1) Create a Database called student
> use student
switched to db student


```
2019-01-14T14:53:40.314+0530 I CONTROL  [initandlisten] ** WARNING: This server
is bound to localhost.
2019-01-14T14:53:40.314+0530 I CONTROL  [initandlisten] **          Remote syste
ms will be unable to connect to this server.
2019-01-14T14:53:40.314+0530 I CONTROL  [initandlisten] **          Start the se
rver with --bind_ip <address> to specify which IP
2019-01-14T14:53:40.314+0530 I CONTROL  [initandlisten] **          addresses it
 should serve responses from, or with --bind_ip_all to
2019-01-14T14:53:40.314+0530 I CONTROL  [initandlisten] **          bind to all
interfaces. If this behavior is desired, start the
2019-01-14T14:53:40.314+0530 I CONTROL  [initandlisten] **          server with
--bind_ip 127.0.0.1 to disable this warning.
2019-01-14T14:53:40.314+0530 I CONTROL  [initandlisten]
2019-01-14T14:53:40.314+0530 I CONTROL  [initandlisten]
2019-01-14T14:53:40.314+0530 I CONTROL  [initandlisten] ** WARNING: /sys/kernel/
mm/transparent_hugepage/enabled is 'always'.
2019-01-14T14:53:40.314+0530 I CONTROL  [initandlisten] **          We suggest set
ting it to 'never'
2019-01-14T14:53:40.314+0530 I CONTROL  [initandlisten]
> use student
switched to db student
```

2) Create a collection called studentmarks
> db.createCollection("studentmarks")
{ "ok" : 1 }


```
2019-01-14T14:53:40.314+0530 I CONTROL  [initandlisten] ** WARNING: This server
is bound to localhost.
2019-01-14T14:53:40.314+0530 I CONTROL  [initandlisten] **          Remote syste
ms will be unable to connect to this server.
2019-01-14T14:53:40.314+0530 I CONTROL  [initandlisten] **          Start the se
rver with --bind_ip <address> to specify which IP
2019-01-14T14:53:40.314+0530 I CONTROL  [initandlisten] **          addresses it
 should serve responses from, or with --bind_ip_all to
2019-01-14T14:53:40.314+0530 I CONTROL  [initandlisten] **          bind to all
interfaces. If this behavior is desired, start the
2019-01-14T14:53:40.314+0530 I CONTROL  [initandlisten] **          server with
--bind_ip 127.0.0.1 to disable this warning.
2019-01-14T14:53:40.314+0530 I CONTROL  [initandlisten]
2019-01-14T14:53:40.314+0530 I CONTROL  [initandlisten]
2019-01-14T14:53:40.314+0530 I CONTROL  [initandlisten] ** WARNING: /sys/kernel/
mm/transparent_hugepage/enabled is 'always'.
2019-01-14T14:53:40.314+0530 I CONTROL  [initandlisten] **          We suggest set
ting it to 'never'
2019-01-14T14:53:40.314+0530 I CONTROL  [initandlisten]
> use student
switched to db student
> db.createCollection("studentmarks")
{ "ok" : 1 }
```

