

MapReduce example (3a)

- Map - Ordered list of students, with mark and CFU for each exam

```
Function(doc) {
    key = doc.student
    value = [doc.mark, doc.CFU]
    emit(key, value);
}
```

The reduce function receives:

- key=S123456, values=[[29,8), (24,10), (21,8)...]
- ...
- key=s987654, values=[[25,8)]

- Reduce - Average CFU-weighted mark for each student

```
Function(key, values){
    S = sum([ X*Y for X,Y in values ]);
    N = sum([ Y for X,Y in values ]);
    AVG = S/N;
    return AVG;
}
```

key = S123456,
values = [(29,8), (24,10), (21,8)...]
X = 29, 24, 21, ... → mark
Y = 8, 10, 8, ... → CFU

Map			Reduce	
doc.id	Key	Value	Key	Value
1	S123456	[29, 8]	S123456	25.6
2	S123456	[24, 10]		
5	S123456	[21, 8]		
6	S123456	[30, 6]	S654321	23.9
3	S654321	[27, 10]		
4	S654321	[26, 8]		
7	S654321	[18, 8]	s987654	25
8	s987654	[25, 8]		

MapReduce example (3b)

- Compute the number of exams for each student
- Technological view of data distribution among different nodes

