

DATA ENGINEERING AND MANAGEMENT- LAB

(Course Code: 22UPCSC1E02)

A laboratory record submitted to Periyar University, Salem

In partial fulfillment of the requirements for the degree of

MASTER OF COMPUTER APPLICATION

By

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DEPARTMENT OF COMPUTER SCIENCE

PERIYAR UNIVERSITY

(NACC `A++` Grade with CGPA 3.61) – NIRF RANK 63 – ARIIA RANK 10

PERIYAR PALKALAI NAGAR,

SALEM – 636 011.

(NOVEMBER - 2022)

CERTIFICATE

This is to certify that the Programming Laboratory entitled “**DATA ENGINEERING AND MANAGEMENT - LAB (22UPCSC1E02)**” is a bonafide record work done by Mr. /Ms. _____

Register No: _____ as partial fulfillment of the requirements for the degree of Master of Computer Application, in the Department of Computer Science, Periyar University, Salem, during the Academic Year 2022-2023.

Staff In-charge

Head of the Department

Submitted for the practical examination held on.....

Internal Examiner

External Examiner

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SOURCE CODE:

```
P01> db.stuinfo.insertOne(  
  {"_id" : 1, Name:'Dhanush', Age:'21', Course:'MCA'}  
)
```

```
P01> db.stuinfo.insertMany([  
  {"_id" : 2, Name : 'Divya', Age : '22', Course:'MSC CS'},  
  {"_id" : 3, Name : 'Shalini', Age : '20', Course: 'MSC DS'},  
  {"_id" : 4, Name : 'Hariharan', Age : '24', Course: 'MSc IT'}  
)
```

OUTPUT:

➤ Insert Single Documents:

```
{ acknowledged: true, insertedIds: { '0': 1 } }
```

➤ Insert Many Documents:

```
{ acknowledged: true, insertedIds: { '0': 2, '1': 3, '2': 4 } }
```

➤ Database:

```
[  
  { _id: 1, Name: 'Dhanush', Age: '21', Course: 'MCA' },  
  { _id: 2, Name: 'Divya', Age: '22', Course: 'MSC CS' },  
  { _id: 3, Name: 'Shalini', Age: '20', Course: 'MSC DS' },  
  { _id: 4, Name: 'Hariharan', Age: '24', Course: 'MSc IT' }  
]
```

SOURCE CODE:

```
P02> db.stuinfo.insertMany([
  { "_id": 1, Name: 'Divya', Age: '22', Course: 'MSC CS' },
  { "_id": 2, Name: 'Shalini', Age: '20', Course: 'MSC DS' },
  { "_id": 3, Name: 'Hariharan', Age: '24', Course: 'MSc IT' }
])
```

```
P02> db.stuinfo.find()
P02> db.stuinfo.find({Name:'Shalini'})
P02> db.stuinfo.find({$or:[{Name:'Divya'},{Age:'20'}]})
P02> db.stuinfo.find({Name:{$in:["Hariharan","Divya"]}})
P02> db.stuinfo.find({ Age: { $gt:'21'}})
P02> db.stuinfo.find({ Age: { $lt:'21'}})
P02> db.stuinfo.find({ Name: { $eq:'Shalini'}})
P02> db.stuinfo.find({ Name: { $nin:['Shalini']}})
```

OUTPUT:

➤ Finding Documents:

```
[
  { _id: 1, Name: 'Divya', Age: '22', Course: 'MSC CS' },
  { _id: 2, Name: 'Shalini', Age: '20', Course: 'MSC DS' },
  { _id: 3, Name: 'Hariharan', Age: '24', Course: 'MSc IT' }
]
```

➤ Specified Record:

```
: [ { _id: 2, Name: 'Shalini', Age: '20', Course: 'MSC DS' } ]
```

➤ OR Operator:

```
[
  { _id: 1, Name: 'Divya', Age: '22', Course: 'MSC CS' },
  { _id: 2, Name: 'Shalini', Age: '20', Course: 'MSC DS' }
]
```

➤ IN Operator:

```
[
  { _id: 1, Name: 'Divya', Age: '22', Course: 'MSC CS' },
  { _id: 3, Name: 'Hariharan', Age: '24', Course: 'MSc IT' }
]
```

