Aggregations

1. Count the total number of active users.

|  |  |
| --- | --- |
| **INPUT** | **OUTPUT** |
| [  {  $match : {  'isActive' : true  }  },  {  $count : 'Total Active user'  }  ] | **Total Active user : 6** |

2. Find the average age of male and female.

|  |  |
| --- | --- |
| **INPUT** | **OUTPUT** |
| [  {  $group: {  \_id: '$gender',  'AVG AGE' : {  $avg : '$age'  }  }  }  ] | **{**  **"\_id": "Female",**  **"AVG AGE": 28.2**  **} {**  **"\_id": "Male",**  **"AVG AGE": 28.8**  **}** |

3. Give the total number of posts by active users.

|  |  |
| --- | --- |
| **INPUT** | **OUTPUT** |
| [  {  $match: {  isActive: true  }  },  {  $unwind: "$posts"  },  {  $group: {  \_id: "$\_id",  name: {  $first: "$name"  },  "Total Post": {  $sum: 1  }  }  }  ]  *OR*  [  {  $match: {  isActive: true  }  },  {  $project: {  name: 1,  **'** Total Post **’**: { $size: "$posts" }  }  }  ] | **{**  **"\_id": 2,**  **"name": "Alice Johnson",**  **"Total Post": 2**  **} {**  **"\_id": 1,**  **"name": "John Doe",**  **"Total Post": 2**  **} {**  **"\_id": 6,**  **"name": "Fiona Miller",**  **"Total Post": 2**  **} {**  **"\_id": 10,**  **"name": "Jasmine Hill",**  **"Total Post": 2**  **} {**  **"\_id": 8,**  **"name": "Hannah Robinson",**  **"Total Post": 2**  **} {**  **"\_id": 4,**  **"name": "Diana Brown",**  **"Total Post": 2**  **}** |

4. Count the total number of comments.

|  |  |
| --- | --- |
| **INPUT** | **OUTPUT** |
| [  {  $unwind: "$posts"  },  {  $project: {  commentCount: { $size: "$posts.comments" }  }  },  {  $group: {  \_id: "$\_id",  totalComments: { $sum: "$commentCount" }  }  }  ]  *OR*  [  {  $unwind: '$posts'  },    {  $group: {  \_id: '$\_id',  'Total Comments' : {$sum : {$size : '$posts.comments'}}  }  }  ] | **{**  **"\_id": 9,**  **"Total Comments": 3**  **} {**  **"\_id": 7,**  **"Total Comments": 2**  **} {**  **"\_id": 10,**  **"Total Comments": 3**  **} {**  **"\_id": 8,**  **"Total Comments": 3**  **} .**  **.**  **.**  **.**  **{**  **"\_id": 6,**  **"Total Comments": 2**  **}** |

5. List users and their total likes.

|  |  |
| --- | --- |
| **INPUT** | **OUTPUT** |
| [  {  $unwind: "$posts"  },  {  $group: {  \_id: "$\_id",  likes: {  $sum: "$posts.likes"  }  }  }  ] | **{**  **"\_id": 5,**  **"likes": 32**  **} {**  **"\_id": 2,**  **"likes": 35**  **} .**  **.**  **. {**  **"\_id": 1,**  **"likes": 35**  **}** |

6. Find the user name with the maximum likes of posts.

|  |  |
| --- | --- |
| **INPUT** | **OUTPUT** |
| [  {  $unwind: "$posts"  },  {  $group: {  \_id: "\_id",  mostLikes: {  $max: "$posts.likes"  }  }  }  ] | **{**  **"\_id": "\_id",**  **"name": "John Doe",**  **"mostLikes": 30**  **}   \*\*\*\*this data finds maximum likes of each post of user\*\*\*\*** |
| [  {  $unwind: "$posts"  },  {  $group: {  \_id: '$\_id',  'totalPosts': {  $sum: '$posts.likes'  },  'name' : {  $first : '$name'  }  }  },  {  $sort : {  'totalPosts' : -1  }  },  {  $limit: 1  }  ] | **{**  **"\_id": 6,**  **"totalPosts": 47,**  **"name": "Fiona Miller"**  **}** |

7. Count the number of active and inactive users.

|  |  |
| --- | --- |
| **INPUT** | **OUTPUT** |
| [  {  $group: {  \_id: "$isActive",  users: { $sum: 1 }  }  }  ] | **{**  **"\_id": true,**  **"users": 6**  **} {**  **"\_id": false,**  **"users": 4**  **}** |

