1. Create a Database called **student** & a collection called **studentmarks.**

```
> show dbs
admin      0.000GB
local      0.000GB
marks      0.000GB
music      0.000GB
node-demo  0.000GB
person     0.000GB
uki3       0.000GB
> use student
switched to db student
> db.createCollection("studentmarks")
{ "ok" : 1 }
```

2. Create the documents listed in above table.

```
> db.marksdetails.insert({"name":"mala","maths_marks":45,"english_marks":53,"science_marks":72})
WriteResult({ "nInserted" : 1 })
> db.marksdetails.insert({"name":"vanu","maths_marks":80,"english_marks":75,"science_marks":85})
WriteResult({ "nInserted" : 1 })
> db.marksdetails.insert({"name":"kala","maths_marks":32,"english_marks":46,"science_marks":53})
WriteResult({ "nInserted" : 1 })
> db.marksdetails.insert({"name":"aruli","maths_marks":78,"english_marks":85,"science_marks":80})
WriteResult({ "nInserted" : 1 })
> db.marksdetails.insert({"name":"shayu","maths_marks":80,"english_marks":76,"science_marks":65})
WriteResult({ "nInserted" : 1 })
> db.marksdetails.insert({"name":"kumaran","maths_marks":32,"english_marks":73,"science_marks":84})
WriteResult({ "nInserted" : 1 })
> db.marksdetails.insert({"name":"lucky","maths_marks":66,"english_marks":90,"science_marks":45})
WriteResult({ "nInserted" : 1 })
> db.marksdetails.insert({"name":"gva","maths_marks":71,"english_marks":75,"science_marks":56})
WriteResult({ "nInserted" : 1 })
> db.marksdetails.insert({"name":"raam","maths_marks":41,"english_marks":65,"science_marks":88})
WriteResult({ "nInserted" : 1 })
```

```
> db.marksdetails.find().pretty()
{
        "_id" : ObjectId("5b3f05d2c1965b9c268e3993"),
        "name" : "mala",
        "maths_marks" : 45,
        "english_marks" : 53,
        "science_marks" : 72
}
{
        "_id" : ObjectId("5b3f0620c1965b9c268e3994"),
        "name" : "vanu",
        "maths_marks" : 80,
        "english_marks" : 75,
        "science_marks" : 85
}
{
        "_id" : ObjectId("5b3f0679c1965b9c268e3995"),
        "name" : "kala",
        "maths_marks" : 32,
        "english_marks" : 46,
        "science_marks" : 53
}
{
        "_id" : ObjectId("5b3f06a1c1965b9c268e3996"),
        "name" : "aruli",
        "maths_marks" : 78,
        "english_marks" : 85,
        "science_marks" : 80
}
{
        "_id" : ObjectId("5b3f06efc1965b9c268e3997"),
        "name" : "shayu",
        "maths_marks" : 80,
        "english_marks" : 76,
        "science_marks" : 65
}
```

```
{
        "_id" : ObjectId("5b3f074bc1965b9c268e3998"),
        "name" : "kumaran",
        "maths_marks" : 32,
        "english_marks" : 73,
        "science_marks" : 84
}
{
        "_id" : ObjectId("5b3f077bc1965b9c268e3999"),
        "name" : "lucky",
        "maths_marks" : 66,
        "english_marks" : 90,
        "science_marks" : 45
}
{
        "_id" : ObjectId("5b3f07a6c1965b9c268e399a"),
        "name" : "gva",
        "maths_marks" : 71,
        "english_marks" : 75,
        "science_marks" : 56
}
{
        "_id" : ObjectId("5b3f07c7c1965b9c268e399b"),
        "name" : "raam",
        "maths_marks" : 41,
        "english_marks" : 65,
        "science_marks" : 88
}
```

3. Increase the maths marks of Mala by 6 marks .

```
> db.marksdetails.update({"name":"mala"},{$inc:{"maths_marks":-6}})
WriteResult({ "nMatched" : 1, "nUpserted" : 0, "nModified" : 1 })
> db.marksdetails.find().pretty()
{
        "_id" : ObjectId("5b3f05d2c1965b9c268e3993"),
        "name" : "mala",
        "maths_marks" : 51,
        "english_marks" : 53,
        "science_marks" : 72
}
```

