Queries for the Project Collection:

1) db.PROJECT_DATA.find({"Department_Name": "Research"}).pretty()
2) db.PROJECT_DATA.aggregate({$project:{ "Project_Number" : 1 , "Project_Name" : 1, "Department_Name": 1 }}).pretty()
3) db.PROJECT_DATA.find({ $and: [{ "Department_Name": "Software"}, {"Employees.LName": "Yu" }] }).pretty()
4) db.PROJECT_DATA.find({ "Project_Number": { $gt: "70" } }).pretty()
5) db.PROJECT_DATA.find({ $or: [{ "Department_Name": "Headquarters"},{ "Department_Name": "HR"}]},{"Department_Name": 1, "Employees.FName": 1, "Employees.LName": 1, "Project_Name": 1}).pretty()

Output for each query:

1) This query prints only those data where "Department_Name" is "Research".

db.PROJECT_DATA.find({"Department_Name": "Research"}).pretty()

Output :

```
{
"_id" : ObjectId("5f29b91bfd1138c3311e5850"),
"Employees" : [
{
"LName" : "Smith",
"Hours" : "7.5",
"FName" : "John"
},
{
"LName" : "Wong",
"Hours" : "10.0",
"FName" : "Franklin"
},
{
"LName" : "English",
"Hours" : "20.0",
"FName" : "Joyce"
},
{
"LName" : "Lewallen",
"Hours" : "2.0",
"FName" : "Roy"
}
],
```

"Project_Name" : "ProductY",
"Department_Name" : "Research",
"Project_Number" : "2"
}
{
"_id" : ObjectId("5f29b91bfd1138c3311e5852"),
"Employees" : [
{
"LName" : "Smith",
"Hours" : "32.5",
"FName" : "John"
},
{
"LName" : "Lewallen",
"Hours" : "2.0",
"FName" : "Roy"
},
{
"LName" : "English",
"Hours" : "20.0",
"FName" : "Joyce"
},
{
"LName" : "Carpenter",
"Hours" : "25.0",
"FName" : "Jisha"
}
],
"Project_Name" : "ProductX",
"Department_Name" : "Research",
"Project_Number" : "1"
}
{
"_id" : ObjectId("5f29b91bfd1138c3311e5855"),
"Employees" : [
{
"LName" : "Morgan",
"Hours" : "11.0",
"FName" : "Michael"
},
{
"LName" : "Holmes",
"Hours" : "5.0",
"FName" : "Wilson"
},
{

"LName" : "Thirteen",
"Hours" : "45.0",
"FName" : "Cameron"
}
],
"Project_Name" : "EntityAnnot",
"Department_Name" : "Research",
"Project_Number" : "4"
}
{
"_id" : ObjectId("5f29b91bfd1138c3311e5860"),
"Employees" : [
{
"LName" : "Narayan",
"Hours" : "40.0",
"FName" : "Ramesh"
},
{
"LName" : "Wong",
"Hours" : "10.0",
"FName" : "Franklin"
},
{
"LName" : "Lewallen",
"Hours" : "4.0",
"FName" : "Roy"
},
{
"LName" : "Sondrini",
"Hours" : "45.0",
"FName" : "Andrea"
},
{
"LName" : "Smith",
"Hours" : "10.0",
"FName" : "Johny"
}
],
"Project_Name" : "ProductZ",
"Department_Name" : "Research",
"Project_Number" : "3"
}

2) This query only returns those fields that are set to 1(True).

db.PROJECT_DATA.aggregate({$project:{ "Project_Number" : 1 , "Project_Name" : 1, "Department_Name": 1 }}).pretty()

