

WORK CONTRIBUTION:

Both team members worked together on the assignment

Language: **Python**

Code Flow:

1. The data is loaded into MySQL Tables (department, employee, project, works_on)
2. The data to load into document collection is extracted from the MySQL tables using queries and converted to JSON format.
3. The JSON is loaded into MongoDB.
4. Along with creating the JSON format, we have also created the documents in tabular format and XML format

Documents Collection Created in the MongoDB are:

- departments
- employees
- projects

JSON files are created in / **json** folder

Tabular format files are created in / **Tables** folder

Extra Credit: XML files are created in / **formatted_xml** folder

We need to connect to the MYSQL server, for the we need below information

- user
- password

Before we start the program, we will create a database my executing the **project2_saitheja_sathvik.py**

Database Name: **project2_saitheja_sathvik**

After executing the **project2_saitheja_sathvik.py** then run the **Assigment2.py**

Tables Created in MySQL:

- department
- employee
- project
- works_on

Queries will print in the terminal:

1) Fetch all the employee details from the employe document ORDER BY the first name

Code: documents = link_Mo_go.employees.find().sort("Name_of_the_Branch",1)

Output:

```
{'First_name_of_Employee': 'Ahmad', '_id':  
ObjectId('6112dcd615ecee3c20288c4d')}  
{'First_name_of_Employee': 'Alec', '_id': ObjectId('6112dcd615ecee3c20288c42')}  
{'First_name_of_Employee': 'Alex', '_id': ObjectId('6112dcd615ecee3c20288c47')}  
{'First_name_of_Employee': 'Alex', '_id': ObjectId('6112dcd615ecee3c20288c61')}
```

```
{'First_name_of_Employee': 'Alicia',  
 '_id': ObjectId('6112dcd615ecee3c20288c62')}  
{'First_name_of_Employee': 'Andrea',  
 '_id': ObjectId('6112dcd615ecee3c20288c5d')}  
{'First_name_of_Employee': 'Bonnie',  
 '_id': ObjectId('6112dcd615ecee3c20288c41')}  
{'First_name_of_Employee': 'Brad', '_id': ObjectId('6112dcd615ecee3c20288c51')}  
{'First_name_of_Employee': 'Christina',  
 '_id': ObjectId('6112dcd615ecee3c20288c4b')}  
{'First_name_of_Employee': 'Cindy', '_id': ObjectId('6112dcd615ecee3c20288c44')}  
{'First_name_of_Employee': 'Debra', '_id': ObjectId('6112dcd615ecee3c20288c4a')}  
{'First_name_of_Employee': 'Franklin',  
 '_id': ObjectId('6112dcd615ecee3c20288c60')}  
{'First_name_of_Employee': 'Jake', '_id': ObjectId('6112dcd615ecee3c20288c5a')}  
{'First_name_of_Employee': 'James', '_id': ObjectId('6112dcd615ecee3c20288c43')}  
{'First_name_of_Employee': 'Jared', '_id': ObjectId('6112dcd615ecee3c20288c4e')}  
{'First_name_of_Employee': 'Jeff', '_id': ObjectId('6112dcd615ecee3c20288c45')}  
{'First_name_of_Employee': 'Jennifer',  
 '_id': ObjectId('6112dcd615ecee3c20288c5e')}  
{'First_name_of_Employee': 'John', '_id': ObjectId('6112dcd615ecee3c20288c5b')}  
{'First_name_of_Employee': 'Jon', '_id': ObjectId('6112dcd615ecee3c20288c4f')}  
{'First_name_of_Employee': 'Jose', '_id': ObjectId('6112dcd615ecee3c20288c40')}  
{'First_name_of_Employee': 'Joseph',  
 '_id': ObjectId('6112dcd615ecee3c20288c50')}
```

```
{'First_name_of_Employee': 'Joyce', '_id': ObjectId('6112dcd615ecee3c20288c46')}
{'First_name_of_Employee': 'Juan', '_id': ObjectId('6112dcd615ecee3c20288c54')}
{'First_name_of_Employee': 'Justin',
 '_id': ObjectId('6112dcd615ecee3c20288c55')}
{'First_name_of_Employee': 'Kim', '_id': ObjectId('6112dcd615ecee3c20288c49')}
{'First_name_of_Employee': 'Leonard',
 '_id': ObjectId('6112dcd615ecee3c20288c57')}
{'First_name_of_Employee': 'Lisa', '_id': ObjectId('6112dcd615ecee3c20288c4c')}
{'First_name_of_Employee': 'Michael',
 '_id': ObjectId('6112dcd615ecee3c20288c58')}
{'First_name_of_Employee': 'Penny', '_id': ObjectId('6112dcd615ecee3c20288c5f')}
{'First_name_of_Employee': 'Percy', '_id': ObjectId('6112dcd615ecee3c20288c53')}
{'First_name_of_Employee': 'Ramesh',
 '_id': ObjectId('6112dcd615ecee3c20288c59')}
{'First_name_of_Employee': 'Richard',
 '_id': ObjectId('6112dcd615ecee3c20288c52')}
{'First_name_of_Employee': 'Sam', '_id': ObjectId('6112dcd615ecee3c20288c5c')}
{'First_name_of_Employee': 'Zach', '_id': ObjectId('6112dcd615ecee3c20288c48')}
{'First_name_of_Employee': 'willie',
 '_id': ObjectId('6112dcd615ecee3c20288c56')}
```

