****

**LAB ASSIGNMENT#4**

**SUBMITTED BY:** Kulsoom Khurshid

**REGISTRATION #:** SP20-BCS-044

**COURSE:** Database Management System-I

**SUBMITTED TO:** MR. Qasim Malik

**DATE:** 30th December, 2021

**Part-I [CLO-C3]:** Suppose the database for a sports website needs to be built. The following set of requirements have been identified:

* Players group together to form teams.
* Teams have coaches.
* Teams can participate in tournaments.
* Tournaments comprise of matches.
* Referees adjudicate matches.
* Matches are played at a certain venue.
* A subset of players from a team participates in a certain match.
* For matches, apart from the basic information e.g. won/lost, its event-wise chronological coverage throughout the course of the match.

Given the above scenario, think of a single MongoDB collection and provide a sample document of it in JSON format.

Part-II [CLO-C2]: Insert a few meaningful documents in the collection

**JSON SCHEMA:**

{

"tournament\_id":"101",

"tournament\_name":"World cup",

"year":"2020",

"organizing\_country":"Pakistan",

"match":[

{"match\_id":"301",

"match\_name":"Single",

"team1\_id":"1",

"team2\_id":"2",

"venue":

{

"Country":"Pakistan",

"City":"Islamabad",

"Address":"islamabad stadium",

"Capacity":"10000"

},

"refree":[

{"refree\_id":"601",

"refree\_name":"Kassim",

"refree\_type":"Linesman",

"refree\_pay":"10000"},

{"refree\_id":"602",

"refree\_name":"Ali",

"refree\_type":"Penalty Time keeper",

"refree\_pay":"23000"}

],

"coverage":

{"coverage\_id":"401",

"red\_card":"1",

"won":"2",

"goal\_scored":"4"

},

"audience":[

{"audience\_id":"201",

"audience\_name":"Kulsoom",

"contact":"0332-5316694",

"age":"21",

"no.of\_tickets":"1"},

{"audience\_id":"202",

"audience\_name":"Labeeka",

"contact":"0332-5567843",

"age":"21",

"no.of\_tickets":"2"}

],

"ticket":{

"ticket\_number":"501",

"price":"1000"

},

"team":[

{"team\_id":"1",

"team\_country":"Pakistan",

"jersey\_color":"Green",

"player":[

{"player\_id":"701",

"player\_name":"Babar",

"category":"A",

"player\_pay": "8000",

"jersey\_name": "23"},

{"player\_id":"702",

"player\_name":"Ali",

"category":"A",

"player\_pay": "10000",

"jersey\_name": "40"}

],

"coach":[

{"coach\_id":"803",

"coach\_name":"Mathew",

"coach\_pay":"7500"},

{"coach\_id":"804",

"coach\_name":"Alex",

"coach\_pay":"12000"}

]

},

{"team\_id":"2",

"team\_country":"India",

"jersey\_color":"Blue",

"player":[

{"player\_id":"703",

"player\_name":"Umar",

"category":"A",

"player\_pay": "8000",

"jersey\_name": "23"},

{"player\_id":"704",

"player\_name":"Hassan",

"category":"A",

"player\_pay": "10000",

"jersey\_name": "40"}

],

"coach":[

{"coach\_id":"801",

"coach\_name":"Anwar",

"coach\_pay":"10000"},

{"coach\_id":"802",

"coach\_name":"Ammar",

"coach\_pay":"8000"}

]

}

]

},

{"match\_id":"303",

"match\_name":"Single",

"team1\_id":"2",

"team2\_id":"3",

"venue":

{

"Country":"Thailand",

"City":"Bangkok",

"Address":"hockey stadium",

"Capacity":"8000"

},

"refree":[

{"refree\_id":"605",

"refree\_name":"Max",

"refree\_type":"Goal Judge",

"refree\_pay":"20000"},

{"refree\_id":"604",

"refree\_name":"Affan",

"refree\_type":"Penalty Time Keeper",

"refree\_pay":"34000"}

],

"coverage":

{"coverage\_id":"403",

"red\_card":"1",

"won":"3",

"goal\_scored":"3"

},

"audience":[

{"audience\_id":"203",

"audience\_name":"Ishma",

"contact":"0332-5367890",

"age":"19",

"no.of\_tickets":"2"},

{"audience\_id":"204",

"audience\_name":"Noor",

"contact":"0332-6734509",

"age":"21",

"no.of\_tickets":"1"}

],

"ticket":{

"ticket\_number":"502",

"price":"1800"

},

"team":[

{"team\_id":"2",

"team\_country":"India",

"jersey\_color":"Blue",

"player":[

{"player\_id":"705",

"player\_name":"John",

"category":"A",

"player\_pay": "30000",

"jersey\_name": "90"},

{"player\_id":"706",

"player\_name":"Faaiz",

"category":"B",

"player\_pay": "12000",

"jersey\_name": "44"}

],

"coach":[

{"coach\_id":"805",

"coach\_name":"Max",

"coach\_pay":"75000"},

{"coach\_id":"804",

"coach\_name":"Alex",

"coach\_pay":"12000"}

]

},

{"team\_id":"3",

"team\_country":"Canada",

"jersey\_color":"Yellow",

"player":[

{"player\_id":"714",

"player\_name":"Muhammad",

"category":"A",

"player\_pay": "90000",

"jersey\_name": "81"},

{"player\_id":"715",

"player\_name":"Ali",

"category":"B",

"player\_pay": "100000",

"jersey\_name": "62"}

],

"coach":[

{"coach\_id":"801",

"coach\_name":"Anwar",

"coach\_pay":"10000"},

{"coach\_id":"802",

"coach\_name":"Ammar",

"coach\_pay":"8000"}

]

}

]

}

]

}

**Part-III [CLO-C2]:** Now in this part, you are going to first create a meaningful query in English and then provide the corresponding MongoDB API call for each of the following situations:

**Think of a need that requires issuing find API call involving the use of logical and comparison operators.**

ENGLISH QUERY:

Find out all the referee whose type is “Penalty Time Keeper” and has salary more than 30000 and less than 40000.

MONGODB API:

db.hockey.find({$and: [{“match.refree.refree\_type”: “Penalty Time Keeper”},{“match.refree.refree\_pay”: {$gt:30000,$lt:40000}}]});

**Think of a need that require issuing aggregate API call with at least five stages including the group stage and the use of any aggregation operation.**

ENGLISH QUERY:

Find the total number of coaches in both matches and maximum and minimum paid salary coach.

MONGO API:

db.hockey.aggregate([{$project: {totalCoaches: {$count: “$match.refree”}}}, {$group: {maxPay: {$max: “$match.refree.refree\_pay”}, {minPay: {$min: “$match.refree.refree\_pay”}}}]);