Output:

```
{
        "_id" : ObjectId("5f29b91bfd1138c3311e584f"),
        "Project_Name" : "LaserPrinters",
        "Department_Name" : "Hardware",
        "Project_Number" : "92"

}
{
        "_id" : ObjectId("5f29b91bfd1138c3311e5850"),
        "Project_Name" : "ProductY",
        "Department_Name" : "Research",
        "Project_Number" : "2"

}
{
        "_id" : ObjectId("5f29b91bfd1138c3311e5851"),
        "Project_Name" : "Reorganization",
        "Department_Name" : "Headquarters",
        "Project_Number" : "20"

}
{
        "_id" : ObjectId("5f29b91bfd1138c3311e5852"),
        "Project_Name" : "ProductX",
        "Department_Name" : "Research",
        "Project_Number" : "1"

}
{
        "_id" : ObjectId("5f29b91bfd1138c3311e5853"),
        "Project_Name" : "Human1",
        "Department_Name" : "HR",
        "Project_Number" : "95"

}
{
        "_id" : ObjectId("5f29b91bfd1138c3311e5854"),
        "Project_Name" : "SearchEngine",
        "Department_Name" : "Software",
        "Project_Number" : "22"

}
{
        "_id" : ObjectId("5f29b91bfd1138c3311e5855"),
        "Project_Name" : "EntityAnnot",
```

```
                "Department_Name" : "Research",
                "Project_Number" : "4"
        }
        {

                "_id" : ObjectId("5f29b91bfd1138c3311e5856"),
                "Project_Name" : "MotherBoard",
                "Department_Name" : "Hardware",
                "Project_Number" : "29"
        }
        {

                "_id" : ObjectId("5f29b91bfd1138c3311e5857"),
                "Project_Name" : "ConfigMgmt",
                "Department_Name" : "Software",
                "Project_Number" : "11"
        }
        {

                "_id" : ObjectId("5f29b91bfd1138c3311e5858"),
                "Project_Name" : "DataMining",
                "Department_Name" : "Software",
                "Project_Number" : "13"
        }
        {

                "_id" : ObjectId("5f29b91bfd1138c3311e5859"),
                "Project_Name" : "Computerization",
                "Department_Name" : "Administration",
                "Project_Number" : "10"
        }
        {

                "_id" : ObjectId("5f29b91bfd1138c3311e585a"),
                "Project_Name" : "Advertizing",
                "Department_Name" : "HR",
                "Project_Number" : "70"
        }
        {

                "_id" : ObjectId("5f29b91bfd1138c3311e585b"),
                "Project_Name" : "Middleware",
                "Department_Name" : "Software",
                "Project_Number" : "63"
        }
        {

                "_id" : ObjectId("5f29b91bfd1138c3311e585c"),
                "Project_Name" : "DatabaseSystems",
                "Department_Name" : "Software",
                "Project_Number" : "62"
        }
        {
```

```
        "_id" : ObjectId("5f29b91bfd1138c3311e585d"),
        "Project_Name" : "OperatingSystem",
        "Department_Name" : "Software",
        "Project_Number" : "61"
}
{

        "_id" : ObjectId("5f29b91bfd1138c3311e585e"),
        "Project_Name" : "Newbenefits",
        "Department_Name" : "Administration",
        "Project_Number" : "30"
}
{

        "_id" : ObjectId("5f29b91bfd1138c3311e585f"),
        "Project_Name" : "InkjetPrinters",
        "Department_Name" : "Hardware",
        "Project_Number" : "91"

}
{

        "_id" : ObjectId("5f29b91bfd1138c3311e5860"),
        "Project_Name" : "ProductZ",
        "Department_Name" : "Research",
        "Project_Number" : "3"
}
```

3) This query retrives only those fields where "Department_Name": "Software" AND Employees Last name is Yu

db.PROJECT_DATA.find({ $and: [{ "Department_Name": "Software"}, {"Employees.LName": "Yu" }] }).pretty()

Output:
```
{
        "_id" : ObjectId("5f29b91bfd1138c3311e5858"),
        "Employees" : [
                {
                        "LName" : "Yu",
                        "Hours" : "18.0",
                        "FName" : "Alex"
                }
        ],
        "Project_Name" : "DataMining",
        "Department_Name" : "Software",
        "Project_Number" : "13"
}
```

4) This query prints data whose Project_Number is greater then 70.

db.PROJECT_DATA.find({ "Project_Number": { $gt: "70" } }).pretty()