➤ Greater than Operator:

```
[
  { _id: 1, Name: 'Divya', Age: '22', Course: 'MSC CS' },
  { _id: 3, Name: 'Hariharan', Age: '24', Course: 'MSc IT' }
]
```

➤ Less than Operator:

```
[ { _id: 2, Name: 'Shalini', Age: '20', Course: 'MSC DS' } ]
```

➤ Equal to Operator:

```
[ { _id: 2, Name: 'Shalini', Age: '20', Course: 'MSC DS' } ]
```

➤ NIN Operator:

```
[  
  { _id: 1, Name: 'Divya', Age: '22', Course: 'MSC CS' },  
  { _id: 3, Name: 'Hariharan', Age: '24', Course: 'MSc IT' }  
]
```


SOURCE CODE:

```
P03> db.stuinfo.insertMany([
  { "_id": 1, Name: 'Divya', Age: '22', Gender:'female',Course:
'MSC CS' },
  { "_id": 2, Name: 'Shalini', Age: '20',Gender:'female', Course:
'MSC DS' },
  { "_id": 3, Name: 'Hariharan', Age: '24',Gender:'Male'}
])
```

```
P03> db.stuinfo.updateOne({ "_id":3 }, { $set: { Course: 'MSc
IT' } })
```

```
P03>db.stuinfo.updateMany({ Gender:'female'},{$set:{ Gender:
'F'}})
```

```
P03> db.stuinfo.replaceOne({ Name: 'Dhanush' }, { "_id":4,
Name: 'Dhanush', Age: '19',Gender:'Male', Course: 'MCA' }, {
upsert: true })
```

OUTPUT:

➤ Update Single Document:

```
{
  acknowledged: true,
  insertedId: null,
  matchedCount: 1,
  modifiedCount: 1,
  upsertedCount: 0
}
```

➤ Update Multiple Document:

```
{
  acknowledged: true,
  insertedId: null,
  matchedCount: 2,
  modifiedCount: 2,
  upsertedCount: 0
}
```

➤ Replace One Document:

```
{
  acknowledged: true,
  insertedId: 4,
  matchedCount: 0,
  modifiedCount: 0,
  upsertedCount: 1
}
```

SOURCE CODE:

```
P04> db.stuinfo.insertMany([
  { "_id": 1, Name: 'Divya', Age: '22', Gender:'female',Course:
'MSC CS' },
  { "_id": 2, Name: 'Shalini', Age: '20',Gender:'female', Course:
'MSC DS' },
  { "_id": 3, Name: 'Hariharan', Age:
'24',Gender:'Male',Course:'MSC IT'}
])
```

```
P04> db.stuinfo.aggregate([ { $addField: { College: 'Periyar
University' } } ])
```

```
P04> db.stuinfo.aggregate([ { $set: { Location : 'Salem' } } ])
```

```
P04> db.stuinfo.aggregate([ { $project : { Name : 1 , Course : 1
} } ])
```

```
P04> db.stuinfo.aggregate([ { $unset: [ 'Age' ] } ])
```

```
P04> db.stuinfo.aggregate([ { $replaceRoot: { newRoot:
{ Name_and_Course: { $concat: [ '$Name', ' & ', '$Course' ] } } } } ])
```

OUTPUT:

➤ Add Fields:

```
[
  {
    _id: 1,
    Name: 'Divya',
    Age: '22',
    Gender: 'female',
    Course: 'MSC CS',
    College: 'Periyar University'
  },
  {
    _id: 2,
    Name: 'Shalini',
    Age: '20',
    Gender: 'female',
    Course: 'MSC DS',
    College: 'Periyar University'
  },
  {
    _id: 3,
    Name: 'Hariharan',
    Age: '24',
    Gender: 'Male',
    Course: 'MSC IT',
    College: 'Periyar University'
  }
]
```

➤ Set field:

```
[
  {
    _id: 1,
    Name: 'Divya',
    Age: '22',
    Gender: 'female',
    Course: 'MSC CS',
    Location: 'Salem'
  },
  {
    _id: 2,
    Name: 'Shalini',
    Age: '20',
    Gender: 'female',
    Course: 'MSC DS',
    Location: 'Salem'
  },
  {
    _id: 3,
    Name: 'Hariharan',
    Age: '24',
    Gender: 'Male',
    Course: 'MSC IT',
    Location: 'Salem'
  }
]
```