3) Create the documents listed in above table.

```
> db.studentmarks.insert({"name":"Mala","maths marks":45,"english marks":53,"science marks":72})
WriteResult({ "nInserted" : 1 })
>  db.studentmarks.insert({"name":"Vanu","maths marks":80,"english marks":75,"science marks":85})
WriteResult({ "nInserted" : 1 })
>  db.studentmarks.insert({"name":"Kala","maths marks":32,"english marks":46,"science marks":53})
WriteResult({ "nInserted" : 1 })
>  db.studentmarks.insert({"name":"Aruli","maths marks":78,"english marks":85,"science marks":80})
WriteResult({ "nInserted" : 1 })
>  db.studentmarks.insert({"name":"Shayu","maths marks":80,"english marks":76,"science marks":65})
WriteResult({ "nInserted" : 1 })
>  db.studentmarks.insert({"name":"Kumaran","maths marks":32,"english marks":73,"science marks":84})
WriteResult({ "nInserted" : 1 })
>  db.studentmarks.insert({"name":"Lucky","maths marks":66,"english marks":90,"science marks":45})
WriteResult({ "nInserted" : 1 })
>  db.studentmarks.insert({"name":"Gva","maths marks":71,"english marks":75,"science marks":56})
WriteResult({ "nInserted" : 1 })
>  db.studentmarks.insert({"name":"Raam","maths marks":41,"english marks":65,"science marks":88})
WriteResult({ "nInserted" : 1 })
>


{
        "_id" : ObjectId("5c3c5af0b3380de8315cb415"),
        "name" : "Mala",
        "maths marks" : 45,
        "english marks" : 53,
        "science marks" : 72
}
{
        "_id" : ObjectId("5c3c5b5cb3380de8315cb416"),
        "name" : "Vanu",
        "maths marks" : 80,
        "english marks" : 75,
        "science marks" : 85
}
{
        "_id" : ObjectId("5c3c5babb3380de8315cb417"),
        "name" : "Kala",
        "maths marks" : 32,
        "english marks" : 46,
        "science marks" : 53
}
{
        "_id" : ObjectId("5c3c5bedb3380de8315cb418"),
```

```
        "name" : "Aruli",
        "maths marks" : 78,
        "english marks" : 85,
        "science marks" : 80
}
{

        "_id" : ObjectId("5c3c5c36b3380de8315cb419"),
        "name" : "Shayu",
        "maths marks" : 80,
        "english marks" : 76,
        "science marks" : 65
}
{

        "_id" : ObjectId("5c3c5c6eb3380de8315cb41a"),
        "name" : "Kumaran",
        "maths marks" : 32,
        "english marks" : 73,
        "science marks" : 84
}
{

        "_id" : ObjectId("5c3c5cb0b3380de8315cb41b"),
        "name" : "Lucky",
        "maths marks" : 66,
        "english marks" : 90,
        "science marks" : 45
}
{

        "_id" : ObjectId("5c3c5cf7b3380de8315cb41c"),
        "name" : "Gva",
        "maths marks" : 71,
        "english marks" : 75,
        "science marks" : 56
}
{

        "_id" : ObjectId("5c3c5d33b3380de8315cb41d"),
        "name" : "Raam",
        "maths marks" : 41,
        "english marks" : 65,
       "science marks" : 88
```

```
        "_id" : ObjectId("5c3c5b5cb3380de8315cb416"),
        "name" : "Vanu",
        "maths marks" : 80,
        "english marks" : 75,
        "science marks" : 85
}
{
        "_id" : ObjectId("5c3c5babb3380de8315cb417"),
        "name" : "Kala",
        "maths marks" : 32,
        "english marks" : 46,
        "science marks" : 53
}
{
        "_id" : ObjectId("5c3c5bedb3380de8315cb418"),
        "name" : "Aruli",
        "maths marks" : 78,
        "english marks" : 85,
        "science marks" : 80
}
{
        "_id" : ObjectId("5c3c5c36b3380de8315cb419"),
        "name" : "Shayu",
        "maths marks" : 80,
        "english marks" : 76,
        "science marks" : 65
}
{
        "_id" : ObjectId("5c3c5c6eb3380de8315cb41a"),
        "name" : "Kumaran",
        "maths marks" : 32,
        "english marks" : 73,
        "science marks" : 84
}
{
        "_id" : ObjectId("5c3c5cb0b3380de8315cb41b"),
        "name" : "Lucky",
        "maths marks" : 66,
        "english marks" : 90,
        "science marks" : 45
}
{
        "_id" : ObjectId("5c3c5cf7b3380de8315cb41c"),
        "name" : "Gva",
        "maths marks" : 71,
        "english marks" : 75,
        "science marks" : 56
}
{
        "_id" : ObjectId("5c3c5d33b3380de8315cb41d"),
        "name" : "Raam",
        "maths marks" : 41,
        "english marks" : 65,
        "science marks" : 88
```

4) Increase the maths marks of Mala by 6 marks
db.studentmarks.update({"name":"Mala"},{$inc:{"maths marks":6}})
WriteResult({ "nMatched" : 1, "nUpserted" : 0, "nModified" : 1 })

```
                        ukistu01@ukipc01: ~                          ×

        "english marks" : 75,
        "science marks" : 85
}
{
        "_id" : ObjectId("5c3c5babb3380de8315cb417"),
        "name" : "Kala",
        "maths marks" : 32,
        "english marks" : 46,
        "science marks" : 53
}
{
        "_id" : ObjectId("5c3c5bedb3380de8315cb418"),
        "name" : "Aruli",
        "maths marks" : 78,
        "english marks" : 85,
        "science marks" : 80
}
{
        "_id" : ObjectId("5c3c5c36b3380de8315cb419"),
        "name" : "Shayu",
        "maths marks" : 80,
        "english marks" : 76,
        "science marks" : 65
}
{
        "_id" : ObjectId("5c3c5c6eb3380de8315cb41a"),
        "name" : "Kumaran",
        "maths marks" : 32,
        "english marks" : 73,
        "science marks" : 84
}
{
        "_id" : ObjectId("5c3c5cb0b3380de8315cb41b"),
        "name" : "Lucky",
        "maths marks" : 66,
        "english marks" : 90,
        "science marks" : 45
}
{
        "_id" : ObjectId("5c3c5cf7b3380de8315cb41c"),
        "name" : "Gva",
        "maths marks" : 71,
        "english marks" : 75,
        "science marks" : 56
}
{
        "_id" : ObjectId("5c3c5d33b3380de8315cb41d"),
        "name" : "Raam",
        "maths marks" : 41,
        "english marks" : 65,
        "science marks" : 88
}
> db.studentmarks.update( { "name": "Mala" },{ $inc: { "maths marks": 6 }})
WriteResult({ "nMatched" : 1, "nUpserted" : 0, "nModified" : 1 })
```

