

Zad 1:

```
agata — -bash — 80x24
Last login: Tue Mar 24 11:22:44 on ttys000
MacBook-Pro-Agata:~ agata$ mongod
2020-03-24T11:22:50.580+0100 I CONTROL [main] Automatically disabling TLS 1.0,
to force-enable TLS 1.0 specify --sslDisabledProtocols 'none'
2020-03-24T11:22:50.617+0100 I CONTROL [initandlisten] MongoDB starting : pid=
47995 port=27017 dbpath=/data/db 64-bit host=MacBook-Pro-Agata.local
2020-03-24T11:22:50.617+0100 I CONTROL [initandlisten] db version v4.2.3
2020-03-24T11:22:50.617+0100 I CONTROL [initandlisten] git version: 6874650b36
2138df74be53d366bbefc321ea32d4
2020-03-24T11:22:50.617+0100 I CONTROL [initandlisten] allocator: system
2020-03-24T11:22:50.617+0100 I CONTROL [initandlisten] modules: none
2020-03-24T11:22:50.617+0100 I CONTROL [initandlisten] build environment:
2020-03-24T11:22:50.617+0100 I CONTROL [initandlisten] distarch: x86_64
2020-03-24T11:22:50.617+0100 I CONTROL [initandlisten] target_arch: x86_64
2020-03-24T11:22:50.617+0100 I CONTROL [initandlisten] options: {}
2020-03-24T11:22:50.620+0100 E STORAGE [initandlisten] Failed to set up listen
er: SocketException: Address already in use
2020-03-24T11:22:50.621+0100 I CONTROL [initandlisten] now exiting
2020-03-24T11:22:50.621+0100 I CONTROL [initandlisten] shutting down with code
:48
MacBook-Pro-Agata:~ agata$
```

```
agata — mongo — 80x24
Last login: Tue Mar 24 11:21:23 on ttys000
MacBook-Pro-Agata:~ agata$ mongo
MongoDB shell version v4.2.3
connecting to: mongod://127.0.0.1:27017/?compressors=disabled&gssapiServiceName
=mongodb
Implicit session: session { "id" : UUID("1e4d4447-0937-4ad2-8742-637fdc778813")
}
MongoDB server version: 4.2.3
Server has startup warnings:
2020-03-23T15:22:51.030+0100 I CONTROL [initandlisten]
2020-03-23T15:22:51.030+0100 I CONTROL [initandlisten] ** WARNING: Access cont
rol is not enabled for the database.
2020-03-23T15:22:51.030+0100 I CONTROL [initandlisten] **
Read and wr
ite access to data and configuration is unrestricted.
2020-03-23T15:22:51.030+0100 I CONTROL [initandlisten]
2020-03-23T15:22:51.030+0100 I CONTROL [initandlisten]
2020-03-23T15:22:51.030+0100 I CONTROL [initandlisten] ** WARNING: soft rlimit
s too low. Number of files is 256, should be at least 1000
2020-03-23T15:22:51.030+0100 I CONTROL [initandlisten]
---/113MB (83.5%)
Enable MongoDB's free cloud-based monitoring service, which will then receive an
d display
metrics about your deployment (disk utilization, CPU, operation statistics, etc)
(s) failed to import.
MacBook-Pro-Agata:~ agata$
```

Zad2: Efekt wykonania zadania nr 2 jest widoczny w kolejnych zadaniach.

Zad3: Efekt wykonania zadania nr 3 jest widoczny w kolejnym zadaniu.