2) Number of projects in each Department

Code: documents = link_Mo_go.projects.aggregate([
 {"\$group": {"_id": "\$Name_of_the_Branch", "Total": {"\$sum": 1}}}
])

Output:

```
{'Total': 2, '_id': 'HR'}
```

```
{'Total': 4, '_id': 'Research'}
```

```
{'Total': 1, '_id': 'Headquarters'}
```

```
{'Total': 5, '_id': 'Software'}
```

```
{'Total': 3, '_id': 'Hardware'}
```

```
{'Total': 2, '_id': 'Administration'}
```

3) Get all the employees working in dept 4

Code: documents = link_Mo_go.departments.find({ 'Dept_No':4})

Output:

```
{'Dept_nmr': 4,
```

```
  'Employees': [{ 'First_name_of_Employee': 'Alicia',
```

```
    'Last_name_of_Employee': 'Zelaya',
```

```
    'Package_of_the_employess': 25000},
```

```
  { 'First_name_of_Employee': 'Ahmad',
```

```
    'Last_name_of_Employee': 'Jabbar',
```

```
    'Package_of_the_employess': 25000},
```

```
  { 'First_name_of_Employee': 'Wilson',
```

```
    'Last_name_of_Employee': 'Holmes',
```

```
    'Package_of_the_employess': 72500},
```

```
  { 'First_name_of_Employee': 'Jennifer',
```

```
    'Last_name_of_Employee': 'Wallace',
```

```
    'Package_of_the_employess': 43000},
```

```
{'First_name_of_Employee': 'Cameron',  
  'Last_name_of_Employee': 'Thirteen',  
  'Package_of_the_employess': 80000},  
{'First_name_of_Employee': 'Richard',  
  'Last_name_of_Employee': 'Koelbel',  
  'Package_of_the_employess': 85000}},  
'First_name_of_manager': 'Jennifer',  
'Last_name_of_manager': 'Wallace',  
'Mag_begin_period_d': '01-JAN-1985',  
'Name_of_the_Branch': 'Administration',  
'_id': ObjectId('6112db30962df409726e1f34')}
```

4)Fetch all project from EMPLOYEES where employee 'Joyce' is working on and dept 'Research'")

Code:

```
documents = link_Mo_go.employees.find( { 'First_name_of_Employee':  
'Joyce','Name_of_the_Branch':'Research'},{'First_name_of_Employee':1,'Name_of_the_Branc  
h':1,'Projects':1})
```

Output:

```
{'First_name_of_Employee': 'Joyce',  
'Name_of_the_Branch': 'Research',  
'Projects': [{'Project_Name': 'ProductX',  
  'Project_No': '1',  
  'nbr_of_hrs': 20.0},  
  {'Project_Name': 'ProductY',
```

```
'Project_No': '2',  
'nbr_of_hrs': 20.0]],  
'_id': ObjectId('6112d8bb9177c9dfce28faaf')}
```

5) Fetch employee names under admin department from department collection")

Code:

```
documents = link_Mo_go.departments.find(  
'Name_of_the_Branch': 'Administration'), {'Employees': 1})
```