8. List the cities with the highest average age.

|  |  |
| --- | --- |
| **INPUT** | **OUTPUT** |
| [  {  $group: {  \_id: "$city",  "Avg Age": {  $avg: "$age"  }  }  }  ] | **{**  **"\_id": "Los Angeles",**  **"Avg Age": 31**  **} {**  **"\_id": "New York",**  **"Avg Age": 26**  **} {**  **"\_id": "Portland",**  **"Avg Age": 27**  **} {**  **"\_id": "San Francisco",**  **"Avg Age": 28.666666666666668**  **}** |

9. Count the number of users in each city.

|  |  |
| --- | --- |
| **INPUT** | **OUTPUT** |
| [  {  $group: {  \_id: '$city',  'totalUsers' : {  $sum : 1  }    }  }  ] | **{**  **"\_id": "San Francisco",**  **"totalUsers": 3**  **} {**  **"\_id": "Portland",**  **"totalUsers": 2**  **} {**  **"\_id": "Los Angeles",**  **"totalUsers": 3**  **} {**  **"\_id": "New York",**  **"totalUsers": 2**  **}** |

10. Count the number of users with JavaScript skills

|  |  |
| --- | --- |
| **INPUT** | **OUTPUT** |
| [  {  $match: {  'skills' : 'JavaScript'  }  },  {  $count: 'total users'  }  ] | **{**  **"total users": 6**  **}** |

11. Count the number of users with each skill.

|  |  |
| --- | --- |
| **INPUT** | **OUTPUT** |
| [  {  $unwind: '$skills'  },  {  $group: {  \_id: '$skills',  'totalUsers' : {  $sum : 1  }  }  }  ] | **{**  **"\_id": "Node.js",**  **"totalUsers": 4**  **} {**  **"\_id": "Angular",**  **"totalUsers": 1**  **} {**  **"\_id": "Spring Boot",**  **"totalUsers": 2**  **}**  **…..** |

12. Find users who have posts with more than 15 likes and a specific skill.

|  |  |
| --- | --- |
| **INPUT** | **OUTPUT** |
| [  {  $unwind: "$posts"  },  {  $match: {  $and: [  { skills: "JavaScript" },  { "posts.likes": { $gt: 15 } }  ]  }  },  {  $group: {  \_id: "$\_id",  name: { $first: "$name" },  posts: { $push: "$posts" }  }  }  ] | **{**  **"\_id": 1,**  **"name": "John Doe",**  **"posts": [**  **{**  **"title": "Post 2",**  **"likes": 20,**  **"comments": [**  **"Well done"**  **]**  **}**  **]**  **} {**  **"\_id": 8,**  **"name": "Hannah Robinson",**  **"posts": [**  **{**  **"title": "Post 16",**  **"likes": 28,**  **"comments": [**  **"Well done"**  **]**  **}**  **]**  **}**  **………….** |

13. Find users with the highest total number of likes across all posts.

|  |  |
| --- | --- |
| **INPUT** | **OUTPUT** |
| [  {  $unwind: "$posts"  },  {  $group: {  \_id: "$\_id",  'name' : {$first : '$name'},  "total Likes": {  $max: "$posts.likes"  }  }  },  {  $sort: {  "total Likes": -1  }  },  { $limit: 1}  ] | **{**  **"\_id": 4,**  **"name": "Diana Brown",**  **"total Likes": 30**  **}** |

14. Find users who have friends and count the number of friends.

|  |  |
| --- | --- |
| **INPUT** | **OUTPUT** |
| [  {  $match: {  friends: {  $exists: true,  $ne: []  }  }  },  {  $project: {  numberOfFriends: {  $size: "$friends"  }  }  }  ] | **{**  **"\_id": 3,**  **"numberOfFriends": 2**  **} {**  **"\_id": 10,**  **"numberOfFriends": 2**  **} {**  **"\_id": 7,**  **"numberOfFriends": 2**  **} .**  **.**  **.**  **.**  **{**  **"\_id": 2,**  **"numberOfFriends": 2**  **}** |

15. Find users who have at least one post with a specific comment and a specific skill.

|  |  |
| --- | --- |
| **INPUT** | **OUTPUT** |
| [  {  $match: {  $and: [  { skills: "JavaScript" },  { "posts.comments": "Great post!" }  ]  }  }  ] | **{**  **"\_id": 1,**  **"name": "John Doe",**  **"age": 28,**  **"city": "New York",**  **"gender": "Male",**  **"posts": [**  **{**  **"title": "Post 1",**  **"likes": 15,**  **"comments": [**  **"Great post!",**  **"Interesting"**  **]**  **}, {**  **"title": "Post 2",**  **"likes": 20,**  **"comments": [**  **"Well done"**  **]**  **}**  **],**  **"friends": [**  **2,**  **3**  **],**  **"skills": [**  **"JavaScript",**  **"React",**  **"Node.js"**  **],**  **"isActive": true**  **}** |