Zad 4:

Polecenia:

```
MongoDB_1 localhost:27017 AgataNowara
db.student.insert({name: "Agata", surname: "Nowara", presence: true, grade: null, date: new Date(), passed_subjects: ["WDI", "UNIX", "Algebra"]})
0.003 sec.
Inserted 1 record(s) in 3ms
```

```
MongoDB_1 localhost:27017 AgataNowara
db.student.insert({name: "Marek", surname: "Składak", presence: true, grade: null, date: new Date(), passed_subjects: ["WDI", "ASD", "DB"]})
0.002 sec.
Inserted 1 record(s) in 1ms
```

```
MongoDB_1 localhost:27017 AgataNowara
db.student.insert({name: "Ola", surname: "Bubik", presence: true, grade: null, date: new Date(), passed_subjects: ["Algebra", "ASD", "Python"]})
0.002 sec.
Inserted 1 record(s) in 1ms
```

Efekt:

```
MongoDB_1 localhost:27017 AgataNowara
db.getCollection('student').find({})
student 0.001 sec.
{
  "_id" : ObjectId("5e79e5557da72b9f0ee088ea"),
  "name" : "Agata",
  "surname" : "Nowara",
  "presence" : true,
  "grade" : null,
  "date" : ISODate("2020-03-24T10:47:49.101Z"),
  "passed_subjects" : [
    "WDI",
    "UNIX",
    "Algebra"
  ]
}
/* 2 */
{
  "_id" : ObjectId("5e79e63c7da72b9f0ee088eb"),
  "name" : "Marek",
  "surname" : "Składak",
  "presence" : true,
  "grade" : null,
  "date" : ISODate("2020-03-24T10:51:40.793Z"),
  "passed_subjects" : [
    "WDI",
    "ASD",
    "DB"
  ]
}
/* 3 */
{
  "_id" : ObjectId("5e79e6757da72b9f0ee088ec"),
  "name" : "Ola",
  "surname" : "Bubik",
  "presence" : true,
  "grade" : null,
  "date" : ISODate("2020-03-24T10:52:37.433Z"),
  "passed_subjects" : [
    "Algebra",
    "ASD",
    "Python"
  ]
}
```

Zad 5:

a)

```
MongoDB_1 localhost:27017 AgataNowara
db.business.find({stars: 5}).count()
0.032 sec.
5097
```

b) Poniżej przedstawiono jedynie fragment wyniku

```
MongoDB_1 localhost:27017 AgataNowara
db.business.aggregate([
  { $unwind: "$categories" },
  { $match: { categories: "Restaurants" } },
  { $group: { _id: "$city", total: { $sum: 1 } } },
  { $sort: { total: -1 } }
])

business 0.146 sec.

/* 1 */
{
  "_id" : "Las Vegas",
  "total" : 3855.0
}

/* 2 */
{
  "_id" : "Phoenix",
  "total" : 2493.0
}

/* 3 */
{
  "_id" : "Edinburgh",
  "total" : 1049.0
}

/* 4 */
{
  "_id" : "Scottsdale",
  "total" : 1023.0
}

/* 5 */
{
  "_id" : "Mesa",
  "total" : 693.0
}

/* 6 */
{
  "_id" : "Madison",
  "total" : 679.0
}

/* 7 */
{
  "_id" : "San Jose",
  "total" : 679.0
}
```

c)

```
MongoDB_1 localhost:27017 AgataNowara
db.business.aggregate([
  { $unwind: "$categories" },
  { $match: { categories: "Hotels" } },
  { $unwind: "$attributes" },
  { $match: { "attributes.Wi-Fi": "free" } },
  { $match: { stars: { $gte: 4.5 } } },
  { $group: { _id: "$state", total: { $sum: 1 } } }
])

business 0.094 sec.

/* 1 */
{
  "_id" : "AZ",
  "total" : 33.0
}

/* 2 */
{
  "_id" : "NV",
  "total" : 10.0
}

/* 3 */
{
  "_id" : "WI",
  "total" : 10.0
}

/* 4 */
{
  "_id" : "EDH",
  "total" : 13.0
}

/* 5 */
{
  "_id" : "MLN",
  "total" : 1.0
}

/* 6 */
{
  "_id" : "ON",
  "total" : 2.0
}
```