4.List the names of students who got more than 50 marks in Maths Subject.

```
> db.marksdetails.find({"maths_marks":{$gt : 50}}).pretty()
{
        "_id" : ObjectId("5b3f05d2c1965b9c268e3993"),
        "name" : "mala",
        "maths_marks" : 51,
        "english_marks" : 53,
        "science_marks" : 72
}
{
        "_id" : ObjectId("5b3f0620c1965b9c268e3994"),
        "name" : "vanu",
        "maths_marks" : 80,
        "english_marks" : 75,
        "science_marks" : 85
}
{
        "_id" : ObjectId("5b3f06a1c1965b9c268e3996"),
        "name" : "aruli",
        "maths_marks" : 78,
        "english_marks" : 85,
        "science_marks" : 80
}
{
        "_id" : ObjectId("5b3f06efc1965b9c268e3997"),
        "name" : "shayu",
        "maths_marks" : 80,
        "english_marks" : 76,
        "science_marks" : 65
}
{
        "_id" : ObjectId("5b3f077bc1965b9c268e3999"),
        "name" : "lucky",
        "maths_marks" : 66,
        "english_marks" : 90,
        "science_marks" : 45
}
{
        "_id" : ObjectId("5b3f07a6c1965b9c268e399a"),
        "name" : "gva",
        "maths_marks" : 71,
        "english_marks" : 75,
        "science_marks" : 56
```

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

```
> db.marksdetails.aggregate({$addFields: {"average":null}}).pretty()
{
        "_id" : ObjectId("5b3f05d2c1965b9c268e3993"),
        "name" : "mala",
        "maths_marks" : 51,
        "english_marks" : 53,
        "science_marks" : 72,
        "average" : null
}
{
        "_id" : ObjectId("5b3f0620c1965b9c268e3994"),
        "name" : "vanu",
        "maths_marks" : 80,
        "english_marks" : 75,
        "science_marks" : 85,
        "average" : null
}
{
        "_id" : ObjectId("5b3f0679c1965b9c268e3995"),
        "name" : "kala",
        "maths_marks" : 32,
        "english_marks" : 46,
        "science_marks" : 53,
        "average" : null
}
{
        "_id" : ObjectId("5b3f06a1c1965b9c268e3996"),
        "name" : "aruli",
        "maths_marks" : 78,
        "english_marks" : 85,
        "science_marks" : 80,
        "average" : null
}
{
        "_id" : ObjectId("5b3f06efc1965b9c268e3997"),
        "name" : "shayu",
        "maths_marks" : 80,
        "english_marks" : 76,
        "science_marks" : 65,
        "average" : null
}
```

```
{
        "_id" : ObjectId("5b3f074bc1965b9c268e3998"),
        "name" : "kumaran",
        "maths_marks" : 32,
        "english_marks" : 73,
        "science_marks" : 84,
        "average" : null
}
{
        "_id" : ObjectId("5b3f077bc1965b9c268e3999"),
        "name" : "lucky",
        "maths_marks" : 66,
        "english_marks" : 90,
        "science_marks" : 45,
        "average" : null
}
{
        "_id" : ObjectId("5b3f07a6c1965b9c268e399a"),
        "name" : "gva",
        "maths_marks" : 71,
        "english_marks" : 75,
        "science_marks" : 56,
        "average" : null
}
{
        "_id" : ObjectId("5b3f07c7c1965b9c268e399b"),
        "name" : "raam",
        "maths_marks" : 41,
        "english_marks" : 65,
        "science_marks" : 88,
        "average" : null
}
```

