

# Final Report

## Design, development, and implementation of MongoDB database for TWK

TEAM 3

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## Introduction

For this project, the main objective is to create a MongoDB database which stores information for a water sports equipment company located in Wyoming. The company is called Teton Whitewater Kayak, located in Jackson Hole. They are concerned in improving their customer service and equipment rental system. The company has requested a document database based on MongoDB data model that supports the web-based lookup, reservation as well as core business requirements of the enterprise. The database that was created consists of MongoDB Collections and schema of MongoDB sample documents that is robust enough to support TWK's high volume online business transactions.

## Code

```
use TWKAngToh
```

```
db.Equipment.insertMany([
  {sku: 12345, type: "kayak", count: 2, equip_id: "001", status: "available",
  condition: "perfect", retail_price: 100, rental_price: 20},
  {sku: 12345, type: "kayak", count: 2, equip_id: "002", status: "rented",
  condition: "perfect", retail_price: 100, rental_price: 20},
  {sku: 55201, type: "boat", count: 1, equip_id: "003", status: "sold",
  condition: "used", retail_price: 15000, sold_price: 11536},
  {sku: 12346, type: "life jacket", count: 2, equip_id: "004", status:
  "available", condition: "used", retail_price: 25, rental_price: 5},
  {sku: 12346, type: "life jacket", count: 2, equip_id: "005", status: "rented",
  condition: "used", retail_price: 25, rental_price: 5}
]);
```

```
db.Customer.insertMany([
  {cust_id: "A01", fname: "Bob", lname: "Berger", phone: 2694206969, email:
  "bobberger@gmail.com", address: {street: "223 Ocean Ave", city: "Los Angeles",
  state: "CA", zip: 10057}, status: [{history: "rental", rental_date:
  "09-11-2001", equip_condition: "severely damaged", amount_owed: 69}, {history:
  "sales", sales_date: "02-02-1999", sales_amount: 269}]},
  {cust_id: "A02", fname: "Petes", lname: "Griffin", phone: 0169025536, email:
  "griffin666@hotmail.com", address: {street: "666 Highway", city: "New York
  City", state: "NY", zip: 66666}, status: [{history: "new customer"}]}
]);
```

```
db.Reservation.insertMany([
  {res_id: 259648, equipments: [{sku: 12345, type: "kayak", amount: 1, deposit:
  100, rqst_pickup: "09-11-2001", rqst_return: "09-15-2001"}, {sku: 12346,
  equip_type: "life jacket", amount: 2, deposit: 20, rqst_pickup: "09-11-2001",
  rqst_return: "09-15-2001"}], cust_id: "A01", fname: "Bob", lname: "Berger",
  phone: 2694206969, email: "bobberger@gmail.com", address: {street: "223 Ocean
```

```

Ave", city: "Los Angeles", state: "CA", zip: 10057}, status: [{history:
"sales", sales_date: "02-02-1999", sales_amount: 269}]],
{res_id: 841461, equipments:[{sku: 12346, type: "life jacket", amount: 1,
deposit: 20, rqst_pickup: "04-02-1999", rqst_return: "04-20-1999"}], cust_id:
"A02", fname: "Petes", lname: "Griffin", phone: 0169025536, email:
"griffin666@hotmail.com", address: {street: "666 Highway", city: "New York
City", state: "NY", zip: 66666}, status: [{history: "new customer"}]}
]);

db.Rental.insertMany([
{rental_id: 11111, res_id: 259648, equipments:[{sku: 12345, type: "kayak",
amount: 1, deposit: 100, rqst_pickup: "09-11-2001", rqst_return: "09-15-2001"},
{sku: 12346, equip_type: "life jacket", amount: 2, deposit: 20, rqst_pickup:
"09-11-2001", rqst_return: "09-15-2001"}], checkout_date: "09-11-2001",
return_date: "09-15-2001", cust_id: "A01", fname: "Bob", lname: "Berger",
phone: 2694206969, email: "bobberger@gmail.com", address: {street: "223 Ocean
Ave", city: "Los Angeles", state: "CA", zip: 10057}, status: [{history:
"sales", sales_date: "02-02-1999", sales_amount: 269}], days: 5,
charge:{subtotal: 145, tax: 8.7, grandtotal: 153.7}},
{rental_id: 22222, res_id: 841461, equipments:[{sku: 12346, type: "life
jacket", amount: 1, deposit: 20, rqst_pickup: "04-02-1999", rqst_return:
"04-20-1999"}], checkout_date: "04-02-1999", return_date: "06-20-1999",
cust_id: "A02", fname: "Petes", lname: "Griffin", phone: 0169025536, email:
"griffin666@hotmail.com", address: {street: "666 Highway", city: "New York
City", state: "NY", zip: 66666}, status: [{history: "new customer"}], days: 18,
charge: {subtotal: 25, tax: 1.2, grandtotal: 26.2}}
]);

db.Sales.insertMany([
{sales_id: 8520, equip_id: "003", type: "boat", condition: "used",
retail_price: 15000, date: "12-26-2005", charge: {subtotal: 11236, tax: 300,
grandtotal: 11536}},
{sales_id: 9513, equip_id: "002", type: "kayak", condition: "severely damaged",
retail_price: 100, date: "05-05-2002", charge: {subtotal: 15, tax: 3.5,
grandtotal: 18.50}}
]);