➤ Project:

```
[  
  { _id: 1, Name: 'Divya', Course: 'MSC CS' },  
  { _id: 2, Name: 'Shalini', Course: 'MSC DS' },  
  { _id: 3, Name: 'Hariharan', Course: 'MSC IT' }  
]
```

➤ Unset:

```
{ _id: 1, Name: 'Divya', Gender: 'female', Course: 'MSC CS' },  
{ _id: 2, Name: 'Shalini', Gender: 'female', Course: 'MSC DS' },  
{ _id: 3, Name: 'Hariharan', Gender: 'Male', Course: 'MSC IT' }
```

➤ Replace Root:

```
[  
  { Name_and_Course: 'Divya & MSC CS' },  
  { Name_and_Course: 'Shalini & MSC DS' },  
  { Name_and_Course: 'Hariharan & MSC IT' }  
]
```

SOURCE CODE:

```
P05> db.stuinfo.insertMany([
  { "_id": 1, Name: 'Divya', Age: '22', Gender:'female',Course:
'MSC CS' ,Location:'Salem'},
  { "_id": 2, Name: 'Shalini', Age: '20',Gender:'female', Course:
'MSC DS', Location:'Kovai' },
  { "_id": 3, Name: 'Hariharan', Age: '24',
Gender:'Male',Course:'MSC IT', Location:'Salem'},
  {"_id":4,Name:'Dhanush',Age:'19',Gender:'Male',Course:'MCA',
Location:'Erode'}
])
```

```
P05> db.stuinfo.deleteOne({"_id": 2})
P05> db.stuinfo.deleteMany({Location : 'Salem'})
P05> db.stuinfo.remove({ })
```

OUTPUT:

- Delete Single Documents:

```
{ acknowledged: true, deletedCount: 1 }
```

- Delete Many Documents:

```
{ acknowledged: true, deletedCount: 2 }
```

- Remove entire Documents:

```
{ acknowledged: true, deletedCount: 1 }
```

SOURCE CODE:

```
P06> db.stuinfo.insertMany([
  { "_id": 1, Name: 'Divya', Age: '22', Gender:'female',Course:
'MSC CS' ,Location:'Salem'},
  { "_id": 2, Name: 'Shalini', Age: '20',Gender:'female', Course:
'MSC DS', Location:'Kovai' },
  { "_id": 3, Name: 'Hariharan', Age: '24',
Gender:'Male',Course:'MSC IT', Location:'Salem'},
  {"_id":4,Name:'Dhanush',Age:'19',Gender:'Male',Course:'MCA',
Location:'Erode'}
])
```

```
P06> db.stuinfo.aggregate([{$project:{Concatenate_Value:
{$concat: ['$Name','and','$Age']}}}]])
```

```
P06> db.stuinfo.aggregate([{$project:{Split_Value:{$split:
['$Name','&']}}}]])
```

```
P06> db.stuinfo.aggregate([{$project:{UpperCase_Value:
{$toUpper:['$Name']}}}]])
```

```
P06> db.stuinfo.aggregate([{$project:{LowerCase_Value:
{$toLower:['$Name']}}}]])
```

```
P06> db.stuinfo.aggregate([{$project:{FindLength_Value:
{$strLenCP: ['$Name']}}}]])
```


OUTPUT:

➤ Concatenate Value:

```
[
  { _id: 1, Concatenate_Value: 'Divyaand22' },
  { _id: 2, Concatenate_Value: 'Shaliniand20' },
  { _id: 3, Concatenate_Value: 'Hariharanand24' },
  { _id: 4, Concatenate_Value: 'Dhanushand19' }
]
```

➤ Split Value:

```
[
  { _id: 1, Split_Value: [ 'Divya' ] },
  { _id: 2, Split_Value: [ 'Shalini' ] },
  { _id: 3, Split_Value: [ 'Hariharan' ] },
  { _id: 4, Split_Value: [ 'Dhanush' ] }
]
```

