Name: Harshal Patil

> db.getCollectionNames();

[ "students" ]

> db.students.find();

{ "\_id" : ObjectId("65264bbbebdc5feb3ea73881"), "rollno" : 1, "name" : "Ram", "prn" : "P1", "Branch" : "COMP", "TOC" : 56, "SPOS" : 21, "SPM" : 89, "DBMS" : 78 }

{ "\_id" : ObjectId("65264bbbebdc5feb3ea73882"), "rollno" : 2, "name" : "Sham", "prn" : "P2", "Branch" : "IT", "TOC" : 10, "SPOS" : 23, "SPM" : 89, "DBMS" : 10 }

{ "\_id" : ObjectId("65264bbbebdc5feb3ea73883"), "rollno" : 3, "name" : "Ramesh", "prn" : "P3", "Branch" : "IT", "TOC" : 56, "SPOS" : 23, "SPM" : 89, "DBMS" : 10 }

{ "\_id" : ObjectId("65264bbbebdc5feb3ea73884"), "rollno" : 4, "name" : "Suresh", "prn" : "P4", "Branch" : "COMP", "TOC" : 56, "SPOS" : 56, "SPM" : 47, "DBMS" : 78 }

{ "\_id" : ObjectId("65264bbbebdc5feb3ea73885"), "rollno" : 5, "name" : "Sita", "prn" : "P5", "Branch" : "ENTC", "TOC" : 56, "SPOS" : 3, "SPM" : 89, "DBMS" : 12 }

{ "\_id" : ObjectId("65264bbbebdc5feb3ea73886"), "rollno" : 6, "name" : "Gita", "prn" : "P6", "Branch" : "ENTC", "TOC" : 56, "SPOS" : 23, "SPM" : 66, "DBMS" : 43 }

{ "\_id" : ObjectId("65264bbbebdc5feb3ea73887"), "rollno" : 7, "name" : "Rajesh", "prn" : "P7", "Branch" : "COMP", "TOC" : 56, "SPOS" : 23, "SPM" : 79, "DBMS" : 41 }

{ "\_id" : ObjectId("65264bbbebdc5feb3ea73888"), "rollno" : 8, "name" : "Raghu", "prn" : "P8", "Branch" : "IT", "TOC" : 56, "SPOS" : 23, "SPM" : 62, "DBMS" : 78 }

> db.students.aggregate([

...   { $group: { \_id: "$Branch", count: { $sum: 1 } } }

... ])

{ "\_id" : "ENTC", "count" : 2 }

{ "\_id" : "IT", "count" : 3 }

{ "\_id" : "COMP", "count" : 3 }

> db.students.aggregate([

...   {

...     $addFields: {

...       totalMarks: {

...         $sum: ["$TOC", "$SPOS", "$SPM,", "$DBMS"]

...       }

...     }

...   },

...   {

...     $sort: {

...       totalMarks: -1

...     }

...   },

...   {

...     $limit: 1

...   }

... ])

{ "\_id" : ObjectId("65264bbbebdc5feb3ea73884"), "rollno" : 4, "name" : "Suresh", "prn" : "P4", "Branch" : "COMP", "TOC" : 56, "SPOS" : 56, "SPM" : 47, "DBMS" : 78, "totalMarks" : 190 }

true

> db.students.insertMany([

... {rollno:1,name:'Ram',prn:'P1',Branch:'COMP',

... TOC:99,

... SPOS:99,

... SPM:99,

... DBMS:99},

... {rollno:2,name:'Sham',prn:'P2',Branch:'IT',

... TOC:10,

... SPOS:23,

... SPM:89,

... DBMS:10},

... {rollno:3,name:'Ramesh',prn:'P3',Branch:'IT',

... TOC:56,

... SPOS:23,

... SPM:89,

... DBMS:10},

... {rollno:4,name:'Suresh',prn:'P4',Branch:'COMP',

... TOC:56,

... SPOS:56,

... SPM:47,

... DBMS:78},

... {rollno:5,name:'Sita',prn:'P5',Branch:'ENTC',

... TOC:56,

... SPOS:3,

... SPM:89,

... DBMS:12},

... {rollno:6,name:'Gita',prn:'P6',Branch:'ENTC',

... TOC:56,

... SPOS:23,

... SPM:66,

... DBMS:43},

... {rollno:7,name:'Rajesh',prn:'P7',Branch:'COMP',

... TOC:56,

... SPOS:23,

... SPM:79,

... DBMS:41},

... {rollno:8,name:'Raghu',prn:'P8',Branch:'IT',

... TOC:56,

... SPOS:23,

... SPM:62,

... DBMS:78}

... ]);

