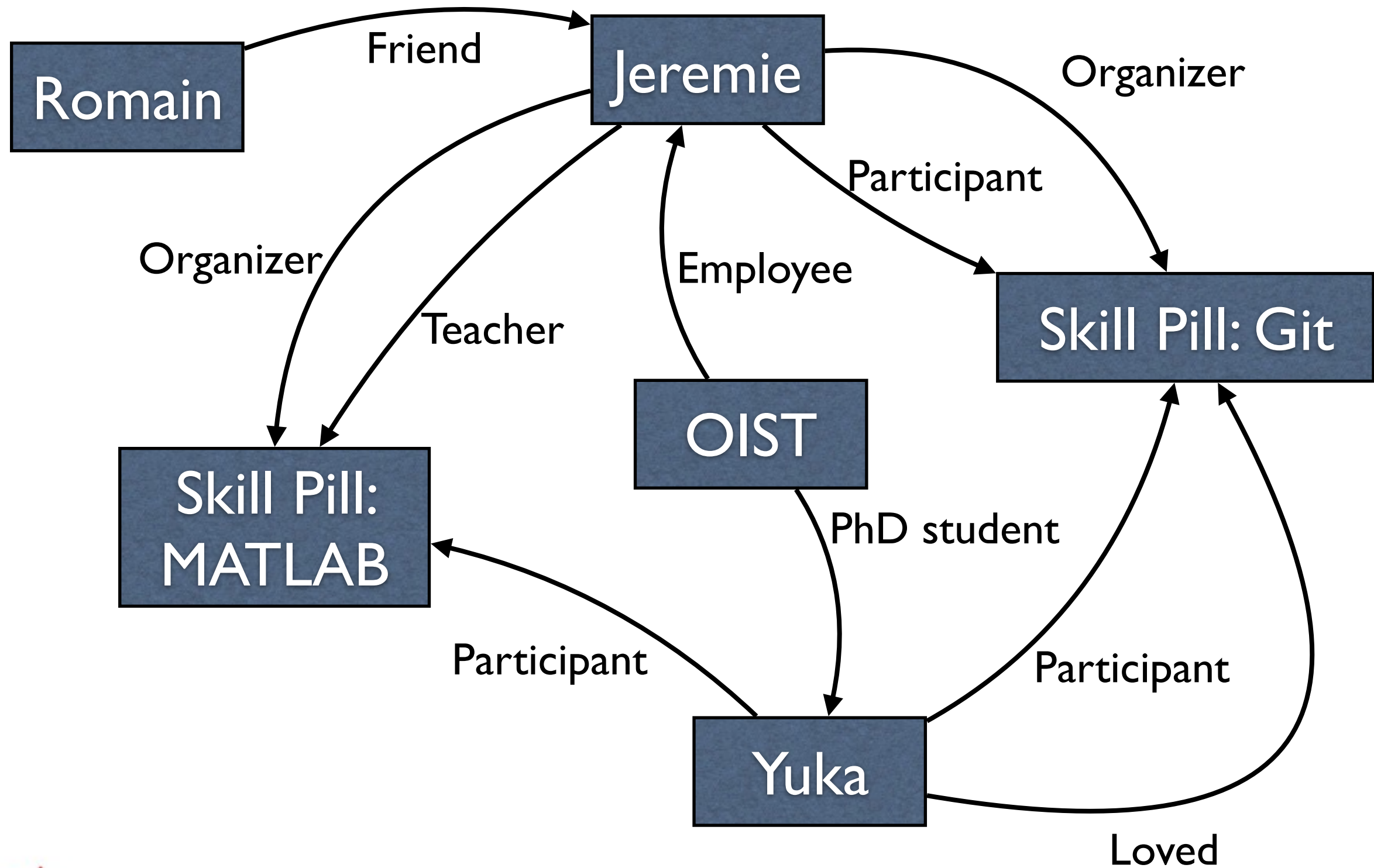
```
1 {
2   "objName": "Stage",
3   "variables": [{
4     "name": "a",
5     "value": "0001",
6     "isPersistent": false
7   },
8   {
9     "name": "j",
10    "value": -1,
11    "isPersistent": false
12  }],
13  "scripts": [[10, 10, [{"whenGreenFlag"}, ["startScene", "backdrop1"]]],
14  "sounds": [{
15    "soundName": "pop",
16    "soundID": 0,
17    "md5": "83a9787d4cb6f3b7632b4ddfebf74367.wav",
18    "sampleCount": 258,
19    "rate": 11025,
20    "format": ""
21  }],
22  "costumes": [{
23    "costumeName": "backdrop1",
24    "baseLayerID": 21,
25    "baseLayerMD5": "b61b1077b0ea1931abee9dbbfa7903ff.png",
26    "bitmapResolution": 2,
27    "rotationCenterX": 480,
28    "rotationCenterY": 360
29  }],
30  "currentCostumeIndex": 1,
31  "penLayerMD5": "5c81a336fab8be57adc039a8a2b33ca9.png",
32  "penLayerID": 0,
33  "tempoBPM": 60,
34  "videoAlpha": 0.5,
35  "children": [{
36    "objName": "position",
37    "scripts": [[10, 10, [{"whenGreenFlag"}, ["hide"]]],
38    [10,
39      83,
40      [{"whenIReceive", "update total"}, ["show"], ["lookLike:", ["+", ["readVariable", "log10"], 1]]],
```



