

```

> use College
switched to db College

> db.student.insertOne( { rollno:33255, name:"Shreyas
Kalrao", marks:[9.2,8.9,9.2,9.5],
res_add:"Mundhwa,Pune-411001", clg_add:"Dhankawdi,
Pune-411002" } )
{
  "acknowledged" : true,
  "insertedId" : ObjectId("5fbc99c3af6fca8e41690e6f")
}

> db.student.find({}).pretty()
{
  "_id" : ObjectId("5fbc983faf6fca8e41690e6e"),
  "rollno" : 33256,
  "name" : "Someshwar Gaikwad",
  "marks" : [
    9.3,
    9.2,
    8.9,
    9.1
  ],
  "res_add" : "Mundhwa,Pune-411036",
  "clg_add" : "Dhankawdi, Pune-411002"
}
{
  "_id" : ObjectId("5fbc99c3af6fca8e41690e6f"),
  "rollno" : 33255,
  "name" : "Shreyas Kalrao",
  "marks" : [
    9.2,
    8.9,
    9.2,
    9.5
  ],
  "res_add" : "Mundhwa,Pune-411001",
  "clg_add" : "Dhankawdi, Pune-411002"
}

>db.student.insertMany([
... .. {rollno:33249, name:"Harsh Sakhrani", marks:
[8.8,9.2,9.1,8.9], res_add:"BT Kawade Road, Pune-411036",
clg_add:"Dhankawdi, Pune-411002"},
... .. {rollno:33250, name:"Saloni Parekh", marks:
[9.6,9.7,9.9,8.9], res_add:"Shivaji Nagar, Pune-411006",
clg_add:"Dhankawdi, Pune-411002"},

```

```

... .. {rollno:33251, name:"Anuj Saoji", marks:
[8.8,9.2,8.1,8.9], res_add:"MG Road, Kolhapur-211056",
clg_add:"Dhankawdi, Pune-411002"},
... .. {rollno:33253, name:"Prathamesh Shiralkar",
marks:[9.8,8.2,8.1,9.9], res_add:"Rich Road, Shirdi-32411",
clg_add:"Dhankawdi, Pune-411002"},
... .. {rollno:33252, name:"Onkar Sharma", marks:
[8.8,7.2,7.1,8.9], res_add:"Trimbakeshwar Road,
Nashik-51190", clg_add:"Dhankawdi, Pune-411002"}
... .. ]
{
  "acknowledged" : true,
  "insertedIds" : [
    ObjectId("5fbc9cf9af6fca8e41690e70"),
    ObjectId("5fbc9cf9af6fca8e41690e71"),
    ObjectId("5fbc9cf9af6fca8e41690e72"),
    ObjectId("5fbc9cf9af6fca8e41690e73"),
    ObjectId("5fbc9cf9af6fca8e41690e74")
  ]
}

> db.student.find({}).sort( {rollno: 1} )
{ "_id" : ObjectId("5fbc9cf9af6fca8e41690e70"), "rollno" :
33249, "name" : "Harsh Sakhrani", "marks" : [ 8.8, 9.2, 9.1,
8.9 ], "res_add" : "BT Kawade Road, Pune-411036", "clg_add" :
"Dhankawdi, Pune-411002" }
{ "_id" : ObjectId("5fbc9cf9af6fca8e41690e71"), "rollno" :
33250, "name" : "Saloni Parekh", "marks" : [ 9.6, 9.7, 9.9,
8.9 ], "res_add" : "Shivaji Nagar, Pune-411006", "clg_add" :
"Dhankawdi, Pune-411002" }
{ "_id" : ObjectId("5fbc9cf9af6fca8e41690e72"), "rollno" :
33251, "name" : "Anuj Saoji", "marks" : [ 8.8, 9.2, 8.1,
8.9 ], "res_add" : "MG Road, Kolhapur-211056", "clg_add" :
"Dhankawdi, Pune-411002" }
{ "_id" : ObjectId("5fbc9cf9af6fca8e41690e74"), "rollno" :
33252, "name" : "Onkar Sharma", "marks" : [ 8.8, 7.2, 7.1,
8.9 ], "res_add" : "Trimbakeshwar Road, Nashik-51190",
"clg_add" : "Dhankawdi, Pune-411002" }
{ "_id" : ObjectId("5fbc9cf9af6fca8e41690e73"), "rollno" :
33253, "name" : "Prathamesh Shiralkar", "marks" : [ 9.8, 8.2,
8.1, 9.9 ], "res_add" : "Rich Road, Shirdi-32411",
"clg_add" : "Dhankawdi, Pune-411002" }
{ "_id" : ObjectId("5fbc99c3af6fca8e41690e6f"), "rollno" :
33255, "name" : "Shreyas Kalrao", "marks" : [ 9.2, 8.9, 9.2,
9.5 ], "res_add" : "Mundhwa,Pune-411001", "clg_add" :
"Dhankawdi, Pune-411002" }
{ "_id" : ObjectId("5fbc983faf6fca8e41690e6e"), "rollno" :
33256, "name" : "Someshwar Gaikwad", "marks" : [ 9.3, 9.2,