➤ Upper Case Value:

```
[
  { _id: 1, UpperCase_Value: 'DIVYA' },
  { _id: 2, UpperCase_Value: 'SHALINI' },
  { _id: 3, UpperCase_Value: 'HARIHARAN' },
  { _id: 4, UpperCase_Value: 'DHANUSH' }
]
```

➤ Lower Case Value:

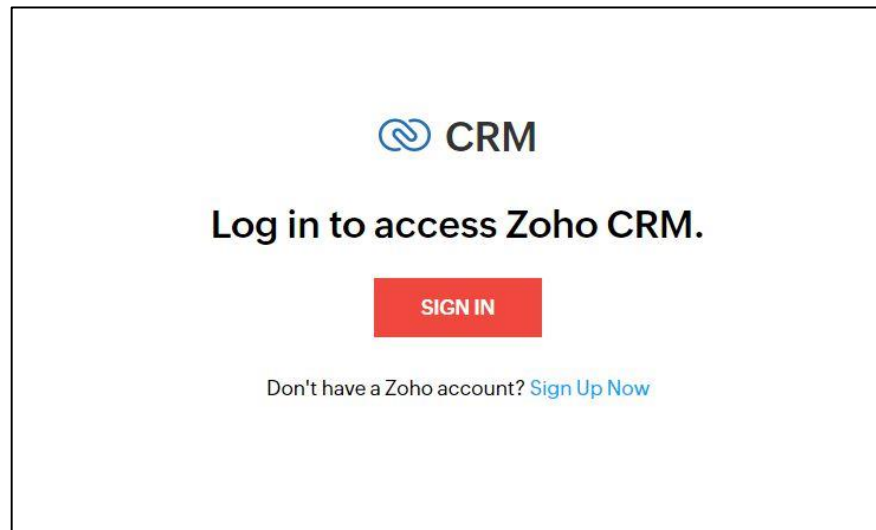
```
[
  { _id: 1, LowerCase_Value: 'divya' },
  { _id: 2, LowerCase_Value: 'shalini' },
  { _id: 3, LowerCase_Value: 'hariharan' },
  { _id: 4, LowerCase_Value: 'dhanush' }
]
```

➤ Find the length:

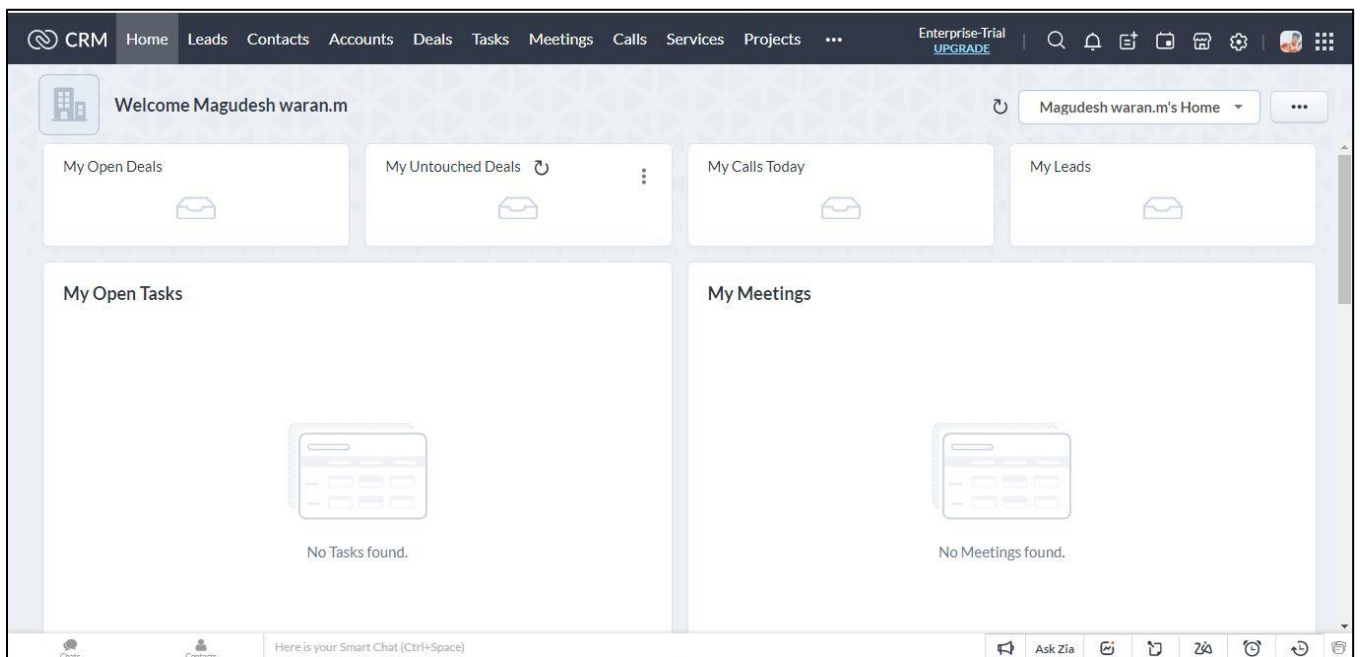
```
[
  { _id: 1, FindLength_Value: 5 },
  { _id: 2, FindLength_Value: 7 },
  { _id: 3, FindLength_Value: 9 },
  { _id: 4, FindLength_Value: 7 }
]
```