{

    "acknowledged" : true,

    "insertedIds" : [

        ObjectId("6528e1c40dc885cf83fc6798"),

        ObjectId("6528e1c40dc885cf83fc6799"),

        ObjectId("6528e1c40dc885cf83fc679a"),

        ObjectId("6528e1c40dc885cf83fc679b"),

        ObjectId("6528e1c40dc885cf83fc679c"),

        ObjectId("6528e1c40dc885cf83fc679d"),

        ObjectId("6528e1c40dc885cf83fc679e"),

        ObjectId("6528e1c40dc885cf83fc679f")

    ]

}

> db.students.aggregate([

...   {

...     $project: {

...       \_id: 0,

...       rollno: 1,

...       name: 1,

...       prn: 1,

...       Branch: 1,

...       subjects: {

...         $objectToArray: {

...           TOC: "$TOC",

...           SPOS: "$SPOS",

...           SPM: "$SPM",

...           DBMS: "$DBMS"

...         }

...       }

...     }

...   },

...   {

...     $unwind: "$subjects"

...   },

...   {

...     $group: {

...       \_id: "$subjects.k",

...       maxMarks: { $max: "$subjects.v" },

...     }

...   }

... ])

{ "\_id" : "SPM", "maxMarks" : 99 }

{ "\_id" : "DBMS", "maxMarks" : 99 }

{ "\_id" : "SPOS", "maxMarks" : 99 }

{ "\_id" : "TOC", "maxMarks" : 99 }

> db.students.aggregate([

...   {

...     $project: {

...       \_id: 0,

...       TOC: 1,

...       SPOS: 1,

...       SPM: 1,

...       DBMS: 1

...     }

...   },

...   {

...     $group: {

...       \_id: null,

...       avgTOC: { $avg: "$TOC" },

...       avgSPOS: { $avg: "$SPOS" },

...       avgSPM: { $avg: "$SPM" },

...       avgDBMS: { $avg: "$DBMS" }

...     }

...   },

...   {

...     $project: {

...       \_id: 0,

...       avgTOC: 1,

...       avgSPOS: 1,

...       avgSPM: 1,

...       avgDBMS: 1

...     }

...   }

... ])

{ "avgTOC" : 55.625, "avgSPOS" : 34.125, "avgSPM" : 77.5, "avgDBMS" : 46.375 }

> db.students.aggregate([

...   {

...     $project: {

...       \_id: 0,

...       rollno: 1,

...       name: 1,

...       prn: 1,

...       Branch: 1,

...       TOC: 1

...     }

...   },

...   {

...     $match: {

...       TOC: { $ne: null }

...     }

...   },

...   {

...     $sort: {

...       TOC: 1

...     }

...   },

...   {

...     $limit: 1

...   }

... ])

{ "rollno" : 2, "name" : "Sham", "prn" : "P2", "Branch" : "IT", "TOC" : 10 }

> db.students.createIndex({ "rollno": 1 })

{

    "createdCollectionAutomatically" : false,

    "numIndexesBefore" : 1,

    "numIndexesAfter" : 2,

    "ok" : 1

}

> db.students.createIndex({ "prn": 1 })

{

    "createdCollectionAutomatically" : false,

    "numIndexesBefore" : 2,

    "numIndexesAfter" : 3,

    "ok" : 1

}

> db.students.getIndexes()

[

    {

        "v" : 2,

        "key" : {

            "\_id" : 1

        },

        "name" : "\_id\_",

        "ns" : "test.students"

    },

    {

        "v" : 2,

        "key" : {

            "rollno" : 1

        },

        "name" : "rollno\_1",

        "ns" : "test.students"

    },

    {

        "v" : 2,

        "key" : {

            "prn" : 1

        },

        "name" : "prn\_1",

        "ns" : "test.students"

    }

]

> db.students.dropIndex("rollno\_1")

{ "nIndexesWas" : 3, "ok" : 1 }

> db.students.aggregate([

... {

...     $addFields: {

...         totalMarks: {

...             $sum: ["$TOC","$SPOS","$SPM","$DBMS"]

...          }

...      }

... },

... {

...     $sort: {

...         totalMarks:-1

...     }

... },

... {

...     $limit:1

... }

... ])

{ "\_id" : ObjectId("6528e1c40dc885cf83fc6798"), "rollno" : 1, "name" : "Ram", "prn" : "P1", "Branch" : "COMP", "TOC" : 99, "SPOS" : 99, "SPM" : 99, "DBMS" : 99, "totalMarks" : 396 }

> db.students.aggregate([

... {

...         $addFields: {

...             totalMarks: {

...                 $sum:["$TOC","$SPOS","$SPM","$DBMS"]

...              }

...         }

... },

... {

...     $sort: {

...         totalMarks: -1

...        }

... },

... {

...     $limit:1

... }

... ])

{ "\_id" : ObjectId("6528e1c40dc885cf83fc6798"), "rollno" : 1, "name" : "Ram", "prn" : "P1", "Branch" : "COMP", "TOC" : 99, "SPOS" : 99, "SPM" : 99, "DBMS" : 99, "totalMarks" : 396 }