```

```
8.9, 9.1 ], "res_add" : "Mundhwa,Pune-411036", "clg_add" :  
"Dhankawdi, Pune-411002" }
```

```
> db.student.insertMany([  
... {rollno:33254, name: "Muskaan Shraogi", marks:  
[9.9,9.1,9.2,9.9], res_add: "That Road, Akola-21322",  
clg_add:"Dhankawdi, Pune-411002"},  
... {rollno:33257, name: "Sushant Sontakke", marks:  
[8.9,8.1,8.2,8.9], res_add: "Ichalkaranji, Kolhapur-31124",  
clg_add:"Dhankawdi, Pune-411002"},  
... {rollno:33258, name: "Venkatesh Sooryanshi", marks:  
[6.9,9.1,8.2,9.2], res_add: "Hot Road, Nashik-21132",  
clg_add:"Dhankawdi, Pune-411002"}  
... ])  
{  
  "acknowledged" : true,  
  "insertedIds" : [  
    ObjectId("5fbc9edcaf6fca8e41690e75"),  
    ObjectId("5fbc9edcaf6fca8e41690e76"),  
    ObjectId("5fbc9edcaf6fca8e41690e77")  
  ]  
}
```

```
> db.student.find({}).sort( {rollno: 1} )  
{ "_id" : ObjectId("5fbc9cf9af6fca8e41690e70"), "rollno" :  
33249, "name" : "Harsh Sakhrani", "marks" : [ 8.8, 9.2, 9.1,  
8.9 ], "res_add" : "BT Kawade Road, Pune-411036", "clg_add" :  
"Dhankawdi, Pune-411002" }  
{ "_id" : ObjectId("5fbc9cf9af6fca8e41690e71"), "rollno" :  
33250, "name" : "Saloni Parekh", "marks" : [ 9.6, 9.7, 9.9,  
8.9 ], "res_add" : "Shivaji Nagar, Pune-411006", "clg_add" :  
"Dhankawdi, Pune-411002" }  
{ "_id" : ObjectId("5fbc9cf9af6fca8e41690e72"), "rollno" :  
33251, "name" : "Anuj Saoji", "marks" : [ 8.8, 9.2, 8.1,  
8.9 ], "res_add" : "MG Road, Kolhapur-211056", "clg_add" :  
"Dhankawdi, Pune-411002" }  
{ "_id" : ObjectId("5fbc9cf9af6fca8e41690e74"), "rollno" :  
33252, "name" : "Onkar Sharma", "marks" : [ 8.8, 7.2, 7.1,  
8.9 ], "res_add" : "Trimbakeshwar Road, Nashik-51190",  
"clg_add" : "Dhankawdi, Pune-411002" }  
{ "_id" : ObjectId("5fbc9cf9af6fca8e41690e73"), "rollno" :  
33253, "name" : "Prathamesh Shiralkar", "marks" : [ 9.8, 8.2,  
8.1, 9.9 ], "res_add" : "Rich Road, Shirdi-32411",  
"clg_add" : "Dhankawdi, Pune-411002" }  
{ "_id" : ObjectId("5fbc9edcaf6fca8e41690e75"), "rollno" :  
33254, "name" : "Muskaan Shraogi", "marks" : [ 9.9, 9.1, 9.2,  
9.9 ], "res_add" : "That Road, Akola-21322", "clg_add" :  
"Dhankawdi, Pune-411002" }
```

```
{ "_id" : ObjectId("5fbc99c3af6fca8e41690e6f"), "rollno" :
33255, "name" : "Shreyas Kalrao", "marks" : [ 9.2, 8.9, 9.2,
9.5 ], "res_add" : "Mundhwa,Pune-411001", "clg_add" :
"Dhankawdi, Pune-411002" }
{ "_id" : ObjectId("5fbc983faf6fca8e41690e6e"), "rollno" :
33256, "name" : "Someshwar Gaikwad", "marks" : [ 9.3, 9.2,
8.9, 9.1 ], "res_add" : "Mundhwa,Pune-411036", "clg_add" :
"Dhankawdi, Pune-411002" }
{ "_id" : ObjectId("5fbc9edcaf6fca8e41690e76"), "rollno" :
33257, "name" : "Sushant Sontakke", "marks" : [ 8.9, 8.1,
8.2, 8.9 ], "res_add" : "Ichalkaranji, Kolhapur-31124",
"clg_add" : "Dhankawdi, Pune-411002" }
{ "_id" : ObjectId("5fbc9edcaf6fca8e41690e77"), "rollno" :
33258, "name" : "Venkatesh Sooryanshi", "marks" : [ 6.9, 9.1,
8.2, 9.2 ], "res_add" : "Hot Road, Nashik-21132", "clg_add" :
"Dhankawdi, Pune-411002" }
```

