

CS457_hw6

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showing the data:

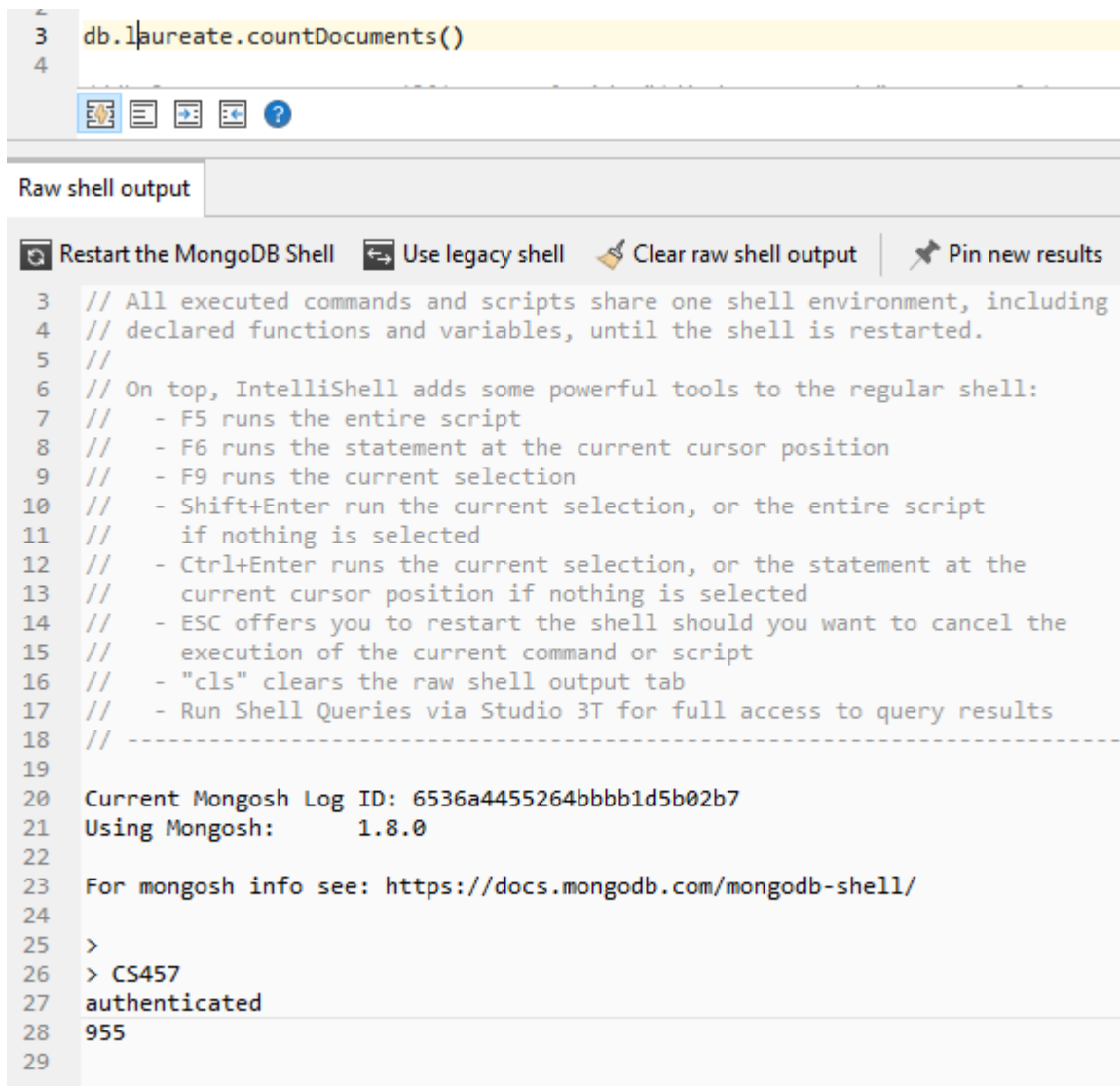
The screenshot shows a MongoDB shell interface. At the top, there's a toolbar with icons for running queries, saving scripts, and other functions. Below the toolbar, a script editor contains the following code:

```
1 //db.getCollection("laureate").find({})
2
3 db.laureate.find()
4
```

