**CSE 5331 – DBMS Models and Implementation Techniques**

**Summer 2019**

**Project 2 Phase 2**

**Creating Complex Object Document Using MongoDB**

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**DB Aggregate Queries for creating complex object document:**

**1) Team Scores**

**Game and Stadium Document**

db.game.aggregate([

{ "$lookup":

{

"from": "stadium",

"localField": "SID",

"foreignField": "SID",

"as": "GameStadium"

}

},

{ "$unwind": "$GameStadium" },

{

$project:

{

\_id: 0,

GameID: 1,

MatchDate: 1,

"GameStadium.SName": 1,

"GameStadium.SCity": 1,

TeamID1: 1,

TeamID2: 1,

Team1\_Score: 1,

Team2\_Score: 1

}

},

{$out: "GameStadium"}

])

**Team1, Game and Stadium Document**

db.team.aggregate([

{ "$lookup":

{

"from": "GameStadium",

"localField": "TeamID",

"foreignField": "TeamID1",

"as": "Team1GameStadium"

}

},

{

$project:

{

\_id: 0,

Team: 1,

TeamID: 1,

"Team1GameStadium.GameID": 1,

"Team1GameStadium.MatchDate": 1,

"Team1GameStadium.TeamID1": 1,

"Team1GameStadium.TeamID2": 1,

"Team1GameStadium.Team1\_Score": 1,

"Team1GameStadium.Team2\_Score": 1,

"Team1GameStadium.GameStadium.SName": 1,

"Team1GameStadium.GameStadium.SCity": 1,

}

},

{$out: "Team1GameStadiumfinal"}

])

**Team2, Game and Stadium Document**

db.team.aggregate([

{ "$lookup":

{

"from": "GameStadium",

"localField": "TeamID",

"foreignField": "TeamID2",

"as": "Team2GameStadium"

}

},

{

$project:

{

\_id: 0,

Team: 1,

TeamID: 1,

"Team2GameStadium.GameID": 1,

"Team2GameStadium.MatchDate": 1,

"Team2GameStadium.TeamID1": 1,

"Team2GameStadium.TeamID2": 1,

"Team2GameStadium.Team1\_Score": 1,

"Team2GameStadium.Team2\_Score": 1,

"Team2GameStadium.GameStadium.SName": 1,

"Team2GameStadium.GameStadium.SCity": 1,

}

},

{$out: "Team2GameStadiumfinal"}

])

**Team1 and Team2 Document**

db.Team2GameStadiumfinal.aggregate([

{ "$lookup":

{

"from": "Team1GameStadiumfinal",

"localField": "Team",

"foreignField": "Team",

"as": "TeamCombinedData"

}

},

{

$replaceRoot: { newRoot: { $mergeObjects: [ { $arrayElemAt: [ "$TeamCombinedData", 0 ] }, "$$ROOT" ] } }

},

{ $project: { TeamCombinedData: 0 } },

{$out:"TeamData"}

])

**Final Complex Object Document**

db.TeamData.aggregate([

{

$project: { Team: 1,

TeamID: 1,

Game\_Scores: { $concatArrays: [ "$Team1GameStadium", "$Team2GameStadium" ] } } },

{ $out: "Project2Final" }

])

db.Project2FinalTest.update(

{ },

{ $set: { "Game\_Scores.$[elem].TeamID1" : "Russia" } },

{

multi: true,

arrayFilters: [ { "elem.TeamID1": { $eq: "A1" } } ]

}

)

db.TeamData.aggregate([

{

$project: { Team: 1,

TeamID: 1,

Game\_Scores: { $concatArrays: [ "$Team1GameStadium", "$Team2GameStadium" ] } } },

{ $out: "Project2Final" }

])

**Sample Queries**

db.Project2Final.find( { $or: [ { "TeamID1": "A1" }, {"TeamID2": "A1" } ] } ).pretty()

db.Project2Final.find({ Team1\_Score: { $gt: 3 } }).pretty()

db.Project2Final.find( { $or: [ { Team1\_Score: { $gt: 3 } }, { Team2\_Score: { $gt: 3 } } ] } ).pretty()

**2) Player Data**

db.game.aggregate ( [

{

$lookup:

{

from:"stadium",

localField:"SID",

foreignField:"SID",

as:"GS"

}

},

{

$project: {

"\_id": 0,

"GameID": 1,

"Groups": 1,

"MatchDate":1,

"SID" : 1,

"TeamID1" : 1,

"TeamID2" : 1,

"Team1\_Score" : 1,

"Team2\_Score" : 1,

"GS.SID" :1,

"GS.SName" :1,

"GS.SCity" :1

}

},

{

$out: "GSData"

}

])

db.game.aggregate ( [

{

$lookup:

{

from:"goals",

localField:"GameID",

foreignField:"GameID",

as:"GG"

}

},

{

$project: {

"\_id": 0,

"GameID": 1,

"Groups": 1,

"MatchDate":1,

"SID" : 1,

"TeamID1" : 1,

"TeamID2" : 1,

"Team1\_Score" : 1,

"Team2\_Score" : 1,

"GG.GameID" :1,

"GG.TeamID" :1,

"GG.PlayerID" :1,

"GG.Time" :1

}

},

{

$out: "GGData"

}

])

db.player.aggregate ( [

{

$lookup: {

from: "GSData",

let: {

teamID: "$TeamID",

},

pipeline: [

{ $match: {

$expr: {

$or: [

{ $eq: [ "$TeamID1", "$$teamID" ] },

{ $eq: [ "$TeamID2", "$$teamID" ] }

]

}

}

}

],

as: "PlayerGameData"

}},

{

$project: {

"Birth Date": 0,

"Shirt Name": 0,

"Club": 0,

"Height": 0,

"Weight":0,

"PlayerGameData.Groups": 0,

"PlayerGameData.TeamID1": 0,

"PlayerGameData.TeamID2": 0,

"PlayerGameData.Team1\_Score": 0,

"PlayerGameData.Team2\_Score": 0,

}},

{

$out: "GS\_player"

}

])

db.GS\_player.aggregate ( [

{

$lookup: {

from: "GGData",

let: {

teamID: "$TeamID"

},

pipeline: [

{ $match: {

$expr: {

$or: [

{ $eq: [ "$TeamID1", "$$teamID" ] },

{ $eq: [ "$TeamID2", "$$teamID" ] }

]

}

}

}

],

as: "GS\_player\_Goals"

}},

{

$project: {

"GS\_player\_Goals.Groups": 0,

"GS\_player\_Goals.TeamID1": 0,

"GS\_player\_Goals.TeamID2": 0,

"GS\_player\_Goals.Team1\_Score": 0,

"GS\_player\_Goals.Team2\_Score": 0

}},

{

$out: "PlayerData"

}])