5) List the names of students who got more than 50 marks in Maths Subject.
> db.studentmarks.find({"maths marks":{$gt:50,}}).pretty()
{
        "_id" : ObjectId("5c3c5af0b3380de8315cb415"),
        "name" : "Mala",
        "maths marks" : 51,
        "english marks" : 53,
        "science marks" : 72
}
{
        "_id" : ObjectId("5c3c5b5cb3380de8315cb416"),
        "name" : "Vanu",
        "maths marks" : 80,
        "english marks" : 75,
        "science marks" : 85
}
{
        "_id" : ObjectId("5c3c5bedb3380de8315cb418"),
        "name" : "Aruli",
        "maths marks" : 78,
        "english marks" : 85,
        "science marks" : 80
}
{
        "_id" : ObjectId("5c3c5c36b3380de8315cb419"),
        "name" : "Shayu",
        "maths marks" : 80,
        "english marks" : 76,
        "science marks" : 65
}
{
        "_id" : ObjectId("5c3c5cb0b3380de8315cb41b"),
        "name" : "Lucky",
        "maths marks" : 66,
        "english marks" : 90,
        "science marks" : 45
}
{
        "_id" : ObjectId("5c3c5cf7b3380de8315cb41c"),
        "name" : "Gva",
        "maths marks" : 71,

```
          "english marks" : 75,
          "science marks" : 56
}
```


6)Add a new column(field) for Average for all students.

```
> db.studentmarks.update({},{$set:{Average:""}},{multi:true})
WriteResult({ "nMatched" : 9, "nUpserted" : 0, "nModified" : 9 })
```

```
ukistu01@ukipc01:~$ sudo mongo
[sudo] password for ukistu01:
MongoDB shell version v3.6.9
connecting to: mongodb://127.0.0.1:27017
Implicit session: session { "id" : UUID("9eb8cffd-09e0-4fa6-86e8-0b28dacc4698") }
MongoDB server version: 3.6.9
Server has startup warnings:
2019-01-16T10:23:57.619+0530 I STORAGE  [initandlisten]
2019-01-16T10:23:57.619+0530 I STORAGE  [initandlisten] ** WARNING: Using the XFS
2019-01-16T10:23:57.619+0530 I STORAGE  [initandlisten] **          See http://do
2019-01-16T10:23:59.829+0530 I CONTROL  [initandlisten]
2019-01-16T10:23:59.829+0530 I CONTROL  [initandlisten] ** WARNING: Access contro
2019-01-16T10:23:59.829+0530 I CONTROL  [initandlisten] **          Read and writ
2019-01-16T10:23:59.829+0530 I CONTROL  [initandlisten] ** WARNING: You are runni
2019-01-16T10:23:59.829+0530 I CONTROL  [initandlisten]
2019-01-16T10:23:59.829+0530 I CONTROL  [initandlisten] ** WARNING: This server i
2019-01-16T10:23:59.829+0530 I CONTROL  [initandlisten] **          Remote system
2019-01-16T10:23:59.829+0530 I CONTROL  [initandlisten] **          Start the ser
2019-01-16T10:23:59.829+0530 I CONTROL  [initandlisten] **          addresses it
2019-01-16T10:23:59.829+0530 I CONTROL  [initandlisten] **          bind to all i
2019-01-16T10:23:59.829+0530 I CONTROL  [initandlisten] **          server with -
2019-01-16T10:23:59.829+0530 I CONTROL  [initandlisten]
2019-01-16T10:23:59.829+0530 I CONTROL  [initandlisten]
2019-01-16T10:23:59.829+0530 I CONTROL  [initandlisten] ** WARNING: /sys/kernel/m
2019-01-16T10:23:59.829+0530 I CONTROL  [initandlisten] **          We suggest sett
2019-01-16T10:23:59.829+0530 I CONTROL  [initandlisten]
> use student
switched to db student
> db.studentmarks.update({"name":"Lucky"},{$set:{"science marks":75}})
WriteResult({ "nMatched" : 1, "nUpserted" : 0, "nModified" : 0 })
> db.studentmarks.update({},{$set:{Average:""}},{multi:true})
WriteResult({ "nMatched" : 9, "nUpserted" : 0, "nModified" : 9 })
>
```

7) Update Marks_Science=75 to Lucky .