1. Find the student who has live in same city as college.

```
> db.student.find({ $and: [{ res_add: { $regex:".*Pune.*" }},
{ clg_add:
{ $regex:".*Pune.*" }}] }).sort({rollno:1}).pretty()
{
  "_id" : ObjectId("5fbc9cf9af6fca8e41690e70"),
  "rollno" : 33249,
  "name" : "Harsh Sakhrani",
  "marks" : [
    8.8,
    9.2,
    9.1,
    8.9
  ],
  "res_add" : "BT Kawade Road, Pune-411036",
  "clg_add" : "Dhankawdi, Pune-411002"
}
{
  "_id" : ObjectId("5fbc9cf9af6fca8e41690e71"),
  "rollno" : 33250,
  "name" : "Saloni Parekh",
  "marks" : [
    9.6,
    9.7,
    9.9,
    8.9
  ],
}
```

```

    "res_add" : "Shivaji Nagar, Pune-411006",
    "clg_add" : "Dhankawdi, Pune-411002"
  }
  {
    "_id" : ObjectId("5fbc99c3af6fca8e41690e6f"),
    "rollno" : 33255,
    "name" : "Shreyas Kalrao",
    "marks" : [
      9.2,
      8.9,
      9.2,
      9.5
    ],
    "res_add" : "Mundhwa,Pune-411001",
    "clg_add" : "Dhankawdi, Pune-411002"
  }
  {
    "_id" : ObjectId("5fbc983faf6fca8e41690e6e"),
    "rollno" : 33256,
    "name" : "Someshwar Gaikwad",
    "marks" : [
      9.3,
      9.2,
      8.9,
      9.1
    ],
    "res_add" : "Mundhwa,Pune-411036",
    "clg_add" : "Dhankawdi, Pune-411002"
  }
}

```

2. Retrieve the 4, 5 documents from collection.

3. Update the marks array for SE, TE, BE marks.

```

> db.student.update( { rollno:33256 }, { $pop: { marks: 1 } }
)
WriteResult({ "nMatched" : 1, "nUpserted" : 0, "nModified" :
1 })

> db.student.update( { rollno:33256 }, { $pop: { marks: 1 } }
)
WriteResult({ "nMatched" : 1, "nUpserted" : 0, "nModified" :
1 })

> db.student.update( { rollno:33256 }, { $pop: { marks: 1 } }
)

