# ****MongoDB CRUD operation****

## ****USERS Collection****

### CREATE

### db.users.insertOne({

### username: "fitnessjohn",

### email: "john.doe@gmail.com",

### passwordHash: "$2b$10$N9qo8uLOickgx2ZMRZoMyeIjZAgcfl7p92ldGxad68LJZdL17lhWy",

### profilePicURL: "https://example.com/profiles/john.jpg",

### joinedAt: ISODate("2025-06-15T08:30:00Z"),

### isVerified: true,

### role: "user"

### })

### READ

### Find all users

### db.users.find()

### Find user by email

### db.users.findOne({ email: "john.doe@gmail.com" })

### Find verified users

### db.users.find({ isVerified: true })

### UPDATE

### Update profile picture

### db.users.updateOne(

### { username: "fitnessjohn" },

### { $set: { profilePicURL: "https://example.com/profiles/john\_new.jpg" } }

### )

### Change role to admin

### db.users.updateOne(

### { email: "john.doe@gmail.com" },

### { $set: { role: "admin" } }

### )

### DELETE

## Delete by email

## db.users.deleteOne({ email: "john.doe@gmail.com" })

## Delete by \_id

## db.users.deleteOne({ \_id: ObjectId("64a1b2c3d4e5f6789abcdef0") })

## ****PROFILE Collection****

### CREATE

### db.Profiles.insertOne({

### userId: ObjectId("64a1b2c3d4e5f6789abcdef0"),

### gender: "male",

### dob: ISODate("1992-03-15"),

### location: "Chennai, Tamil Nadu",

### fitnessLevel: "intermediate",

### totalPoints: 2450,

### bio: "Passionate runner and fitness enthusiast. Love outdoor challenges!",

### trackerIntegration: {

### provider: "Fitbit",

### accountId: "FB123456789"

### },

### joinedChallenges: [

### ObjectId("64a1b2c3d4e5f6789abcdef8"),

### ObjectId("64a1b2c3d4e5f6789abcdef9")

### ],

### createdAt: ISODate("2025-06-15T08:35:00Z"),

### updatedAt: ISODate("2025-07-20T14:22:00Z")

### })

### READ

### Find all user profiles

### db.Profiles.find()

### Find by userId

### db.Profiles.findOne({ userId: ObjectId("64a1b2c3d4e5f6789abcdef0") })

### Find users in a specific challenge

### db.Profiles.find({ joinedChallenges: ObjectId("64a1b2c3d4e5f6789abcdef8") })

### UPDATE

### Update fitness level

### db.Profiles.updateOne(   { userId: ObjectId("64a1b2c3d4e5f6789abcdef0") },   { $set: { fitnessLevel: "advanced", updatedAt: new Date() } } )

### Add a new joined challenge

### db.Profiles.updateOne(   { userId: ObjectId("64a1b2c3d4e5f6789abcdef0") },   { $addToSet: { joinedChallenges: ObjectId("64a1b2c3d4e5f6789abcdea0") }, $set: { updatedAt: new Date() } } )