Below the script editor, there's a section for the query results. It shows the raw shell output and a table of documents. The table has the following columns: `_id`, `id`, `firstname`, `surname`, `born`, `died`, and `bornCountry`. The data is as follows:

_id	id	firstname	surname	born	died	bornCountry
653698e14c2b4a...	1	Wilhelm Conrad	Röntgen	1845-03-27	1923-02-10	Prussia (now
653698e14c2b4a...	2	Hendrik A.	Lorentz	1853-07-18	1928-02-04	the Netherlar
653698e14c2b4a...	3	Pieter	Zeeman	1865-05-25	1943-10-09	the Netherlar
653698e14c2b4a...	4	Henri	Becquerel	1852-12-15	1908-08-25	France
653698e14c2b4a...	5	Pierre	Curie	1859-05-15	1906-04-19	France
653698e14c2b4a...	6	Marie	Curie	1867-11-07	1934-07-04	Russian Emp
653698e14c2b4a...	8	Lord	Rayleigh	1842-11-12	1919-06-30	United Kingd
653698e14c2b4a...	9	Philipp	Lenard	1862-06-07	1947-05-20	Hungary (no
653698e14c2b4a...	10	J.J.	Thomson	1856-12-18	1940-08-30	United Kingd
653698e14c2b4a...	11	Albert A.	Michelson	1852-12-19	1931-05-09	Prussia (now
653698e14c2b4a...	12	Gabriel	Lippmann	1845-08-16	1921-07-13	Luxembourg
653698e14c2b4a...	13	Guglielmo	Marconi	1874-04-25	1937-07-20	Italy
653698e14c2b4a...	14	Ferdinand	Braun	1850-06-06	1918-04-20	Hesse-Kassel
653698e14c2b4a...	15	Johannes Diderik	van der Waals	1837-11-23	1923-03-08	the Netherlar

the count of total number of records in the collection:



```
3 db.laureate.countDocuments()
4
Raw shell output
Restart the MongoDB Shell Use legacy shell Clear raw shell output Pin new results
3 // All executed commands and scripts share one shell environment, including
4 // declared functions and variables, until the shell is restarted.
5 //
6 // On top, IntelliShell adds some powerful tools to the regular shell:
7 //   - F5 runs the entire script
8 //   - F6 runs the statement at the current cursor position
9 //   - F9 runs the current selection
10 //   - Shift+Enter run the current selection, or the entire script
11 //     if nothing is selected
12 //   - Ctrl+Enter runs the current selection, or the statement at the
13 //     current cursor position if nothing is selected
14 //   - ESC offers you to restart the shell should you want to cancel the
15 //     execution of the current command or script
16 //   - "cls" clears the raw shell output tab
17 //   - Run Shell Queries via Studio 3T for full access to query results
18 // -----
19
20 Current Mongosh Log ID: 6536a4455264bbbb1d5b02b7
21 Using Mongosh:      1.8.0
22
23 For mongosh info see: https://docs.mongodb.com/mongodb-shell/
24
25 >
26 > CS457
27 authenticated
28 955
29
```

The total number of records in the collection is 955.

the count of records for each diedCountryCode in descending order of count:

```
3 //db.laureate.find()
4
5 db.laureate.aggregate([{$group: { _id: "$diedCountryCode", count: { $sum: 1 } }},{ $sort: {count: -1} }])
6
7
```

Raw shell output | Aggregate Query (line 5) ✖

← ← → | 50 | Documents 1 to 47 | EQ

laureate > count

_id	count
null	335.0
US	223.0
GB	83.0
DE	59.0
FR	51.0
SE	29.0
CH	27.0
RU	15.0
IT	14.0
ES	10.0
DK	10.0
NL	10.0
NO	8.0
JP	8.0
BE	7.0

Raw shell output | Aggregate Query (line 5) ✖

← ← → | 50 | Documents 1 to 47

1	{
2	"_id" : null,
3	"count" : 335.0
4	}
5	{
6	"_id" : "US",
7	"count" : 223.0
8	}
9	{
10	"_id" : "GB",
11	"count" : 83.0
12	}
13	{
14	"_id" : "DE",
15	"count" : 59.0
16	}
17	{
18	"_id" : "FR",
19	"count" : 51.0
20	}
21	{
22	"_id" : "SE",
23	"count" : 29.0
24	}

the record of death of Nobel prize winners is mostly missing.