Output:

```
{
    "_id" : ObjectId("5f29b91bfd1138c3311e584f"),
    "Employees" : [
            {
                    "LName" : "James",
                    "Hours" : "40.0",
                    "FName" : "John"
            },
            {
                    "LName" : "Ball",
                    "Hours" : "44.0",
                    "FName" : "Nandita"
            },
            {
                    "LName" : "Kramer",
                    "Hours" : "40.0",
                    "FName" : "Jon"
            },
            {
                    "LName" : "Lewallen",
                    "Hours" : "1.0",
                    "FName" : "Roy"
            },
            {
                    "LName" : "Kirkish",
                    "Hours" : "33.0",
                    "FName" : "Joseph"
            }
    ],
    "Project_Name" : "LaserPrinters",
    "Department_Name" : "Hardware",
    "Project_Number" : "92"
}
{
    "_id" : ObjectId("5f29b91bfd1138c3311e5853"),
    "Employees" : [
            {
                    "LName" : "Cucuou",
                    "Hours" : "23.0",
```

```
                    "FName" : "Sheldon"
            },
            {

                    "LName" : "Mary",
                    "Hours" : "35.0",
                    "FName" : "willie"
            },
            {

                    "LName" : "Lewallen",
                    "Hours" : "3.0",
                    "FName" : "Roy"
            },
            {

                    "LName" : "Linda",
                    "Hours" : "40.0",
                    "FName" : "Juan"
            }
    ],
    "Project_Name" : "Human1",
    "Department_Name" : "HR",
    "Project_Number" : "95"
}
{
    "_id" : ObjectId("5f29b91bfd1138c3311e585f"),
    "Employees" : [
            {
                    "LName" : "Freed",
                    "Hours" : "40.0",
                    "FName" : "Alex"
            },
            {

                    "LName" : "Snedden",
                    "Hours" : "40.0",
                    "FName" : "Sam"
            },
            {

                    "LName" : "Best",
                    "Hours" : "40.0",
                    "FName" : "Alec"
            },
            {

                    "LName" : "Bays",
                    "Hours" : "40.0",
                    "FName" : "Bonnie"
            },
            {
```

```
                              "LName" : "Jarvis",
                              "Hours" : "40.0",
                              "FName" : "Jill"
                 },
                 {

                              "LName" : "King",
                              "Hours" : "40.0",
                              "FName" : "Billie"
                 },
                 {

                              "LName" : "Leslie",
                              "Hours" : "40.0",
                              "FName" : "Lyle"
                 },
                 {

                              "LName" : "King",
                              "Hours" : "40.0",
                              "FName" : "Ray"
                 },
                 {

                              "LName" : "Lewallen",
                              "Hours" : "2.0",
                              "FName" : "Roy"
                 },
                 {

                              "LName" : "Ed",
                              "Hours" : "10.0",
                              "FName" : "John"
                 }
        ],
        "Project_Name" : "InkjetPrinters",
        "Department_Name" : "Hardware",
        "Project_Number" : "91"
    }
```

5) This query display FirstName,LastName,ProjectName who works for either HR department or Headquarters.

db.PROJECT_DATA.find({ $or: [{ "Department_Name": "Headquarters"},{ "Department_Name": "HR"}]},{"Department_Name": 1, "Employees.FName": 1, "Employees.LName": 1, "Project_Name": 1}).pretty()

Output:

```
{
    "_id" : ObjectId("5f29b91bfd1138c3311e5851"),
    "Employees" : [
            {
                    "LName" : "Borg",
                    "FName" : "James"
            },
            {
                    "LName" : "Wallace",
                    "FName" : "Jennifer"
            },
            {
                    "LName" : "Wong",
                    "FName" : "Franklin"
            },
            {
                    "LName" : "Lewallen",
                    "FName" : "Roy"
            },
            {
                    "LName" : "Smith",
                    "FName" : "Johny"
            }
    ],
    "Project_Name" : "Reorganization",
    "Department_Name" : "Headquarters"
}
{
    "_id" : ObjectId("5f29b91bfd1138c3311e5853"),
    "Employees" : [
            {
                    "LName" : "Cucuou",
                    "FName" : "Sheldon"
            },
            {
                    "LName" : "Mary",
                    "FName" : "willie"
            },
            {
                    "LName" : "Lewallen",
                    "FName" : "Roy"
            },
            {
```

```
                        "LName" : "Linda",
                        "FName" : "Juan"
                }
        ],
        "Project_Name" : "Human1",
        "Department_Name" : "HR"
}
{
        "_id" : ObjectId("5f29b91bfd1138c3311e585a"),
        "Employees" : [
                {
                        "LName" : "Maxfield",
                        "FName" : "Erin"
                },
                {
                        "LName" : "Lewallen",
                        "FName" : "Roy"
                },
                {
                        "LName" : "Jones",
                        "FName" : "Megan"
                },
                {
                        "LName" : "Liang",
                        "FName" : "Percy"
                }
        ],
        "Project_Name" : "Advertizing",
        "Department_Name" : "HR"
}
```