### DELETE

## Delete by userId

## db.Profiles.deleteOne({ userId: ObjectId("64a1b2c3d4e5f6789abcdef0") })

## Delete by \_id

## db.Profiles.deleteOne({ \_id: ObjectId("64a1b2c3d4e5f6789abcdef2") })

## CHALLENGES ****Collection****

### CREATE

### db.challenges.insertOne({

### creatorId: ObjectId("64a1b2c3d4e5f6789abcdef1"),

### title: "30-Day Summer Step Challenge",

### description: "Walk 10,000 steps daily for 30 days. Let's build healthy habits together!",

### category: "walking",

### goalType: "steps",

### goalValue: 10000,

### startDate: ISODate("2025-07-01T00:00:00Z"),

### endDate: ISODate("2025-07-30T23:59:59Z"),

### visibility: "public",

### participants: [

### ObjectId("64a1b2c3d4e5f6789abcdef0"),

### ObjectId("64a1b2c3d4e5f6789abcdef1"),

### ObjectId("64a1b2c3d4e5f6789abcdef4")

### ],

### createdAt: ISODate("2025-06-25T12:00:00Z"),

### updatedAt: ISODate("2025-07-20T16:30:00Z")

### })

### READ

### Find all challenges

### db.challenges.find()

### Find challenge by title

### db.challenges.findOne({ title: "30-Day Summer Step Challenge" })

### Find challenges a specific user joined

### db.challenges.find({ participants: ObjectId("64a1b2c3d4e5f6789abcdef0") })

### UPDATE

### Update goalValue and updatedAt

### db.challenges.updateOne(   { \_id: ObjectId("64a1b2c3d4e5f6789abcdef8") },   { $set: { goalValue: 12000, updatedAt: new Date() } } )

### Add a new participant

### db.challenges.updateOne(   { \_id: ObjectId("64a1b2c3d4e5f6789abcdef8") },   { $addToSet: { participants: ObjectId("64a1b2c3d4e5f6789abcdea0") }, $set: { updatedAt: new Date() } } )

### DELETE

## Delete by title

## db.challenges.deleteOne({ title: "30-Day Summer Step Challenge" })

## Delete by \_id

## db.challenges.deleteOne({ \_id: ObjectId("64a1b2c3d4e5f6789abcdef8") })

## ****POSTS Collection****

### CREATE

db.posts.insertOne({

  userId: ObjectId("64a1b2c3d4e5f6789abcdef0"),

  challengeId: ObjectId("64a1b2c3d4e5f6789abcdef8"),

  content: "Just completed my morning 5K run! Day 15 of the step challenge and feeling stronger every day. Who else is crushing their goals?",

  mediaURL: "https://example.com/posts/run\_photo\_john.jpg",

  likes: [

    ObjectId("64a1b2c3d4e5f6789abcdef1"),

    ObjectId("64a1b2c3d4e5f6789abcdef4")

  ],

  comments: [

    {

      userId: ObjectId("64a1b2c3d4e5f6789abcdef1"),

      comment: "Amazing progress! Keep it up! ",

      createdAt: ISODate("2025-07-15T15:30:00Z")

    },

    {

      userId: ObjectId("64a1b2c3d4e5f6789abcdef4"),

      comment: "Inspiring! I need to step up my game ",

      createdAt: ISODate("2025-07-15T16:45:00Z")

    }

  ],

  createdAt: ISODate("2025-07-15T14:22:00Z")

})

### READ

### Find all posts

### db.posts.find()

### Find posts by a specific user

### db.posts.find({ userId: ObjectId("64a1b2c3d4e5f6789abcdef0") })

### Find posts for a specific challenge

### db.posts.find({ challengeId: ObjectId("64a1b2c3d4e5f6789abcdef8") })

### UPDATE

### Add a like to the post

### db.posts.updateOne(   { \_id: ObjectId("64a1b2c3d4e5f6789abcdefB") },   { $addToSet: { likes: ObjectId("64a1b2c3d4e5f6789abcdea0") } } )

### Add a new comment

### db.posts.updateOne(   { \_id: ObjectId("64a1b2c3d4e5f6789abcdefB") },   { $push: {       comments: {         userId: ObjectId("64a1b2c3d4e5f6789abcdea0"),         comment: "Keep pushing! You're doing great!",         createdAt: new Date()       }     }   } )

### Update post content

### db.posts.updateOne(   { \_id: ObjectId("64a1b2c3d4e5f6789abcdefB") },   { $set: { content: "Updated my Day 15 run post – feeling even stronger today!" } } )

### DELETE

## Delete by \_id

## db.posts.deleteOne({ \_id: ObjectId("64a1b2c3d4e5f6789abcdefB") })

## Remove a specific like

## db.posts.updateOne(   { \_id: ObjectId("64a1b2c3d4e5f6789abcdefB") },   { $pull: { likes: ObjectId("64a1b2c3d4e5f6789abcdef1") } } )

