

IMPLEMENTATION IN NoSQL

We implement the database in MongoDB. For the sake of simplicity, we only create the hunter, team, members, and treasure_hunt collection, including only necessary fields.

Collection Creation & Population

```
// Create collections
db.hunter.drop();
db.team.drop();
db.members.drop();
db.treasure_hunt.drop();

// Populate collections
db.hunter.insert({"_id":2, "team_ID":102, "winnings":40});
db.hunter.insert({"_id":4, "team_ID":102, "winnings":20});
db.hunter.insert({"_id":6, "team_ID":102, "winnings":5});
db.hunter.insert({"_id":5, "team_ID":103, "winnings":15});
db.hunter.insert({"_id":9, "team_ID":103, "winnings":0});

db.team.insert({"_id":102, "size":3});
db.team.insert({"_id":103, "size":2});

db.members.insert({"team_id":102, "H_ID":2});
db.members.insert({"team_id":102, "H_ID":4});
db.members.insert({"team_id":102, "H_ID":6});
db.members.insert({"team_id":103, "H_ID":5});
db.members.insert({"team_id":103, "H_ID":9});

db.treasure_hunt.insert({"_id":201, "finder":null, "C_ID":1});
db.treasure_hunt.insert({"_id":201, "finder":2, "C_ID":3});
db.treasure_hunt.insert({"_id":203, "finder":8, "C_ID":3});
db.treasure_hunt.insert({"_id":207, "finder":10, "C_ID":7});
```

Queries

Here we run a few simple queries.

```
// Query 1 : Find all hunters who play on team 102
db.members.find({"team_id":102});

// Query 2 : Update hunter 2 to play on team 103
db.hunter.update({"_id":2}, {$set:{"team_ID":103}});

// Query 3 : Find hunts by creator 3 that have't been found
db.treasure_hunt.find({$and:[
  {"C_ID":3}, {"finder":{"$ne: null}}
]});

// Query 4 : Find the total winnings of each team
db.hunter.aggregate([
  {$group: {_id:"$team_ID", total:{$sum:"$winnings"}}}
]);
```

```
// Query 1 Result
{"team_id" : 102, "H_ID" : 2}
{"team_id" : 102, "H_ID" : 4}
{"team_id" : 102, "H_ID" : 6}

// Query 3 Result
{"_id" : 203, "finder" : 8, "C_ID" : 3}

// Query 4 Result
// Notice that totals are affected by Query 2,
// which put hunter 2 on team 103
{"_id" : 102, "total" : 25}
{"_id" : 103, "total" : 55}
```