```

## Example of records

```

db.Customer.find().pretty().limit(2)

{
  "_id" : ObjectId("5fc802126138fc2bc1a469a8"),
  "cust_id" : "A01",
  "fname" : "Bob",
  "lname" : "Berger",
  "phone" : 2694206969,

```

```

    "email" : "bobberger@gmail.com",
    "address" : {
      "street" : "223 Ocean Ave",
      "city" : "Los Angeles",
      "state" : "CA",
      "zip" : 10057
    },
    "status" : [
      {
        "history" : "rental",
        "rental_date" : "09-11-2001",
        "equip_condition" : "severely damaged",
        "amount_owed" : 69
      },
      {
        "history" : "sales",
        "sales_date" : "02-02-1999",
        "sales_amount" : 269
      }
    ]
  }
}
{
  "_id" : ObjectId("5fc802126138fc2bc1a469a9"),
  "cust_id" : "A02",
  "fname" : "Petes",
  "lname" : "Griffin",
  "phone" : 169025536,
  "email" : "griffin666@hotmail.com",
  "address" : {
    "street" : "666 Highway",
    "city" : "New York City",
    "state" : "NY",
    "zip" : 66666
  },
  "status" : [
    {
      "history" : "new customer"
    }
  ]
}

```

```
db.Equipment.find().pretty().limit(2)
```

```

{
  "_id" : ObjectId("5fc7feba6138fc2bc1a469a6"),
  "sku" : 12345,
  "type" : "kayak",
  "count" : 2,

```

```

    "equip_id" : "001",
    "status" : "available",
    "condition" : "perfect",
    "retail_price" : 100,
    "rental_price" : 20
  }
  {
    "_id" : ObjectId("5fc7feba6138fc2bc1a469a7"),
    "sku" : 12345,
    "type" : "kayak",
    "count" : 2,
    "equip_id" : "002",
    "status" : "rented",
    "condition" : "perfect",
    "retail_price" : 100,
    "rental_price" : 20
  }
}

```

```
db.Rental.find().pretty().limit(2)
```

```

{
  "_id" : ObjectId("5fc8097f6138fc2bc1a469b3"),
  "rental_id" : 11111,
  "res_id" : 259648,
  "equipments" : [
    {
      "sku" : 12345,
      "type" : "kayak",
      "amount" : 1,
      "deposit" : 100,
      "rqst_pickup" : "09-11-2001",
      "rqst_return" : "09-15-2001"
    },
    {
      "sku" : 12346,
      "equip_type" : "life jacket",
      "amount" : 2,
      "deposit" : 20,
      "rqst_pickup" : "09-11-2001",
      "rqst_return" : "09-15-2001"
    }
  ],
  "checkout_date" : "09-11-2001",
  "return_date" : "09-15-2001",
  "cust_id" : "A01",
  "fname" : "Bob",
  "lname" : "Berger",
  "phone" : 2694206969,
}