6. Update Marks_Science=75 to Lucky .

```
> db.marksdetails.update({"science_marks":45},{$set: {"science_marks":75}})
WriteResult({ "nMatched" : 1, "nUpserted" : 0, "nModified" : 1 })
> db.marksdetails.find().pretty()
{
        "_id" : ObjectId("5b3f05d2c1965b9c268e3993"),
        "name" : "mala",
        "maths_marks" : 51,
        "english_marks" : 53,
        "science_marks" : 72
}
{
        "_id" : ObjectId("5b3f0620c1965b9c268e3994"),
        "name" : "vanu",
        "maths_marks" : 80,
        "english_marks" : 75,
        "science_marks" : 85
}
{
        "_id" : ObjectId("5b3f0679c1965b9c268e3995"),
        "name" : "kala",
        "maths_marks" : 32,
        "english_marks" : 46,
        "science_marks" : 53
}
{
        "_id" : ObjectId("5b3f06a1c1965b9c268e3996"),
        "name" : "aruli",
        "maths_marks" : 78,
        "english_marks" : 85,
        "science_marks" : 80
}
{
        "_id" : ObjectId("5b3f06efc1965b9c268e3997"),
        "name" : "shayu",
        "maths_marks" : 80,
        "english_marks" : 76,
        "science_marks" : 65
}
```

```
{
        "_id" : ObjectId("5b3f074bc1965b9c268e3998"),
        "name" : "kumaran",
        "maths_marks" : 32,
        "english_marks" : 73,
        "science_marks" : 84
}
{
        "_id" : ObjectId("5b3f077bc1965b9c268e3999"),
        "name" : "lucky",
        "maths_marks" : 66,
        "english_marks" : 90,
        "science_marks" : 75
}
{
        "_id" : ObjectId("5b3f07a6c1965b9c268e399a"),
        "name" : "gva",
        "maths_marks" : 71,
        "english_marks" : 75,
        "science_marks" : 56
}
{
        "_id" : ObjectId("5b3f07c7c1965b9c268e399b"),
        "name" : "raam",
        "maths_marks" : 41,
        "english_marks" : 65,
        "science_marks" : 88
}
```

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

```
> db.studentmarks.find({'maths_marks':{$gt:50}}).pretty()
{
        "_id" : ObjectId("5b42e997f485181c93131f44"),
        "name" : "Mala",
        "maths_marks" : 51,
        "english_marks" : 53,
        "science_marks" : 72
}
{
        "_id" : ObjectId("5b42e997f485181c93131f45"),
        "name" : "Vanu",
        "maths_marks" : 80,
        "english_marks" : 75,
        "science_marks" : 85
}
{
        "_id" : ObjectId("5b42e997f485181c93131f47"),
        "name" : "Aruli",
        "maths_marks" : 78,
        "english_marks" : 85,
        "science_marks" : 80
}
{
        "_id" : ObjectId("5b42e997f485181c93131f48"),
        "name" : "Shayu",
        "maths_marks" : 80,
        "english_marks" : 76,
        "science_marks" : 65
}
{
        "_id" : ObjectId("5b42e997f485181c93131f4a"),
        "name" : "Lucky",
        "maths_marks" : 66,
        "english_marks" : 90,
        "science_marks" : 45,
        "Marks_science" : 75
}
{
        "_id" : ObjectId("5b42e997f485181c93131f4b"),
        "name" : "Gva",
        "maths_marks" : 71,
        "english_marks" : 75,
```

```
20db.studentmarks.find({'science_marks':{$gt:50}}).pretty()
{
        "_id" : ObjectId("5b42e997f485181c93131f44"),
        "name" : "Mala",
        "maths_marks" : 51,
        "english_marks" : 53,
        "science_marks" : 72
}
{
        "_id" : ObjectId("5b42e997f485181c93131f45"),
        "name" : "Vanu",
        "maths_marks" : 80,
        "english_marks" : 75,
        "science_marks" : 85
}
{
        "_id" : ObjectId("5b42e997f485181c93131f46"),
        "name" : "Kala",
        "maths_marks" : 32,
        "english_marks" : 46,
        "science_marks" : 53
}
{
        "_id" : ObjectId("5b42e997f485181c93131f47"),
        "name" : "Aruli",
        "maths_marks" : 78,
        "english_marks" : 85,
        "science_marks" : 80
}
{
        "_id" : ObjectId("5b42e997f485181c93131f48"),
        "name" : "Shayu",
        "maths_marks" : 80,
        "english_marks" : 76,
        "science_marks" : 65
}
{
        "_id" : ObjectId("5b42e997f485181c93131f49"),
        "name" : "Kumaran",
        "maths_marks" : 32,
        "english_marks" : 73,
        "science_marks" : 84
```

```
> db.studentmarks.find({'english_marks':{$gt:50}}).pretty()
{
        "_id" : ObjectId("5b42e997f485181c93131f44"),
        "name" : "Mala",
        "maths_marks" : 51,
        "english_marks" : 53,
        "science_marks" : 72
}
{
        "_id" : ObjectId("5b42e997f485181c93131f45"),
        "name" : "Vanu",
        "maths_marks" : 80,
        "english_marks" : 75,
        "science_marks" : 85
}
{
        "_id" : ObjectId("5b42e997f485181c93131f47"),
        "name" : "Aruli",
        "maths_marks" : 78,
        "english_marks" : 85,
        "science_marks" : 80
}
{
        "_id" : ObjectId("5b42e997f485181c93131f48"),
        "name" : "Shayu",
        "maths_marks" : 80,
        "english_marks" : 76,
        "science_marks" : 65
}
{
        "_id" : ObjectId("5b42e997f485181c93131f49"),
        "name" : "Kumaran",
        "maths_marks" : 32,
        "english_marks" : 73,
        "science_marks" : 84
}
{
        "_id" : ObjectId("5b42e997f485181c93131f4a"),
        "name" : "Lucky",
        "maths_marks" : 66,
        "english_marks" : 90,
        "science_marks" : 45,
```