Zad 6:

a)

```
public long count5StarsBusinesses(){
    MongoCollection<Document> business = db.getCollection("business");
    long counter = business.countDocuments(Filters.eq("stars", 5));
    return counter;
}
```

```
public static void main(String[] args) throws UnknownHostException {
    MongoLab mongoLab = new MongoLab();
    System.out.println(mongoLab.count5StarsBusinesses());
}
```

Problems Javadoc Declaration Console
<terminated> MongoLab [Java Application] /Library/Java/JavaVirtualMachines/jdk-13.jdk/Contents/Home/bin/java (24 mar 2020, 12:24:01 - 12:24:04)
5097

b) Poniżej przedstawiono jedynie fragment wyniku

```
public void restaurantsPerCity(){
    MongoCollection<Document> business = db.getCollection("business");
    AggregateIterable aggregationResult = business.aggregate(Arrays.asList(
        Aggregates.match(Filters.eq("categories", "Restaurants")),
        Aggregates.group("$city", Accumulators.sum("count", 1)),
        Aggregates.sort(Sorts.descending("count"))
    ));
    for(Object result: aggregationResult){
        System.out.println(result);
    }
}
```

```
public static void main(String[] args) throws UnknownHostException {
    MongoLab mongoLab = new MongoLab();
    mongoLab.restaurantsPerCity();
}
```

Problems Javadoc Declaration Console
<terminated> MongoLab [Java Application] /Library/Java/JavaVirtualMachines/jdk-13.jdk/Contents/Home/bin/java (24 mar 2020, 12:32:49 - 12:32:52)
mar 24, 2020 12:32:52 PM com.mongodb.diagnostics.logging.JULLogger log
INFO: Cluster created with settings {hosts=[127.0.0.1:27017], mode=SINGLE, requiredClusterType=UNKNOWN, serverSelectionTimeout='30000 ms', maxWaitO
mar 24, 2020 12:32:52 PM com.mongodb.diagnostics.logging.JULLogger log
INFO: Cluster description not yet available. Waiting for 30000 ms before timing out
mar 24, 2020 12:32:52 PM com.mongodb.diagnostics.logging.JULLogger log
INFO: Opened connection [connectionId{localValue:1, serverValue:151}] to 127.0.0.1:27017
mar 24, 2020 12:32:52 PM com.mongodb.diagnostics.logging.JULLogger log
INFO: Monitor thread successfully connected to server with description ServerDescription{address=127.0.0.1:27017, type=STANDALONE, state=CONNECTED,
mar 24, 2020 12:32:52 PM com.mongodb.diagnostics.logging.JULLogger log
INFO: Opened connection [connectionId{localValue:2, serverValue:152}] to 127.0.0.1:27017
Document{{id=Las Vegas, count=3855}}
Document{{id=Phoenix, count=2493}}
Document{{id=Edinburgh, count=1049}}
Document{{id=Scottsdale, count=1023}}
Document{{id=Mesa, count=693}}
Document{{id=Madison, count=679}}
Document{{id=Tempe, count=672}}
Document{{id=Henderson, count=564}}
Document{{id=Chandler, count=548}}
Document{{id=Glendale, count=422}}
Document{{id=Gilbert, count=317}}
Document{{id=Peoria, count=221}}
Document{{id=North Las Vegas, count=198}}
Document{{id=Surprise, count=144}}
Document{{id=Goodyear, count=119}}
Document{{id=Waterloo, count=117}}
Document{{id=Avondale, count=100}}
Document{{id>Kitchener, count=96}}
Document{{id=Queen Creek, count=82}}
Document{{id=Middleton, count=66}}
Document{{id=Cave Creek, count=63}}
Document{{id=Casa Grande, count=61}}
Document{{id=Fountain Hills, count=47}}
Document{{id=Apache Junction, count=44}}
Document{{id=Buckeye, count=42}}
Document{{id=Sun Prairie, count=39}}
Document{{id=Fitchburg, count=38}}
Document{{id=Maricopa, count=37}}
Document{{id=Monona, count=32}}
Document{{id=Sun City, count=31}}
Document{{id=Wickenburg, count=31}}
Document{{id=Litchfield Park, count=27}}
Document{{id=Paradise Valley, count=26}}
Document{{id=Laveen, count=25}}