```

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

```
> db.student.find({}).sort( {rollno: 1} )  
{ "_id" : ObjectId("5fbc9cf9af6fca8e41690e70"), "rollno" :  
33249, "name" : "Harsh Sakhrani", "marks" : [ 8.8, 9.2, 9.1,  
8.9 ], "res_add" : "BT Kawade Road, Pune-411036", "clg_add" :  
"Dhankawdi, Pune-411002" }  
{ "_id" : ObjectId("5fbc9cf9af6fca8e41690e71"), "rollno" :  
33250, "name" : "Saloni Parekh", "marks" : [ 9.6, 9.7, 9.9,  
8.9 ], "res_add" : "Shivaji Nagar, Pune-411006", "clg_add" :  
"Dhankawdi, Pune-411002" }  
{ "_id" : ObjectId("5fbc9cf9af6fca8e41690e72"), "rollno" :  
33251, "name" : "Anuj Saoji", "marks" : [ 8.8, 9.2, 8.1,  
8.9 ], "res_add" : "MG Road, Kolhapur-211056", "clg_add" :  
"Dhankawdi, Pune-411002" }  
{ "_id" : ObjectId("5fbc9cf9af6fca8e41690e74"), "rollno" :  
33252, "name" : "Onkar Sharma", "marks" : [ 8.8, 7.2, 7.1,  
8.9 ], "res_add" : "Trimbakeshwar Road, Nashik-51190",  
"clg_add" : "Dhankawdi, Pune-411002" }  
{ "_id" : ObjectId("5fbc9cf9af6fca8e41690e73"), "rollno" :  
33253, "name" : "Prathamesh Shiralkar", "marks" : [ 9.8, 8.2,  
8.1, 9.9 ], "res_add" : "Rich Road, Shirdi-32411",  
"clg_add" : "Dhankawdi, Pune-411002" }  
{ "_id" : ObjectId("5fbc9edcaf6fca8e41690e75"), "rollno" :  
33254, "name" : "Muskaan Shraogi", "marks" : [ 9.9, 9.1, 9.2,  
9.9 ], "res_add" : "That Road, Akola-21322", "clg_add" :  
"Dhankawdi, Pune-411002" }  
{ "_id" : ObjectId("5fbc99c3af6fca8e41690e6f"), "rollno" :  
33255, "name" : "Shreyas Kalrao", "marks" : [ 9.2, 8.9, 9.2,  
9.5 ], "res_add" : "Mundhwa,Pune-411001", "clg_add" :  
"Dhankawdi, Pune-411002" }  
{ "_id" : ObjectId("5fbc983faf6fca8e41690e6e"), "rollno" :  
33256, "name" : "Someshwar Gaikwad", "marks" : [ 9.3 ],  
"res_add" : "Mundhwa,Pune-411036", "clg_add" : "Dhankawdi,  
Pune-411002" }  
{ "_id" : ObjectId("5fbc9edcaf6fca8e41690e76"), "rollno" :  
33257, "name" : "Sushant Sontakke", "marks" : [ 8.9, 8.1,  
8.2, 8.9 ], "res_add" : "Ichalkaranji, Kolhapur-31124",  
"clg_add" : "Dhankawdi, Pune-411002" }  
{ "_id" : ObjectId("5fbc9edcaf6fca8e41690e77"), "rollno" :  
33258, "name" : "Venkatesh Sooryanshi", "marks" : [ 6.9, 9.1,  
8.2, 9.2 ], "res_add" : "Hot Road, Nashik-21132", "clg_add" :  
"Dhankawdi, Pune-411002" }
```

```
> db.student.update( { rollno:33256 }, { $push: { marks:  
6.1 } } )
```

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

```
> db.student.update( { rollno:33256 }, { $push: { marks: 7.1 } } )
```

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

```
> db.student.update( { rollno:33256 }, { $push: { marks: 8.1 } } )
```