```

```

    "email" : "bobberger@gmail.com",
    "address" : {
        "street" : "223 Ocean Ave",
        "city" : "Los Angeles",
        "state" : "CA",
        "zip" : 10057
    },
    "status" : [
        {
            "history" : "sales",
            "sales_date" : "02-02-1999",
            "sales_amount" : 269
        }
    ],
    "days" : 5,
    "charge" : {
        "subtotal" : 145,
        "tax" : 8.7,
        "grandtotal" : 153.7
    }
}
{
    "_id" : ObjectId("5fc8097f6138fc2bc1a469b4"),
    "rental_id" : 22222,
    "res_id" : 841461,
    "equipments" : [
        {
            "sku" : 12346,
            "type" : "life jacket",
            "amount" : 1,
            "deposit" : 20,
            "rqst_pickup" : "04-02-1999",
            "rqst_return" : "04-20-1999"
        }
    ],
    "checkout_date" : "04-02-1999",
    "return_date" : "06-20-1999",
    "cust_id" : "A02",
    "fname" : "Petes",
    "lname" : "Griffin",
    "phone" : 169025536,
    "email" : "griffin666@hotmail.com",
    "address" : {
        "street" : "666 Highway",
        "city" : "New York City",
        "state" : "NY",
        "zip" : 66666
    },
    "status" : [

```

```

    {
      "history" : "new customer"
    }
  ],
  "days" : 18,
  "charge" : {
    "subtotal" : 25,
    "tax" : 1.2,
    "grandtotal" : 26.2
  }
}

```

```
db.Reservation.find().pretty().limit(2)
```

```

{
  "_id" : ObjectId("5fc807996138fc2bc1a469b1"),
  "res_id" : 259648,
  "equipments" : [
    {
      "sku" : 12345,
      "type" : "kayak",
      "amount" : 1,
      "deposit" : 100,
      "rqst_pickup" : "09-11-2001",
      "rqst_return" : "09-15-2001"
    },
    {
      "sku" : 12346,
      "equip_type" : "life jacket",
      "amount" : 2,
      "deposit" : 20,
      "rqst_pickup" : "09-11-2001",
      "rqst_return" : "09-15-2001"
    }
  ],
  "cust_id" : "A01",
  "fname" : "Bob",
  "lname" : "Berger",
  "phone" : 2694206969,
  "email" : "bobberger@gmail.com",
  "address" : {
    "street" : "223 Ocean Ave",
    "city" : "Los Angeles",
    "state" : "CA",
    "zip" : 10057
  },
  "status" : [
    {

```

```

        "history" : "sales",
        "sales_date" : "02-02-1999",
        "sales_amount" : 269
    }
]
}
{
  "_id" : ObjectId("5fc807996138fc2bc1a469b2"),
  "res_id" : 841461,
  "equipments" : [
    {
      "sku" : 12346,
      "type" : "life jacket",
      "amount" : 1,
      "deposit" : 20,
      "rqst_pickup" : "04-02-1999",
      "rqst_return" : "04-20-1999"
    }
  ],
  "cust_id" : "A02",
  "fname" : "Petes",
  "lname" : "Griffin",
  "phone" : 169025536,
  "email" : "griffin666@hotmail.com",
  "address" : {
    "street" : "666 Highway",
    "city" : "New York City",
    "state" : "NY",
    "zip" : 66666
  },
  "status" : [
    {
      "history" : "new customer"
    }
  ]
}

```

```
db.Sales.find().pretty().limit(2)
```

```

{
  "_id" : ObjectId("5fc80b156138fc2bc1a469b5"),
  "sales_id" : 8520,
  "equip_id" : "003",
  "type" : "boat",
  "condition" : "used",
  "retail_price" : 15000,
  "date" : "12-26-2005",
  "charge" : {

```



```

        "subtotal" : 11236,
        "tax" : 300,
        "grandtotal" : 11536
    }
}
{
    "_id" : ObjectId("5fc80b156138fc2bc1a469b6"),
    "sales_id" : 9513,
    "equip_id" : "002",
    "type" : "kayak",
    "condition" : "severely damaged",
    "retail_price" : 100,
    "date" : "05-05-2002",
    "charge" : {
        "subtotal" : 15,
        "tax" : 3.5,
        "grandtotal" : 18.5
    }
}

```

## Conclusion

From this project, we have gained a more hands-on experience regarding the creation of MongoDB databases. We feel like the case that was given provided us with a real insight as to what a legitimate company would demand and require from a MongoDB database. Furthermore, we learnt about the difference between relational database and non-relational database from a hands-on perspective and the need to append data in databases. In our opinion, one improvement that can be made to make this project easier for students is to have clearer instructions on what collections to be included in the database.