the count of records for each prizes.category in descending order of count:

```
5 //db.laureate.aggregate([{$group: { _id: $laureate.countrycode , count: { $sum: 1 } }},{ $sort: {count: -1} }])
6
7 db.laureate.aggregate([{$group: { _id: "$prizes.category", count: { $sum: 1 } }},{ $sort: {count: -1} }])
8
```

Raw shell output | Aggregate Query (line 7) ✕

← ← → | 50 | Documents 1 to 12 | EQ

laureate > count

_id	count
[1 elements]	222.0
[1 elements]	213.0
[1 elements]	182.0
[1 elements]	129.0
[1 elements]	117.0
[1 elements]	86.0
[2 elements]	1.0
[2 elements]	1.0
[2 elements]	1.0
[2 elements]	1.0
[2 elements]	1.0
[3 elements]	1.0

```
1 {
2   "_id" : [
3     "medicine"
4   ],
5   "count" : 222.0
6 }
7 {
8   "_id" : [
9     "physics"
10  ],
11  "count" : 213.0
12 }
13 {
14   "_id" : [
15     "chemistry"
16  ],
17  "count" : 182.0
18 }
19 {
20   "_id" : [
21     "peace"
22  ],
23  "count" : 129.0
24 }
```

The category in which there are the most number of nobel prizes is medicine.

the count of records for each gender, diedCountryCode, prize.category when prize.category is "physics". Order the output by diedCountryCode:

```

9 db.laureate.aggregate([
10   {$match : {"prizes": {$elemMatch:{category : "physics"}}}} ,
11   {$group : { _id:["$gender", "$diedCountryCode" , "$prizes" ], count:{$sum:1} } },|
12   {$sort: { diedCountryCode :1, _id :1
13   } })
14
15

```

Raw shell output Aggregate Query (line 9) ✕

← ← → 50 Documents 1 to 50 🔍

laureate > count

_id	count
[] [3 elements]	123 2.0
[] [3 elements]	123 1.0
[] [3 elements]	123 1.0
[] [3 elements]	123 1.0
[] [3 elements]	123 1.0
[] [3 elements]	123 1.0
[] [3 elements]	123 1.0
[] [3 elements]	123 1.0
[] [3 elements]	123 1.0
[] [3 elements]	123 1.0

```

1  {
2    "_id" : [
3      "male",
4      null,
5      [
6        {
7          "year" : "1978",
8          "category" : "physics",
9          "share" : "4",
10         "motivation" : "\"for their discovery of cosmic microwave background radiation\"",
11         "affiliations" : [
12           {
13             "name" : "Bell Laboratories",
14             "city" : "Holmdel, NJ",
15             "country" : "USA"
16           }
17         ]
18       }
19     ]

```

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

Come up with your own query to show any interesting insight. Use atleast two fields for match and two fields for group:

```
15 db.laureate.aggregate([
16   {$match : {$prizes: {$elemMatch:{category : "physics"}}, gender : "female"}},
17   {$group : { _id:["$gender", "$prize.category" , "$prizes" ], count:{$sum:1} } },
18   {$sort: { diedCountryCode :1, _id :1
19   } })
20
21
22
```

Raw shell output | Aggregate Query (line 15) ✕

← ← → | 50 | Documents 1 to 4 | 🔍

laureate > count

_id	count
[] [3 elements]	123 1.0
[] [3 elements]	123 1.0
[] [3 elements]	123 1.0
[] [3 elements]	123 1.0

```
1 {
2   "_id" : [
3     "female",
4     null,
5     [
6       {
7         "year" : "2018",
8         "category" : "physics",
9         "overallMotivation" : "\"for groundbreaking inventions in the field of laser physics\"",
10        "share" : "4",
11        "motivation" : "\"for their method of generating high-intensity, ultra-short optical pulses\"",
12        "affiliations" : [
13          {
14            "name" : "University of Waterloo",
15            "city" : "Waterloo",
16            "country" : "Canada"
17          }
18        ]
19      }
20    ]
21  }
```

There above query tells the female prize winners in the field of physics. With count related to their country. We can see that the female nobel prize winners are less than the male prize winners.