

**/\*Practical No : 08  
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**// IMPLEMENT AGGREGATION INDEXING WITH SUITABLE EXAMPLE IN  
MONGODB**

**// Switch to the desired database**

**use collegeDB;**

**// Creates and switches to collegeDB if it doesn't exist**

**// Create the collection "student\_records"**

**db.createCollection("student\_records");**

**{ "ok" : 1 }**

**// Insert records with sample student data**

**db.student\_records.insertOne({ roll: 1, name: "Dhiraj", amount: 1200, email:  
"dhiraj.kumar@example.com", url: "www.university.com" });**

**db.student\_records.insertOne({ roll: 2, name: "Farhan", amount: 2500, email:  
"farhan.ali@example.com", url: "www.learninghub.com" });**

**db.student\_records.insertOne({ roll: 3, name: "Pramod", amount: 3200, email:  
"pramod.singh@example.com", url: "www.university.com" });**

**db.student\_records.insertOne({ roll: 4, name: "Suyog", amount: 1500, email:  
"suyog.joshi@example.com", url: "www.kamk.edu" });**

**db.student\_records.insertOne({ roll: 5, name: "Suyog", amount: 800, email:  
"suyog.joshi@example.com", url: "www.abc.edu" });**

**// Aggregate functions for student\_records**

**// Sum aggregation by name**

**db.student\_records.aggregate([  
 { \$group: { \_id: "\$name", total: { \$sum: "\$amount" } } }  
]);**

**// Average aggregation by name**

**db.student\_records.aggregate([  
 { \$group: { \_id: "\$name", total: { \$avg: "\$amount" } } }  
]);**

**// Minimum aggregation by name**

**db.student\_records.aggregate([  
 { \$group: { \_id: "\$name", total: { \$min: "\$amount" } } }  
]);**

**// Maximum aggregation by name**

```
db.student_records.aggregate([
  { $group: { _id: "$name", total: { $max: "$amount" } } }
]);
```

// First aggregation by name

```
db.student_records.aggregate([
  { $group: { _id: "$name", firstAmount: { $first: "$amount" } } }
]);
```

// Last aggregation by name

```
db.student_records.aggregate([
  { $group: { _id: "$name", lastAmount: { $last: "$amount" } } }
]);
```

// Push aggregation to list amounts by name

```
db.student_records.aggregate([
  { $group: { _id: "$name", allAmounts: { $push: "$amount" } } }
]);
```

// Count aggregation to get record count by name

```
db.student_records.aggregate([
  { $group: { _id: "$name", totalCount: { $sum: 1 } } }
]);
```

// AddToSet aggregation to get unique amounts per name

```
db.student_records.aggregate([
  { $group: { _id: "$name", uniqueAmounts: { $addToSet: "$amount" } } }
]);
```

// Indexing Example

```
db.createCollection("student_details");
db.student_details.insertOne({ roll: 1, name: "Dhiraj" });
db.student_details.insertOne({ roll: 2, name: "Farhan" });
db.student_details.find().pretty();
```

// Creating indexes on the name field

```
db.student_details.createIndex({ name: 1 });
db.student_details.createIndex({ name: -1 });
```

// Retrieve the indexes for verification

```
db.student_details.getIndexes();
```

// Dropping an index

```
db.student_details.dropIndex({ name: 1 });
```

// Multi-key index

```
db.student_details.createIndex({ name: 1, roll: -1 });
db.student_details.getIndexes();
```