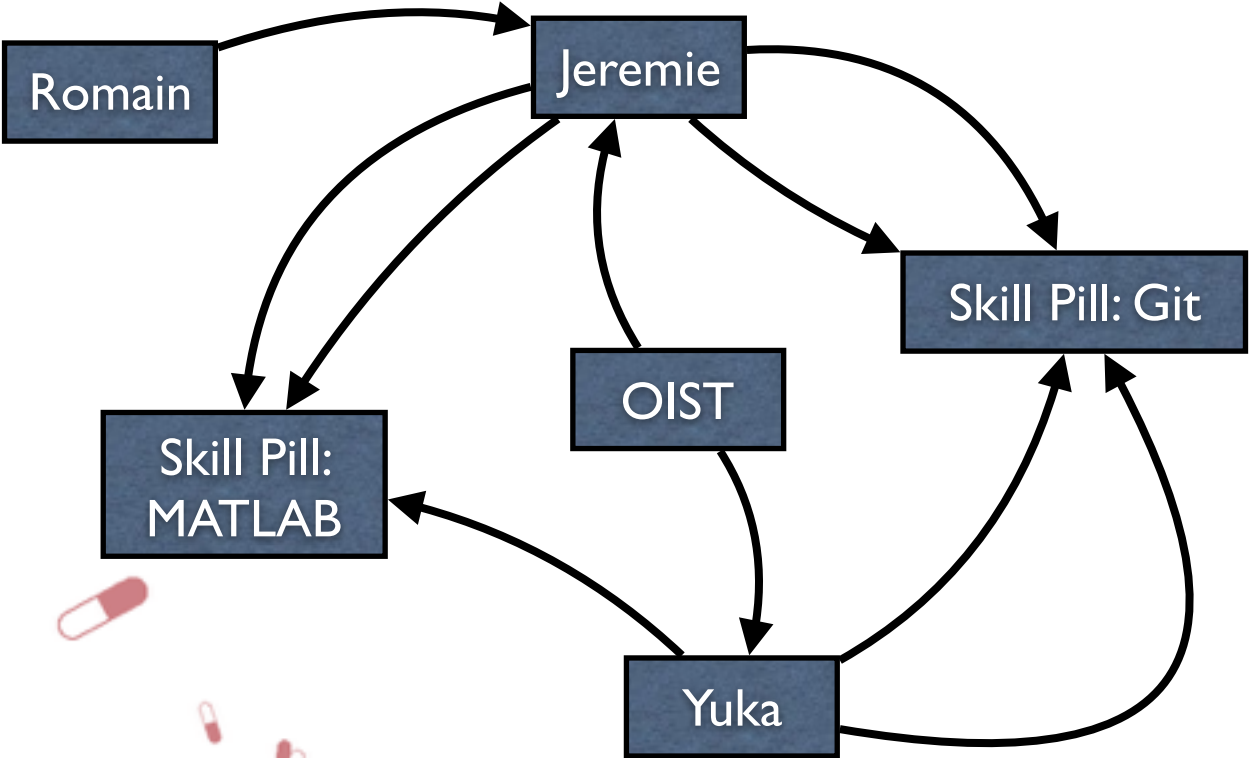
Column family

Row key	Column key	Column key	Column key	Column key
001	Skill Pill	Date	Participants	Teachers
	MATLAB	2015-11-28	18	5
002	Skill Pill	Date	Complaints	
	Group Theory	2016-01-16	0	

Graph



```
2 {
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