c)

```
public void hotelsPerState() {
    MongoClient<Document> business = db.getCollection("business");
    AggregateIterable aggregationResult = business.aggregate(Arrays.asList(
        Aggregates.match(Filters.and(Filters.eq("categories", "Hotels"),
            Filters.eq("attributes.Wi-Fi", "free"),
            Filters.gte("stars", 4.5)
        )),
        Aggregates.group("$state", Accumulators.sum("count", 1))
    ));
    for (Object result: aggregationResult) {
        System.out.println(result);
    }
}
```

```
public static void main(String[] args) throws UnknownHostException {
    MongoLab mongoLab = new MongoLab();
    mongoLab.hotelsPerState();
}
```

```
Problems  Javadoc  Declaration  Console
<terminated> MongoLab [Java Application] /Library/Java/JavaVirtualMachines/jdk-13.jdk/Contents/Home/bin/java (24 mar 2020, 12:42:00 - 12:42:01)
mar 24, 2020 12:42:01 PM com.mongodb.diagnostics.logging.JULLogger log
INFO: Cluster created with settings {hosts=[127.0.0.1:27017], mode=SINGLE, requiredClusterType=UNKNOWN, serverSelectionTimeout='30000 ms', maxWaitQu
mar 24, 2020 12:42:01 PM com.mongodb.diagnostics.logging.JULLogger log
INFO: Cluster description not yet available. Waiting for 30000 ms before timing out
mar 24, 2020 12:42:01 PM com.mongodb.diagnostics.logging.JULLogger log
INFO: Opened connection [connectionId{localValue:1, serverValue:157}] to 127.0.0.1:27017
mar 24, 2020 12:42:01 PM com.mongodb.diagnostics.logging.JULLogger log
INFO: Monitor thread successfully connected to server with description ServerDescription{address=127.0.0.1:27017, type=STANDALONE, state=CONNECTED,
mar 24, 2020 12:42:01 PM com.mongodb.diagnostics.logging.JULLogger log
INFO: Opened connection [connectionId{localValue:2, serverValue:158}] to 127.0.0.1:27017
Document({_id=WI, count=10})
Document({_id=EDH, count=13})
Document({_id=MLN, count=1})
Document({_id=AZ, count=33})
Document({_id=NV, count=10})
Document({_id=ON, count=2})
```

Zad 7:

```
String bestUser() {
    MongoClient<Document> review = db.getCollection("review");
    Object userID = review.aggregate(Arrays.asList(
        Aggregates.match(Filters.gte("stars", 4.5)),
        Aggregates.group("$user_id", Accumulators.sum("count", 1)),
        Aggregates.sort(Sorts.descending("count"))
    )).first().get("_id");
    MongoClient<Document> user = db.getCollection("user");
    return user.find(Filters.eq("user_id", userID.toString())).first().get("name").toString();
}
```

```
public static void main(String[] args) throws UnknownHostException {
    MongoLab mongoLab = new MongoLab();
    System.out.println(mongoLab.bestUser());
}
```

```
Problems  Javadoc  Declaration  Console
<terminated> MongoLab [Java Application] /Library/Java/JavaVirtualMachines/jdk-13.jdk/Contents/Home/bin/java (24 mar 2020, 12:53:21 - 12:53:26)
mar 24, 2020 12:53:24 PM com.mongodb.diagnostics.logging.JULLogger log
INFO: Cluster created with settings {hosts=[127.0.0.1:27017], mode=SINGLE, requiredClusterType=UNKNOWN, serverSelectionTimeout='30000 ms', maxWaitQu
mar 24, 2020 12:53:24 PM com.mongodb.diagnostics.logging.JULLogger log
INFO: Cluster description not yet available. Waiting for 30000 ms before timing out
mar 24, 2020 12:53:24 PM com.mongodb.diagnostics.logging.JULLogger log
INFO: Opened connection [connectionId{localValue:1, serverValue:161}] to 127.0.0.1:27017
mar 24, 2020 12:53:24 PM com.mongodb.diagnostics.logging.JULLogger log
INFO: Monitor thread successfully connected to server with description ServerDescription{address=127.0.0.1:27017, type=STANDALONE, state=CONNECTED,
mar 24, 2020 12:53:24 PM com.mongodb.diagnostics.logging.JULLogger log
INFO: Opened connection [connectionId{localValue:2, serverValue:162}] to 127.0.0.1:27017
Rand
```