16. Count users who have skills javascript and react.

|  |  |
| --- | --- |
| **INPUT** | **OUTPUT** |
| [  {  $match: {  $and: [  {  skills: "JavaScript"  },  {  skills: "React"  }  ]  }  },  {  $count: "Total users"  }  ] | **{**  **"Total users": 2**  **}** |

17. count user who have second skills as React

|  |  |
| --- | --- |
| **INPUT** | **OUTPUT** |
| [  {  $match: {  'skills.1' : 'React'  }  },  {  $count: 'Total users who have second skills as React'  }  ] | **{**  **"Total users who have second skills as React": 2**  **}** |

18. Categorise users by their city and gives their id and name.

|  |  |
| --- | --- |
| **INPUT** | **OUTPUT** |
| [  {  $group: {  \_id: "$city",  user: {  $push: {  id: "$\_id",  name: "$name"  }  }  }  } ] | **{**  **"\_id": "Portland",**  **"user": [**  **{**  **"id": 10,**  **"name": "Jasmine Hill"**  **},**  **{**  **"id": 9,**  **"name": "Isaac Moore"**  **}**  **]**  **}** |

19. Give user data whose city name starts with "New".

|  |  |
| --- | --- |
| **INPUT** | **OUTPUT** |
| [  {  $match: {  city: /^New[ a-zA-z]+/  }  },  {  $project: {  posts: 0,  friends: 0,  skills: 0  }  }  ] | **{**  **"\_id": 3,**  **"name": "Bob Williams",**  **"age": 24,**  **"city": "New York",**  **"gender": "Male",**  **"isActive": false**  **} {**  **"\_id": 1,**  **"name": "John Doe",**  **"age": 28,**  **"city": "New York",**  **"gender": "Male",**  **"isActive": true**  **}** |

20. Add a "postCount" field representing the total number of posts for each user.

|  |  |
| --- | --- |
| **INPUT** | **OUTPUT** |
| [  {  $unwind: "$posts"  },  {  $group: {  \_id: "$\_id",  name: { $first: "$name" },  postCount: {  $sum: 1  }  }  }  ] | **{**  **"\_id": 10,**  **"name": "Jasmine Hill",**  **"postCount": 2**  **} {**  **"\_id": 9,**  **"name": "Isaac Moore",**  **"postCount": 2**  **}**  **: : : : {**  **"\_id": 4,**  **"name": "Diana Brown",**  **"postCount": 2**  **}** |

21. Add a "friendNames" field with the names of friends for each user.

|  |  |
| --- | --- |
| **INPUT** | **OUTPUT** |
| [  {  $lookup: {  from: "users",  localField: "\_id",  foreignField: "friends",  as: "result"  }  },  {  $addFields: {  friendNames: "$result.name"  }  },  {  $project: {  result: 0,  skills: 0,  posts: 0,  city: 0,  gender: 0  }  }  ] | **{**  **"\_id": 3,**  **"name": "Bob Williams",**  **"age": 24,**  **"friends": [**  **1,**  **2**  **],**  **"isActive": false,**  **"friendNames": [**  **"John Doe",**  **"Alice Johnson"**  **]**  **} {**  **"\_id": 10,**  **"name": "Jasmine Hill",**  **"age": 23,**  **"friends": [**  **9,**  **7**  **],**  **"isActive": true,**  **"friendNames": []**  **}** |

22. Display posts data that have more than 1 comments.

|  |  |
| --- | --- |
| **INPUT** | **OUTPUT** |
| [  {  $unwind: "$posts"  },  {  $addFields: {  totalComment: { $size: "$posts.comments" }  }  },  {  $match: {  totalComment: { $gt: 1 }  }  },  {  $project: {  \_id: "$\_id",  name: "$name",  posts: "$posts",  totalComment: "$totalComment"  }  }  ] | **{**  **"\_id": 10,**  **"name": "Jasmine Hill",**  **"posts": {**  **"title": "Post 19",**  **"likes": 18,**  **"comments": [**  **"Keep it up",**  **"Awesome"**  **]**  **},**  **"totalComment": 2**  **} {**  **"\_id": 1,**  **"name": "John Doe",**  **"posts": {**  **"title": "Post 1",**  **"likes": 15,**  **"comments": [**  **"Great post!",**  **"Interesting"**  **]**  **},**  **"totalComment": 2**  **} : :** |