SOURCE CODE:

➤ Creating Zoho CRM account:



➤ Home:




➤ Tasks:

Create Task [Edit Page Layout](#)

Task Information

Task Owner

elanchezhian

▼ 

Subject


Email

Due Date

Dec 30, 2022


Contact ▼

ELANCHEZHIAN MUTHUKUMAR



Account ▼

Elan



Status

Not Started ▼

Priority

High ▼

Reminder

☒ On due date at 10:52 AM by Pop Up


Repeat

☒ Daily

Description Information

Description

A computer-based application for the exchange of messages between users



➤ Meetings:

Meeting Information

Java

salem

All day

☐

From

Nov 24, 2022

01:00 PM

To

Nov 24, 2022

02:00 PM

Host

elanchezhian ▾

Participants

1 Selected [+ Add](#)

Related To

Others ▾

Cancel

Save

➤ Deals:

Deal Information	
Deal Owner	elanchezhian
Deal Name	Data Entry
Account Name	Elan
Type	New Business
Next Step	
Lead Source	Employee Referral
Contact Name	ELANCHEZHIAN MUTHUKUMAR
Amount	\$ 200
Closing Date	Nov 24, 2022
Stage	Qualification
Probability (%)	10
Expected Revenue	\$ 20.00
Campaign Source	Amazon
Description Information	
Description	Type fast and work less.

OUTPUT:

➤ Task , Meetings and Deals:

Welcome elanchezhian

elanchezhian's Home

My Open Tasks

Subject	Due Date	Status	Priority	Related To	Contact Name
Product Demo	Nov 24, 2022	Not Started	High	Elan	ELANCHEZHIAN MUTHUKUMAR
Meeting	Nov 24, 2022	Not Started	High	Elan	ELANCHEZHIAN MUTHUKUMAR
Send Letter	Nov 24, 2022	Not Started	High	Elan	ELANCHEZHIAN MUTHUKUMAR
Email	Nov 24, 2022	Not Started	High	Elan	ELANCHEZHIAN MUTHUKUMAR
Call	Nov 24, 2022	Not Started	High	Elan	ELANCHEZHIAN MUTHUKUMAR

1 to 5

My Meetings

Title	From	To	Related To	Contact Name
IDT	Nov 24, 2022 01:00 PM	Nov 24, 2022 02:00 PM		
Python	Nov 24, 2022 01:00 PM	Nov 24, 2022 02:00 PM	Elan	
Linux and Shell Programming	Nov 24, 2022 01:00 PM	Nov 24, 2022 02:00 PM		
New Meeting	Nov 24, 2022	Nov 24, 2022	Elan	
MongoDb	Nov 24, 2022 12:00 PM	Nov 24, 2022 01:00 PM		

1 to 5

Today's Leads

No Leads found.