Zad 8:

```
List<String> countVotes(){
    MongoCollection<Document> review = db.getCollection("review");
    List<String> votesCount = new ArrayList<>();

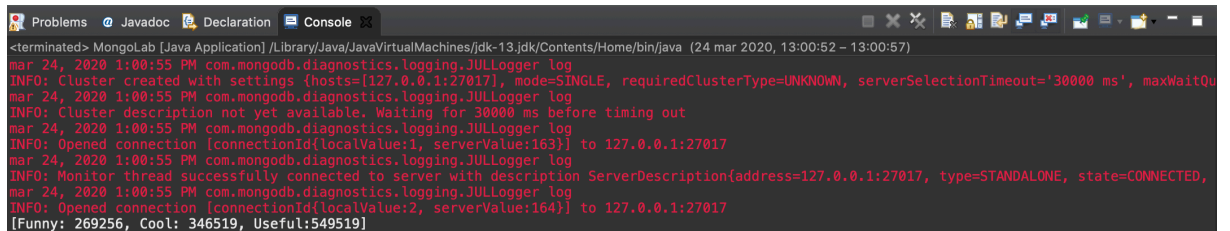
    long funny = review.countDocuments(Filters.gte("votes.funny", 1));
    votesCount.add("Funny: " + funny);

    long cool = review.countDocuments(Filters.gte("votes.cool", 1));
    votesCount.add("Cool: " + cool);

    long useful = review.countDocuments(Filters.gte("votes.useful", 1));
    votesCount.add("Useful: " + useful);

    System.out.println(votesCount);
    return votesCount;
}
```

```
public static void main(String[] args) throws UnknownHostException {
    MongoLab mongoLab = new MongoLab();
    mongoLab.countVotes();
}
```



The screenshot shows the console output of a Java application. It includes logs for MongoDB connection establishment, such as 'Cluster created with settings' and 'Monitor thread successfully connected to server'. The final output line is: [Funny: 269256, Cool: 346519, Useful:549519]

```
<terminated> MongoLab [Java Application] /Library/Java/JavaVirtualMachines/jdk-13.jdk/Contents/Home/bin/java (24 mar 2020, 13:00:52 - 13:00:57)
mar 24, 2020 1:00:55 PM com.mongodb.diagnostics.logging.JULLogger log
INFO: Cluster created with settings {hosts=[127.0.0.1:27017], mode=SINGLE, requiredClusterType=UNKNOWN, serverSelectionTimeout='30000 ms', maxWaitQu
mar 24, 2020 1:00:55 PM com.mongodb.diagnostics.logging.JULLogger log
INFO: Cluster description not yet available. Waiting for 30000 ms before timing out
mar 24, 2020 1:00:55 PM com.mongodb.diagnostics.logging.JULLogger log
INFO: Opened connection [connectionId{localValue:1, serverValue:163}] to 127.0.0.1:27017
mar 24, 2020 1:00:55 PM com.mongodb.diagnostics.logging.JULLogger log
INFO: Monitor thread successfully connected to server with description ServerDescription{address=127.0.0.1:27017, type=STANDALONE, state=CONNECTED,
mar 24, 2020 1:00:55 PM com.mongodb.diagnostics.logging.JULLogger log
INFO: Opened connection [connectionId{localValue:2, serverValue:164}] to 127.0.0.1:27017
[Funny: 269256, Cool: 346519, Useful:549519]
```