## Remove a specific comment (by userId and comment text)

## db.posts.updateOne(   { \_id: ObjectId("64a1b2c3d4e5f6789abcdefB") },   { $pull: {       comments: {         userId: ObjectId("64a1b2c3d4e5f6789abcdef1"),         comment: "Amazing progress! Keep it up! "       }     }   } )

## LEADERBOARD ****Collection****

### CREATE

### db.leaderboards.insertOne({

### challengeId: ObjectId("64a1b2c3d4e5f6789abcdef8"),

### rankings: [

### { userId: ObjectId("64a1b2c3d4e5f6789abcdef1"), score: 285000, rank: 1 },

### { userId: ObjectId("64a1b2c3d4e5f6789abcdef0"), score: 267800, rank: 2 },

### { userId: ObjectId("64a1b2c3d4e5f6789abcdef4"), score: 234500, rank: 3 }

### ],

### updatedAt: ISODate("2025-07-22T23:59:00Z")

### })

### READ

### Find all leaderboards

### db.leaderboards.find()

### Find leaderboard by challengeId

### db.leaderboards.findOne({ challengeId: ObjectId("64a1b2c3d4e5f6789abcdef8") })

### UPDATE

### Update a user’s score and rank

### db.leaderboards.updateOne(   { \_id: ObjectId("64a1b2c3d4e5f6789abcdefD"), "rankings.userId": ObjectId("64a1b2c3d4e5f6789abcdef0") },   { $set: { "rankings.$.score": 275000, "rankings.$.rank": 1 }, $currentDate: { updatedAt: true } } )

### Add a new user to the rankings

### db.leaderboards.updateOne(   { \_id: ObjectId("64a1b2c3d4e5f6789abcdefD") },   { $push: { rankings: { userId: ObjectId("64a1b2c3d4e5f6789abcdea0"), score: 200000, rank: 4 } }, $currentDate: { updatedAt: true } } )

### DELETE

## Delete leaderboard by challengeId

## db.leaderboards.deleteOne({ challengeId: ObjectId("64a1b2c3d4e5f6789abcdef8") })

## Remove a specific user from the rankings

## db.leaderboards.updateOne(   { \_id: ObjectId("64a1b2c3d4e5f6789abcdefD") },   { $pull: { rankings: { userId: ObjectId("64a1b2c3d4e5f6789abcdef4") } }, $currentDate: { updatedAt: true } } )

## ****TEAMS Collection****

### CREATE

### db.teams.insertOne({

### challengeId: ObjectId("64a1b2c3d4e5f6789abcdef8"),

### name: "Chennai Steppers",

### members: [

### ObjectId("64a1b2c3d4e5f6789abcdef0"),

### ObjectId("64a1b2c3d4e5f6789abcdef4"),

### ObjectId("64a1b2c3d4e5f6789abcdef6")

### ],

### totalSteps: 756300,

### totalCalories: 18907,

### createdAt: ISODate("2025-07-02T10:00:00Z"),

### updatedAt: ISODate("2025-07-22T20:15:00Z")

### })

### READ

### Find all teams

### db.teams.find()

### Find team by name

### db.teams.findOne({ name: "Chennai Steppers" })

### Find teams for a specific challenge

### db.teams.find({ challengeId: ObjectId("64a1b2c3d4e5f6789abcdef8") })

### Find teams that include a specific user

### db.teams.find({ members: ObjectId("64a1b2c3d4e5f6789abcdef0") })

### UPDATE

### Add a new member

### db.teams.updateOne(   { \_id: ObjectId("64a1b2c3d4e5f6789abcdefE") },   { $addToSet: { members: ObjectId("64a1b2c3d4e5f6789abcdea0") }, $currentDate: { updatedAt: true } } )