My Deals Closing This Month

Deal Name	Amount	Stage	Closing Date	Account Name	Contact Name	Deal Owner
Bike	\$ 500.00	Qualification	Nov 24, 2022	Elan	ELANCHEZHIAN MUTHUKUMAR	elanchezhian
Food	\$ 540.00	Qualification	Nov 24, 2022	Elan	ELANCHEZHIAN MUTHUKUMAR	elanchezhian
Sales	\$ 9,000.00	Qualification	Nov 24, 2022	Elan	ELANCHEZHIAN MUTHUKUMAR	elanchezhian
Gold	\$ 500,000.00	Qualification	Nov 30, 2022	Elan	ELANCHEZHIAN MUTHUKUMAR	elanchezhian
Finance	\$ 500.00	Qualification	Nov 25, 2022	Elan	ELANCHEZHIAN MUTHUKUMAR	elanchezhian

SOURCE CODE AND OUTPUT:

➤ To create a project:

❖ Click New Project.

New Project

Standard Layout

Project Title * ⓘ

MongoDB

Owner

elanchezhian

Template

Select

Start Date

11-24-2022

End Date

11-30-2022

☒ Make this a strict project ⓘ

Project Overview

B I U ↺ Times Ne... 12 A A ≡ ≡ ≡ ≡

MongoDB is a non-relational document database that provides support for JSON-like storage

Task Layout ⓘ

Standard Layout

Group Name ⓘ

MongoDB server

Add new group

Tags

#mongodb

Roll-Up

Add

Cancel

New Project

Standard Layout

Task Layout ⓘ

Group Name ⓘ

Add new group

Standard Layout

MongoDB server

Tags

#mongodb

⊖ Roll-Up

☒ Enable this option to roll-up dates from tasks/subtasks to projects and Milestones. Work hours, time logs, and % completion will roll-up from subtasks to tasks. [Learn more.](#)

⊖ Customize Tabs For This Project

Dashboard

Tasks

Gantt & Reports

Documents

Milestones

Timesheet

Finance

Expense

Issues

Users

Forums

Pages

⊖ Project Access

☒ Private

Only project users can view and access this project.

☐ Public

Portal users can only view, follow, and comment whereas, project users will have complete access.

Add

Cancel

➤ Final Project:

Open (1) ▾

MOT-T1 Elan
elanchezhian

MOT-T1

Elan

By elanchezhian · MongoDB

Open ▾

CURRENT STATUS

Description

Looking for someone to move my lawn which is roughly

Task Information

Associated Team

Select Teams

Owner

elanchezhian

Work Hours

Status

Open

Start Date

11-24-2022

Due Date

11-30-2022

Duration

7 days

Priority

Medium

Completion Percentage

0

Tags

mongodb

Reminder

11-25-2022 12:00 AM

Recurrence

Billing Type

Billable

SOURCE CODE:

```
student> db.biodata.insertOne({
    _id: 01, name: "giri", course: "msc", personal: { age: 23, city:
"erode", email: "giri@gmail.com" }})

student> db.biodata.insertMany([
    { _id: 02, name: "ragu", course: "msc", personal:
{ age: 23, city: "salem", email: "ragu@gmail.com" }},
    { _id: 03, name: "ruslaan", course: "mca", personal: {
age: 22, city: "salem", email: "ruslaan@gmail.com" }},
    { _id: 04, name: "sangeeth", course: "mca",
personal: { age: 24, city: "erode", email:
"sangeeth@gmail.com" }},
    { _id: 05, name: "nitin", course: "msc", personal:
{ age: 24, city: "ooty", email: "nitin@gmail.com" }}}])
```

OUTPUT:

biodata
<div><div>Id name course</div><div><div>personal</div><div><div>age city email</div></div></div></div>

SOURCE CODE:

Insert:

```
P08>db.stuinfo.insertOne(
{"_id" : 1, Name:'Dhanush', Age:'21', Course:'MCA'}
)
```

Update:

```
P08>db.stuinfo.updateOne({ "_id":1 }, { $set: { Course: 'MSc
IT' } })
```

Projection:

```
P08>db.stuinfo.find({ })
```

Delete:

```
P08>db.stuinfo.deleteOne({"_id": 1 })
```

OUTPUT:

Insert:

```
{ acknowledged: true, insertedId: 1 }
```

Update:

```
{  
  acknowledged: true,  
  insertedId: null,  
  matchedCount: 1,  
  modifiedCount: 1,  
  upsertedCount: 0  
}
```

Projection:

```
[ { _id: 1, Name: 'Dhanush', Age: '21', Course: 'MSc IT' } ]
```

Delete:

```
{ acknowledged: true, deletedCount: 0 }
```