Output:

```
{'Employees': [{'First_name_of_Employee': 'Alicia',  
                  'Last_name_of_Employee': 'Zelaya',  
                  'Package_of_the_employess': 25000},  
{'First_name_of_Employee': 'Ahmad',  
                  'Last_name_of_Employee': 'Jabbar',  
                  'Package_of_the_employess': 25000},  
{'First_name_of_Employee': 'Wilson',  
                  'Last_name_of_Employee': 'Holmes',  
                  'Package_of_the_employess': 72500},  
{'First_name_of_Employee': 'Jennifer',  
                  'Last_name_of_Employee': 'Wallace',  
                  'Package_of_the_employess': 43000},  
{'First_name_of_Employee': 'Cameron',
```

```
'Last_name_of_Employee': 'Thirteen',  
'Package_of_the_employess': 80000},  
{'First_name_of_Employee': 'Richard',  
'Last_name_of_Employee': 'Koelbel',  
'Package_of_the_employess': 85000}},  
'_id': ObjectId('6112d8bb9177c9dfce28facc'))}
```

6) getfirst,project number, working for EMPLOYEES collection where department name is Software

```
{'First_name_of_Employee': 'Jose',  
'Projects': [{'Project_No': '63', 'nbr_of_hrs': 40.0}],  
'_id': ObjectId('6114244429d12204a4d049ee')}}  
{'First_name_of_Employee': 'Cindy',  
'Projects': [{'Project_No': '63', 'nbr_of_hrs': 25.0}],  
'_id': ObjectId('6114244429d12204a4d049f2')}}  
{'First_name_of_Employee': 'Jeff',  
'Projects': [{'Project_No': '63', 'nbr_of_hrs': 46.0}],  
'_id': ObjectId('6114244429d12204a4d049f3')}}  
{'First_name_of_Employee': 'Zach',  
'Projects': [{'Project_No': '22', 'nbr_of_hrs': 30.0}],  
'_id': ObjectId('6114244429d12204a4d049f6')}}  
{'First_name_of_Employee': 'Kim',  
'Projects': [{'Project_No': '63', 'nbr_of_hrs': 40.0}],  
'_id': ObjectId('6114244429d12204a4d049f7')}}}
```



```
{'First_name_of_Employee': 'Debra',  
  'Projects': [{'Project_No': '11', 'nbr_of_hrs': 20.0}],  
  '_id': ObjectId('6114244429d12204a4d049f8')}}  
{'First_name_of_Employee': 'Christina',  
  'Projects': [{'Project_No': '61', 'nbr_of_hrs': 4.0}],  
  '_id': ObjectId('6114244429d12204a4d049f9')}}  
{'First_name_of_Employee': 'Jared',  
  'Projects': [{'Project_No': '61', 'nbr_of_hrs': 40.0}],  
  '_id': ObjectId('6114244429d12204a4d049fc')}}  
{'First_name_of_Employee': 'Jon',  
  'Projects': [{'Project_No': '61', 'nbr_of_hrs': 40.0}],  
  '_id': ObjectId('6114244429d12204a4d049fd')}}  
{'First_name_of_Employee': 'Brad',  
  'Projects': [{'Project_No': '61', 'nbr_of_hrs': 40.0}],  
  '_id': ObjectId('6114244429d12204a4d049ff')}}  
{'First_name_of_Employee': 'Justin',  
  'Projects': [{'Project_No': '61', 'nbr_of_hrs': 40.0}],  
  '_id': ObjectId('6114244429d12204a4d04a03')}}  
{'First_name_of_Employee': 'Jake',  
  'Projects': [{'Project_No': '11', 'nbr_of_hrs': 25.0}],  
  '_id': ObjectId('6114244429d12204a4d04a08')}}  
{'First_name_of_Employee': 'Penny',  
  'Projects': [{'Project_No': '22', 'nbr_of_hrs': 4.0}],  
  '_id': ObjectId('6114244429d12204a4d04a0d')}}}
```

```
{'First_name_of_Employee': 'Alex',  
  'Projects': [{'Project_No': '13', 'nbr_of_hrs': 18.0}],  
  '_id': ObjectId('6114244429d12204a4d04a0f')}
```