### Update team stats (steps and calories)

### db.teams.updateOne(   { \_id: ObjectId("64a1b2c3d4e5f6789abcdefE") },   { $set: { totalSteps: 800000, totalCalories: 20000 }, $currentDate: { updatedAt: true } } )

### DELETE

## Delete team by name

## db.teams.deleteOne({ name: "Chennai Steppers" })

## Remove a member from team

## db.teams.updateOne(   { \_id: ObjectId("64a1b2c3d4e5f6789abcdefE") },   { $pull: { members: ObjectId("64a1b2c3d4e5f6789abcdef4") }, $currentDate: { updatedAt: true } } )

## PROGRESS\_LOGS ****Collection****

### CREATE

### db.progress\_logs.insertOne({

### userId: ObjectId("64a1b2c3d4e5f6789abcdef0"),

### challengeId: ObjectId("64a1b2c3d4e5f6789abcdef8"),

### date: ISODate("2025-07-22T00:00:00Z"),

### steps: 12847,

### caloriesBurned: 485,

### distance: 9.2,

### workoutsCompleted: 1,

### createdAt: ISODate("2025-07-22T23:45:00Z")

### })

### READ

### Find all progress logs

### db.progress\_logs.find()

### Find logs for a specific user

### db.progress\_logs.find({ userId: ObjectId("64a1b2c3d4e5f6789abcdef0") })

### Find logs by user and date

### db.progress\_logs.find({   userId: ObjectId("64a1b2c3d4e5f6789abcdef0"),   date: ISODate("2025-07-22T00:00:00Z") })

### Find logs for a specific challenge

### db.progress\_logs.find({ challengeId: ObjectId("64a1b2c3d4e5f6789abcdef8") })

### UPDATE

### Update steps and calories

### db.progress\_logs.updateOne(   { \_id: ObjectId("64a1b2c3d4e5f6789abcdefF") },   { $set: { steps: 13500, caloriesBurned: 510 } } )

### Increment workoutsCompleted

### db.progress\_logs.updateOne(   { \_id: ObjectId("64a1b2c3d4e5f6789abcdefF") },   { $inc: { workoutsCompleted: 1 } } )

### DELETE

1. **Delete by \_id**

db.progress\_logs.deleteOne({ \_id: ObjectId("64a1b2c3d4e5f6789abcdefF") })

1. **Delete all logs for a user in a challenge**

db.progress\_logs.deleteMany({   userId: ObjectId("64a1b2c3d4e5f6789abcdef0"),   challengeId: ObjectId("64a1b2c3d4e5f6789abcdef8") })

## REWARDS ****Collection****

### CREATE

### db.rewards.insertOne({

### title: "Step Master Badge",

### type: "badge",

### pointsRequired: 1000,

### imageURL: "https://example.com/badges/step\_master.png",

### earnedBy: [

### ObjectId("64a1b2c3d4e5f6789abcdef0"),

### ObjectId("64a1b2c3d4e5f6789abcdef1")

### ],

### createdAt: ISODate("2025-06-01T12:00:00Z"),

### updatedAt: ISODate("2025-07-20T14:30:00Z")

### })

### READ

### Find all rewards

### db.rewards.find()

### Find reward by title

### db.rewards.find({ title: "Step Master Badge" })

### Find all rewards earned by a specific user

### db.rewards.find({ earnedBy: ObjectId("64a1b2c3d4e5f6789abcdef0") })

### UPDATE

### Add a new user to earnedBy array

### db.rewards.updateOne(   { \_id: ObjectId("64a1b2c3d4e5f6789abcdef11") },   { $addToSet: { earnedBy: ObjectId("64a1b2c3d4e5f6789abcdef2") } } )

