

Practical-10

Current Mongosh Log ID: 68ffccbde5aae794bcebea3

```
test> use collegeDB;
switched to db collegeDB
collegeDB> db.students.insertMany([
... { roll: 1, name: "Aniket Kamble", course: "Computer Engineering", marks: 88, city: "Mumbai",
year: "TE" },
... { roll: 2, name: "Riya Patel", course: "Information Technology", marks: 90, city: "Pune", year:
"BE" },
... { roll: 3, name: "Amit Sharma", course: "Computer Engineering", marks: 75, city: "Nagpur", year:
"SE" },
... { roll: 4, name: "Sneha Deshmukh", course: "AI & DS", marks: 82, city: "Mumbai", year: "BE" },
... { roll: 5, name: "Rohan Joshi", course: "IT", marks: 68, city: "Nashik", year: "FE" },
... { roll: 6, name: "Priya Mehta", course: "Computer Engineering", marks: 95, city: "Pune", year:
"BE" }
... ]);
...
{
  acknowledged: true,
  insertedIds: {
    '0': ObjectId('68ffcbd6de5aae794bcebea4'),
    '1': ObjectId('68ffcbd6de5aae794bcebea5'),
    '2': ObjectId('68ffcbd6de5aae794bcebea6'),
    '3': ObjectId('68ffcbd6de5aae794bcebea7'),
    '4': ObjectId('68ffcbd6de5aae794bcebea8'),
    '5': ObjectId('68ffcbd6de5aae794bcebea9')
  }
}
collegeDB> db.students.aggregate([
... { $group: { _id: "$course", avgMarks: { $avg: "$marks" } } }
... ]);
...
[
  { _id: 'IT', avgMarks: 68 },
  { _id: 'Information Technology', avgMarks: 90 },
  { _id: 'Computer Engineering', avgMarks: 86 },
  { _id: 'AI & DS', avgMarks: 82 }
]
collegeDB> db.students.aggregate([
... { $match: { city: "Mumbai" } },
... { $group: { _id: "$city", avgMarks: { $avg: "$marks" }, count: { $sum: 1 } } }
... ]);
...
[ { _id: 'Mumbai', avgMarks: 85, count: 2 } ]
collegeDB> db.students.aggregate([
... { $sort: { marks: -1 } }
```

```
... ]);
...
[
{
  _id: ObjectId('68ffcbd6de5aae794bcebea9'),
  roll: 6,
  name: 'Priya Mehta',
  course: 'Computer Engineering',
  marks: 95,
  city: 'Pune',
  year: 'BE'
},
{
  _id: ObjectId('68ffcbd6de5aae794bcebea5'),
  roll: 2,
  name: 'Riya Patel',
  course: 'Information Technology',
  marks: 90,
  city: 'Pune',
  year: 'BE'
},
{
  _id: ObjectId('68ffcbd6de5aae794bcebea4'),
  roll: 1,
  name: 'Aniket Kamble',
  course: 'Computer Engineering',
  marks: 88,
  city: 'Mumbai',
  year: 'TE'
},
{
  _id: ObjectId('68ffcbd6de5aae794bcebea7'),
  roll: 4,
  name: 'Sneha Deshmukh',
  course: 'AI & DS',
  marks: 82,
  city: 'Mumbai',
  year: 'BE'
},
{
  _id: ObjectId('68ffcbd6de5aae794bcebea6'),
  roll: 3,
  name: 'Amit Sharma',
  course: 'Computer Engineering',
  marks: 75,
  city: 'Nagpur',
  year: 'SE'
},
```

```
{
  _id: ObjectId('68ffcbd6de5aae794bcebea8'),
  roll: 5,
  name: 'Rohan Joshi',
  course: 'IT',
  marks: 68,
  city: 'Nashik',
  year: 'FE'
}
]
collegeDB> db.students.aggregate([
... { $project: { _id: 0, name: 1, marks: 1 } }
... ]);
...
[
  { name: 'Aniket Kamble', marks: 88 },
  { name: 'Riya Patel', marks: 90 },
  { name: 'Amit Sharma', marks: 75 },
  { name: 'Sneha Deshmukh', marks: 82 },
  { name: 'Rohan Joshi', marks: 68 },
  { name: 'Priya Mehta', marks: 95 }
]
collegeDB> db.students.aggregate([
... { $group: { _id: "$city", totalStudents: { $sum: 1 } } },
... { $sort: { totalStudents: -1 } }
... ]);
...
[
  { _id: 'Pune', totalStudents: 2 },
  { _id: 'Mumbai', totalStudents: 2 },
  { _id: 'Nashik', totalStudents: 1 },
  { _id: 'Nagpur', totalStudents: 1 }
]
collegeDB> db.students.createIndex({ marks: 1 });
marks_1
collegeDB> db.students.createIndex({ course: 1, city: 1 });
course_1_city_1
collegeDB> db.students.getIndexes();
[
  { v: 2, key: { _id: 1 }, name: '_id_' },
  { v: 2, key: { marks: 1 }, name: 'marks_1' },
  { v: 2, key: { course: 1, city: 1 }, name: 'course_1_city_1' }
]
collegeDB>
```