## CS 457 - Homework Assignment 6: NoSQL

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Database = "ds"

Collection = "hw6"

## 1. db.hw6.find()

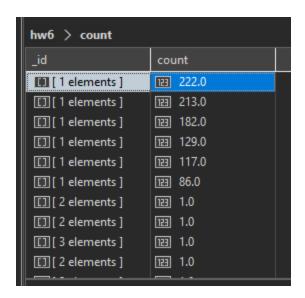
between 1901 to 2016 there are 955 Nobel awards

```
hw6 > id
               id
                               firstname
                                                                                                              bornCountry
1 622646637eb559...
                               📺 Wilhelm Conrad 📕 Röntgen
                                                              1845-03-27
                                                                              1923-02-10
                                                                                              Prussia (now G... E DE
id 622646637eb559... 2
                               "Hendrik A.
                                                               1853-07-18
                                                                               1928-02-04
                                                                                               the Netherlands 🛄 NL
                                               "..." Lorentz
id 622646637eb559... 🛄 3
                               "_" Pieter
                                                               1865-05-25
                                                                               1943-10-09
                                                                                               the Netherlands 🛄 NL
                                               "_" Zeeman
"" Henri
                                               Becquerel
                                                               1852-12-15
                                                                               1908-08-25
                                                                                               France
                                                                                                               "_" FR
id 622646637eb559... 🛄 5
                               "" Pierre
                                               "" Curie
                                                               1859-05-15
                                                                               1906-04-19
                                                                                               "_" France
                                                                                                               "_" FR
                                               Curie
                                                               1867-11-07
id 622646637eb559... 🛄 6
                               "_" Marie
                                                                               1934-07-04
                                                                                               E Russian Empire... PL
id 622646637eb559... "_" 8
                               "_" Lord
                                               "_" Rayleigh
                                                               1842-11-12
                                                                               1919-06-30
                                                                                               United Kingdom
1862-06-07
                                                                               1947-05-20
                               Philipp
                                               "_" Lenard
                                                                                               🔚 Hungary (now ... 🖳 SK
id 622646637eb559... 10
                               "<u>"</u>" J.J.
                                               Thomson
                                                               1856-12-18
                                                                               1940-08-30
                                                                                               United Kingdom
                                                                                               Prussia (now P...
id 622646637eb559... 11
                               "..." Albert A.
                                               "..." Michelson
                                                               1852-12-19
                                                                               1931-05-09
id 622646637eb559... 12
                               Gabriel
                                               Lippmann
                                                               1845-08-16
                                                                               1921-07-13
                                                                                               Luxembourg
                                                                                                               IIII LU
```

- 2. **db.hw6.aggregate**([{\$group: { \_id: "\$diedCountryCode", count: { \$sum: 1 } }},{ \$sort: { count: -1} }])
  - the record of death of Nobel prize winners is mostly missing

nwo > count		
_id	count	
null	№ 335.0	
"_" US	123.0	
<u>□</u> GB	№ 83.0	
" <u>"</u> " DE	123 59.0	
"_" FR	123 51.0	
" <u>"</u> " SE	123 29.0	
CH	123 27.0	
"_" RU	15.0	
<u>"_"</u> IT	14.0	
" <u>"</u> "NL	10.0	

- 3. **db.hw6.aggregate**([{\$group: { \_id: "\$prizes.category", count: { \$sum: 1 } } },{ \$sort: { count: -1} }])
  - there are 222 people who won the prize in the field of medicine



4. db.hw6.aggregate(

```
{\match: {"prizes": {\$elemMatch: {category: "physics"}}},
{\$group: { _id:["\$gender", "\$diedCountryCode", "\$prizes"]},
, count: {\$sum:1} } }
{\$sort: { diedCountryCode:1, _id:1}}
}
```

• There are only 2 females who won the prize in physics

```
hw6 > count
_id
                     count
                    1.0
[ 3 elements ]
[] [ 3 elements ]
                    1.0
                    123 2.0
[] [ 3 elements ]
[] [ 3 elements ]
                    1.0
[] [ 3 elements ]
                    1.0
[] [ 3 elements ]
                    1.0
     1 document selected
                   ∨ Documents 1 to 50
                                                                 📌 Pin Result 🛅 Query Code 🌘 Explain Query
db.hw6.aggregate(
```

```
{\$match: {"prizes": {\$elemMatch:{category: "physics"}}}}
$group: { id:["$gender", "$prize.category", "$prizes"]
count:{$sum:1}}}
$sort: { diedCountryCode :1, _id :1
```

There above query tells the male and female prize winners in the field of physics. With count related to their country

1		
hw6 > count		
_id	count	
[ 3 elements ]	1.0	
[] [ 3 elements ]	1.0	
[] [ 3 elements ]	1.0	
[] [ 3 elements ]	1.0	
[] [ 3 elements ]	1.0	
[] [ 3 elements ]	1.0	
[] [ 3 elements ]	123 2.0	
[] [ 3 elements ]	1.0	
[] [ 3 elements ]	1.0	
[] [ 3 elements ]	1.0	
[] [ 3 elements ]	1.0	
[] [ 3 elements ]	1.0	
[] [ 3 elements ]	1.0	
[] [ 3 elements ]	1.0	
[]] [ 3 elements ]	<u>1.0</u>	
1 document selected		