### Change the pointsRequired value

### db.rewards.updateOne(   { \_id: ObjectId("64a1b2c3d4e5f6789abcdef11") },   { $set: { pointsRequired: 1200 } } )

### Update updatedAt timestamp

### db.rewards.updateOne(   { \_id: ObjectId("64a1b2c3d4e5f6789abcdef11") },   { $set: { updatedAt: new Date() } } )

### DELETE

## Delete reward by \_id

## db.rewards.deleteOne({ \_id: ObjectId("64a1b2c3d4e5f6789abcdef11") })

## Remove a user from earnedBy

## db.rewards.updateOne(   { \_id: ObjectId("64a1b2c3d4e5f6789abcdef11") },   { $pull: { earnedBy: ObjectId("64a1b2c3d4e5f6789abcdef0") } } )

## NOTIFICATIONS ****Collection****

### CREATE

### db.notifications.insertOne({

### userId: ObjectId("64a1b2c3d4e5f6789abcdef0"),

### message: "Congratulations! You've reached 10,000 steps today! 🎉",

### type: "milestone",

### isRead: false,

### createdAt: ISODate("2025-07-22T18:30:00Z")

### })

### READ

1. **Find all notifications**

db.notifications.find()

1. **Find unread notifications for a specific user**

db.notifications.find({   userId: ObjectId("64a1b2c3d4e5f6789abcdef0"),   isRead: false })

1. **Find all milestone-type notifications**

db.notifications.find({ type: "milestone" })

### UPDATE

### Add a new user to earnedBy array

### db.rewards.updateOne(   { \_id: ObjectId("64a1b2c3d4e5f6789abcdef11") },   { $addToSet: { earnedBy: ObjectId("64a1b2c3d4e5f6789abcdef2") } } )

### Change the pointsRequired value

### db.rewards.updateOne(   { \_id: ObjectId("64a1b2c3d4e5f6789abcdef11") },   { $set: { pointsRequired: 1200 } } )

### Update updatedAt timestamp

### db.rewards.updateOne(   { \_id: ObjectId("64a1b2c3d4e5f6789abcdef11") },   { $set: { updatedAt: new Date() } } )

### DELETE

## Delete reward by \_id

## db.rewards.deleteOne({ \_id: ObjectId("64a1b2c3d4e5f6789abcdef11") })

## Remove a user from earnedBy

## db.rewards.updateOne(   { \_id: ObjectId("64a1b2c3d4e5f6789abcdef11") },   { $pull: { earnedBy: ObjectId("64a1b2c3d4e5f6789abcdef0") } } )

## ACTIVITY\_TRACKERS ****Collection****

### CREATE

### db.activity\_trackers.insertOne({

### userId: ObjectId("64a1b2c3d4e5f6789abcdef0"),

### provider: "Fitbit",

### lastSynced: ISODate("2025-07-22T23:30:00Z"),

### syncData: {

### totalSteps: 12847,

### totalCalories: 485,

### sleepHours: 7.5

### },

### createdAt: ISODate("2025-06-15T08:40:00Z"),

### updatedAt: ISODate("2025-07-22T23:30:00Z")

### })

### READ

### Get all activity trackers

### db.activity\_trackers.find()

### Find trackers for a specific user

### db.activity\_trackers.find({ userId: ObjectId("64a1b2c3d4e5f6789abcdef0") })

### Find trackers from a specific provider

### db.activity\_trackers.find({ provider: "Fitbit" })

### UPDATE

### Update syncData.totalSteps for a tracker

### db.activity\_trackers.updateOne(   { \_id: ObjectId("64a1b2c3d4e5f6789abcdef16") },   {     $set: {       "syncData.totalSteps": 14000,       updatedAt: new Date()     }   } )

### Update last sync time and sleep hours

### db.activity\_trackers.updateOne(   { userId: ObjectId("64a1b2c3d4e5f6789abcdef0") },   {     $set: {       lastSynced: new Date(),       "syncData.sleepHours": 8.0,       updatedAt: new Date()     }   } )

### DELETE

1. **Delete a specific tracker by ID**

db.activity\_trackers.deleteOne({ \_id: ObjectId("64a1b2c3d4e5f6789abcdef16") })

1. **Delete trackers for a specific provider**

db.activity\_trackers.deleteMany({ provider: "Fitbit" })