8. 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}}]}).pretty()
{
        "_id" : ObjectId("5b42e997f485181c93131f49"),
        "name" : "Kumaran",
        "maths_marks" : 32,
        "english_marks" : 73,
        "science_marks" : 84
}
{
        "_id" : ObjectId("5b42e997f485181c93131f4c"),
        "name" : "Raam",
        "maths_marks" : 41,
        "english_marks" : 65,
        "science_marks" : 88
}
>
```

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

```
> db.studentmarks.find({$and:[{"maths_marks":{$lt:40}},{"english_marks":{$gt: 40}}]}).pretty()
{
        "_id" : ObjectId("5b3f0fa74bd7f078d40fcd4f"),
        "name" : "kala",
        "maths_marks" : 32,
        "english_marks" : 46,
        "science_marks" : 53
}
{
        "_id" : ObjectId("5b3f0fa74bd7f078d40fcd52"),
        "name" : "kumaran",
        "maths_marks" : 32,
        "english_marks" : 73,
        "science_marks" : 84
}
{
        "_id" : ObjectId("5b443ec1761ce941518a4858"),
        "name" : "kala",
        "maths_marks" : 32,
        "english_marks" : 46,
        "science_marks" : 53
}
{
        "_id" : ObjectId("5b443ec1761ce941518a485b"),
        "name" : "kumaran",
        "maths_marks" : 32,
        "english_marks" : 73,
        "science_marks" : 84
}
}
```

10. Remove Science column/field for Raam

```
> db.studentmarks.update({"name":"raam"},{$unset:{"science_marks":""}})
WriteResult({ "nMatched" : 1, "nUpserted" : 0, "nModified" : 1 })
>
```

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

```
> db.collection.insert({"name":"jhon","maths_marks":87,"english_marks":23},{upsert:true})
WriteResult({ "nInserted" : 1 })
>
```

12. Rename the english_marks column/field for John to science_marks

```
> db.collection.insert({"name":"jhon","maths_marks":87,"english_marks":23},{upsert:true})
WriteResult({ "nInserted" : 1 })
> db.studentmarks.update({"name":"jhon"},{$rename:{"maths_marks":"science_marks"}})
```

13. Remove Kumaran's document from collection

```
> db.studentmarks.deleteMany({"name":"kumaran","maths_marks":32,"english_marks":73,"science_marks":84})
{ "acknowledged" : true, "deletedCount" : 2 }
```

14.Find Kala's or Aruli's math_marks and science_marks