> db.studentmarks.update({"name":"Lucky"},{$set:{"science marks":75}})

WriteResult({ "nMatched" : 1, "nUpserted" : 0, "nModified" : 0 })

8) List the names who got more than 50 marks in all subjects.

> db.studentmarks.find({$and:[{"maths marks":{$gt:50}},{"english marks":{$gt:50}},{"science marks":{$gt:50}}]},{"name":1,_id:0}).pretty()
{ "name" : "Mala" }
{ "name" : "Vanu" }
{ "name" : "Aruli" }
{ "name" : "Shayu" }
{ "name" : "Lucky" }
{ "name" : "Gva" }

9) List the names who got less than 50 marks in Maths subject and more than 50 marks in English
 db.studentmarks.find({$and:[{"maths marks":{$lt:50}},{"english marks":{$gt:50}}]},
{"name":1,_id:0}).pretty()
{ "name" : "Kumaran" }
{ "name" : "Raam" }

```
>  db.studentmarks.find({$and:[{"maths marks":{$lt:50}},{"english marks":{$gt:50}}]},{"name":1,_id:0}).pretty()
{ "name" : "Kumaran" }
{ "name" : "Raam" }
>
```

10) List the names who got less than 40 in both Maths and Science.

 db.studentmarks.find({$and:[{"maths marks":{$lt:40}},{"science marks":{$lt:40}}]},
{"name":1,_id:0}).pretty()
> db.studentmarks.find({$or:[{"maths marks":{$lt:40}},{"science marks":{$lt:40}}]},
{"name":1,_id:0}).pretty()
{ "name" : "Kala" }
{ "name" : "Kumaran" }

```
> db.studentmarks.find({$and:[{"maths marks":{$lt:40}},{"science marks":{$lt:40}}]},{"name":1,_id:0}).pretty()
> db.studentmarks.find({$or:[{"maths marks":{$lt:40}},{"science marks":{$lt:40}}]},{"name":1,_id:0}).pretty()
{ "name" : "Kala" }
{ "name" : "Kumaran" }
```

11) Remove Science column/field for Raam
db.studentmarks.update({"name":"Raam"},{$unset:{"science marks":88}})
WriteResult({ "nMatched" : 1, "nUpserted" : 0, "nModified" : 1 })

```
> db.studentmarks.update({"name":"Raam"},{$unset:{"science marks":88}})
WriteResult({ "nMatched" : 1, "nUpserted" : 0, "nModified" : 1 })
>
```

12) Update John's Math mark as 87 and English mark as 23, if john not available upsert.

> db.studentmarks.insert({"name":"John","maths marks":87,"english marks":23})
WriteResult({ "nInserted" : 1 })

```
> db.studentmarks.insert({"name":"John","maths marks":87,"english marks":23})
WriteResult({ "nInserted" : 1 })
>
```

13) Rename the english_marks column/field for John to science_marks
> db.studentmarks.update({"_id" : ObjectId("5c3ef503dc1f91db65bc199d")},{$rename:{"english marks":"science marks"}})
WriteResult({ "nMatched" : 1, "nUpserted" : 0, "nModified" : 1 })

```
> db.studentmarks.update({"_id" : ObjectId("5c3ef503dc1f91db65bc199d")},{$rename:{"english marks":"science marks"}})
WriteResult({ "nMatched" : 1, "nUpserted" : 0, "nModified" : 1 })
>
```

14) Remove Kumaran's document from collection
> db.studentmarks.remove({"name":"Kumaran"})
WriteResult({ "nRemoved" : 1 })

```
> db.studentmarks.remove({"name":"Kumaran"})
WriteResult({ "nRemoved" : 1 })
>
```

15) Find Kala's or Aruli's math_marks and science_marks
> db.studentmarks.find({$or:[{"name":"Kala"},{"name":"Aruli"}]},{"maths marks":1,"science marks":1}).pretty()
{
        "_id" : ObjectId("5c3c5babb3380de8315cb417"),
        "maths marks" : 32,
        "science marks" : 53
}
{
        "_id" : ObjectId("5c3c5bedb3380de8315cb418"),
        "maths marks" : 78,
        "science marks" : 80
}

```
> db.studentmarks.find({$or:[{"name":"Kala"},{"name":"Aruli"}]},{"maths marks":1,"science marks":1}).pretty()
{
        "_id" : ObjectId("5c3c5babb3380de8315cb417"),
        "maths marks" : 32,
        "science marks" : 53
}
{
        "_id" : ObjectId("5c3c5bedb3380de8315cb418"),
        "maths marks" : 78,
        "science marks" : 80
}
>
```