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

```
> db.student.find({}).sort( {rollno: 1} )
```

```
{ "_id" : ObjectId("5fbc9cf9af6fca8e41690e70"), "rollno" : 33249, "name" : "Harsh Sakhrani", "marks" : [ 8.8, 9.2, 9.1, 8.9 ], "res_add" : "BT Kawade Road, Pune-411036", "clg_add" : "Dhankawdi, Pune-411002" }
```

```
{ "_id" : ObjectId("5fbc9cf9af6fca8e41690e71"), "rollno" : 33250, "name" : "Saloni Parekh", "marks" : [ 9.6, 9.7, 9.9, 8.9 ], "res_add" : "Shivaji Nagar, Pune-411006", "clg_add" : "Dhankawdi, Pune-411002" }
```

```
{ "_id" : ObjectId("5fbc9cf9af6fca8e41690e72"), "rollno" : 33251, "name" : "Anuj Saoji", "marks" : [ 8.8, 9.2, 8.1, 8.9 ], "res_add" : "MG Road, Kolhapur-211056", "clg_add" : "Dhankawdi, Pune-411002" }
```

```
{ "_id" : ObjectId("5fbc9cf9af6fca8e41690e74"), "rollno" : 33252, "name" : "Onkar Sharma", "marks" : [ 8.8, 7.2, 7.1, 8.9 ], "res_add" : "Trimbakeshwar Road, Nashik-51190", "clg_add" : "Dhankawdi, Pune-411002" }
```

```
{ "_id" : ObjectId("5fbc9cf9af6fca8e41690e73"), "rollno" : 33253, "name" : "Prathamesh Shiralkar", "marks" : [ 9.8, 8.2, 8.1, 9.9 ], "res_add" : "Rich Road, Shirdi-32411", "clg_add" : "Dhankawdi, Pune-411002" }
```

```
{ "_id" : ObjectId("5fbc9edcaf6fca8e41690e75"), "rollno" : 33254, "name" : "Muskaan Shraogi", "marks" : [ 9.9, 9.1, 9.2, 9.9 ], "res_add" : "That Road, Akola-21322", "clg_add" : "Dhankawdi, Pune-411002" }
```

```
{ "_id" : ObjectId("5fbc99c3af6fca8e41690e6f"), "rollno" : 33255, "name" : "Shreyas Kalrao", "marks" : [ 9.2, 8.9, 9.2, 9.5 ], "res_add" : "Mundhwa,Pune-411001", "clg_add" : "Dhankawdi, Pune-411002" }
```

```
{ "_id" : ObjectId("5fbc983faf6fca8e41690e6e"), "rollno" : 33256, "name" : "Someswar Gaikwad", "marks" : [ 9.3, 6.1, 7.1, 8.1 ], "res_add" : "Mundhwa,Pune-411036", "clg_add" : "Dhankawdi, Pune-411002" }
```

```
{ "_id" : ObjectId("5fbc9edcaf6fca8e41690e76"), "rollno" : 33257, "name" : "Sushant Sontakke", "marks" : [ 8.9, 8.1,
```

```

8.2, 8.9 ], "res_add" : "Ichalkaranji, Kolhapur-31124",
"clg_add" : "Dhankawdi, Pune-411002" }
{ "_id" : ObjectId("5fbc9edcaf6fca8e41690e77"), "rollno" :
33258, "name" : "Venkatesh Sooryanshi", "marks" : [ 6.9, 9.1,
8.2, 9.2 ], "res_add" : "Hot Road, Nashik-21132", "clg_add" :
"Dhankawdi, Pune-411002" }

```

4. Use index, explain it and drop the index

```

> db.student.createIndex({rollno: -1})
{
  "createdCollectionAutomatically" : false,
  "numIndexesBefore" : 1,
  "numIndexesAfter" : 2,
  "ok" : 1
}
> db.records.dropIndex( { rollno: -1 } )
{
  "ok" : 0,
  "errmsg" : "can't find index with key: { rollno: -1.0 }",
  "code" : 27,
  "codeName" : "IndexNotFound"
}

```

5. Find the average of each year for every student.

```

> db.student.aggregate([ { $project: { _id: "$rollno",
avgmarks: { $avg: "$marks" } } } ])
{ "_id" : 33256, "avgmarks" : 7.65 }
{ "_id" : 33255, "avgmarks" : 9.2 }
{ "_id" : 33249, "avgmarks" : 9 }
{ "_id" : 33250, "avgmarks" : 9.525 }
{ "_id" : 33251, "avgmarks" : 8.75 }
{ "_id" : 33253, "avgmarks" : 9 }
{ "_id" : 33252, "avgmarks" : 8 }
{ "_id" : 33254, "avgmarks" : 9.525 }
{ "_id" : 33257, "avgmarks" : 8.525 }
{ "_id" : 33258, "avgmarks" : 8.35 }

```