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Subject: DBSL – Assignment 3 of group B – Map-reduce operations in mongoDB

Code:

```
db.clubs.insertMany([
    {
        name: "FC Bayern Munich",
        nation: "Germany",
        league: "Bundesliga",
        goals: {
            scored: 37,
            conceded: 7,
        },
    },
    {
        name: "Manchester United",
        nation: "England",
        league: "Premier League",
        goals: {
            scored: 24,
            conceded: 17,
        },
    },
    {
        name: "Manchester City",
        nation: "England",
        league: "Premier League",
        goals: {
            scored: 34,
            conceded: 10,
        },
    },
    {
        name: "Liverpool",
        nation: "England",
        league: "Premier League",
        goals: {
            scored: 34,
            conceded: 15,
        },
    },
    {
        name: "Atletico Madrid",
```

```
        nation: "Spain",
        league: "LaLiga",
        goals: {
            scored: 30,
            conceded: 12,
        },
    },
    {
        name: "Real Madrid",
        nation: "Spain",
        league: "LaLiga",
        goals: {
            scored: 29,
            conceded: 11,
        },
    },
    {
        name: "Borrusia Dortmund",
        nation: "Germany",
        league: "Bundesliga",
        goals: {
            scored: 25,
            conceded: 18,
        },
    },
    {
        name: "FC Barcelona",
        nation: "Spain",
        league: "LaLiga",
        goals: {
            scored: 26,
            conceded: 20,
        },
    },
    {
        name: "Chelsea",
        nation: "England",
        league: "Premier League",
        goals: {
            scored: 33,
            conceded: 21,
        },
    },
    {
        name: "Juventus",
        nation: "Italy",
```

```
            league: "SerieA",
            goals: {
                scored: 26,
                conceded: 22,
            },
        },
]);

db.clubs.find().pretty();
db.clubs.find({}, { _id: 0 });

// average goals of the teams playing in different league
db.clubs.mapReduce(
    function () {
        emit(this.league, this.goals.scored);
    },
    function (key, values) {
        return Array.avg(values);
    },
    {
        out: "avg_goals",
    }
);

db.avg_goals.find().pretty();

// avergae goals of the teams playing in the league LaLiga
db.clubs.mapReduce(
    function () {
        emit(this.league, this.goals.scored);
    },
    function (key, values) {
        return Array.avg(values);
    },
    {
        query: { league: "LaLiga" },
        out: "avg_goals_laliga",
    }
);

db.avg_goals_laliga.find().pretty();
```

Outputs:

```
> db.clubs.find({},{_id:0})
{ "name" : "FC Bayern Munich", "nation" : "Germany", "league" : "Bundesliga", "goals" : { "scored" : 37, "conceded" : 7 } }
{ "name" : "Manchester United", "nation" : "England", "league" : "Premier League", "goals" : { "scored" : 24, "conceded" : 17 } }
{ "name" : "Manchester City", "nation" : "England", "league" : "Premier League", "goals" : { "scored" : 34, "conceded" : 10 } }
{ "name" : "Liverpool", "nation" : "England", "league" : "Premier League", "goals" : { "scored" : 34, "conceded" : 15 } }
{ "name" : "Atletico Madrid", "nation" : "Spain", "league" : "LaLiga", "goals" : { "scored" : 30, "conceded" : 12 } }
{ "name" : "Real Madrid", "nation" : "Spain", "league" : "LaLiga", "goals" : { "scored" : 29, "conceded" : 11 } }
{ "name" : "Borrusia Dortmund", "nation" : "Germany", "league" : "Bundesliga", "goals" : { "scored" : 25, "conceded" : 18 } }
{ "name" : "FC Barcelona", "nation" : "Spain", "league" : "LaLiga", "goals" : { "scored" : 26, "conceded" : 20 } }
{ "name" : "Chelsea", "nation" : "England", "league" : "Premier League", "goals" : { "scored" : 33, "conceded" : 21 } }
{ "name" : "Juventus", "nation" : "Italy", "league" : "SerieA", "goals" : { "scored" : 26, "conceded" : 22 } }
```

```
> db.clubs.mapReduce(
... function () {
... emit(this.league, this.goals.scored)
... },
... function (key, values) {
... return Array.avg(values);
... },
... {
... out: "avg_goals"
... }
... );
{ "result" : "avg_goals", "ok" : 1 }
> db.avg_goals.find().pretty()
{ "_id" : "Bundesliga", "value" : 31 }
{ "_id" : "Premier League", "value" : 31.25 }
{ "_id" : "SerieA", "value" : 26 }
{ "_id" : "LaLiga", "value" : 28.333333333333332 }
>
```

```
> db.clubs.mapReduce(
... function () {
... emit(this.league, this.goals.scored);
... },
... function (key, values) {
... return Array.avg(values);
... },
... {
... query: { league: "LaLiga" },
... out: "avg_goals_laliga",
... }
... );
{ "result" : "avg_goals_laliga", "ok" : 1 }
> db.avg_goals_laliga.find().pretty();
{ "_id" : "LaLiga", "value" : 28.333333333333332 }
>
```