DWM EXP 7 Implementation - 1211061

Output of Data Extraction:

Database collections:

```
> db.datetime.find()
{ "_id" : ObjectId("56f4ea4ab1c609d5ac78b3e6"), "datetime key" : "DT1", "datetime id" : "1001", "Date_id" : "20-12-2015",
"Time id": "10:08:17" }
{ "_id" : ObjectId("56f4ea4ab1c609d5ac78b3e7"), "datetime key" : "DT2", "datetime id" : "2001", "Date_id" : "16-01-2016",
"Time_id": "21:21:20" }
{ "_id" : ObjectId("56f4ea4ab1c609d5ac78b3e8"), "datetime key" : "DT3", "datetime id" : "5001", "Date_id" : "12-12-2014",
"Time_id": "18:28:57" }
{ "_id" : ObjectId("56f4ea4ab1c609d5ac78b3e9"), "datetime key" : "DT4", "datetime id" : "6001", "Date_id" : "17-08-2015",
"Time id": "15:51:26" }
> db.doctor.find()
{ "id": ObjectId("56f4ea4ab1c609d5ac78b3ea"), "doctor key": "DR1", "doctor id": "31", "D name": "Raj", "Affiliation":
"Sergeon", "D_residence" : "Mumbai", "D_gender" : "M" }
{ "_id" : ObjectId("56f4ea4ab1c609d5ac78b3eb"), "doctor key" : "DR2", "doctor id" : "41", "D_name" : "Riya", "Affiliation" : "MD",
"D residence": "Pune", "D gender": "F" }
{ "_id" : ObjectId("56f4ea4ab1c609d5ac78b3ec"), "doctor key" : "DR3", "doctor id" : "81", "D_name" : "Pam", "Affiliation" :
"Senior", "D_residence": "Banglore", "D_gender": "F" }
```

```
{ "id": ObjectId("56f4ea4ab1c609d5ac78b3ed"), "doctor key": "DR4", "doctor id": "48", "D name": "Karan", "Affiliation":
"Sergeon", "D residence": "Rajkot", "D gender": "M" }
> db.drug.find()
{ "_id" : ObjectId("56f4ea4ab1c609d5ac78b3ee"), "drug key" : "DG1", "drug id" : "301", "Medicine_type" : "Senchenizer",
"Quantity": "5", "Cost": "350" }
{ "id": ObjectId("56f4ea4ab1c609d5ac78b3ef"), "drug key": "DG2", "drug id": "401", "Medicine type": "Antidote", "Quantity":
"2", "Cost": "400" }
{ "id": ObjectId("56f4ea4ab1c609d5ac78b3f0"), "drug key": "DG3", "drug id": "101", "Medicine type": "Antidote", "Quantity":
"3", "Cost": "150" }
{ "id": ObjectId("56f4ea4ab1c609d5ac78b3f1"), "drug key": "DG4", "drug id": "201", "Medicine type": "Painkiler", "Ouantity":
"1", "Cost" : "200" }
> db.patient.find()
{ "_id" : ObjectId("56f4ea4ab1c609d5ac78b3f2"), "patient key" : "P1", "patient id" : "85", "P_gender" : "Female", "P_name" :
"Prachi", "P residence": "Govandi", "Age": "25", "Fever type": "Timely" }
{ "id": ObjectId("56f4ea4ab1c609d5ac78b3f3"), "patient key": "P2", "patient id": "21", "P gender": "Male", "P name": "Rahul",
"P residence": "Chembur", "Age": "55", "Fever type": "High" }
{ "_id" : ObjectId("56f4ea4ab1c609d5ac78b3f4"), "patient key" : "P3", "patient id" : "45", "P_gender" : "Male", "P_name" : "Parsh",
"P_residence": "Mumbai", "Age": "21", "Fever_type": "Continuous" }
{ "_id" : ObjectId("56f4ea4ab1c609d5ac78b3f5"), "patient key" : "P4", "patient id" : "78", "P_gender" : "Female", "P_name" :
"Prisha", "P_residence": "Mahad", "Age": "20", "Fever_type": "Lowgrade" }
> db.temperature.find()
{ "id": ObjectId("56f4ea4ab1c609d5ac78b3e1"), "temp key": "T1", "temp id": "1", "Temperature": "104", "Measure time":
"10:40:20", "Time_interval" : "6" }
{ "_id" : ObjectId("56f4ea4ab1c609d5ac78b3e2"), "temp key" : "T2", "temp id" : "2", "Temperature" : "100", "Measure_time" :
"22:16:05", "Time interval" : "8" }
{ "_id" : ObjectId("56f4ea4ab1c609d5ac78b3e3"), "temp key" : "T3", "temp id" : "3", "Temperature" : "104", "Measure_time" :
"10:40:20", "Time interval": "14" }
{ "id": ObjectId("56f4ea4ab1c609d5ac78b3e4"), "temp key": "T4", "temp id": "4", "Temperature": "100", "Measure time":
"22:16:05", "Time interval" : "5" }
{ "_id" : ObjectId("56f4ea4ab1c609d5ac78b3e5"), "temp key" : "T5", "temp id" : "5", "Temperature" : "125", "Measure_time" :
"12:45:04", "Time_interval" : "45" }
> db.fact.find()
{ "id": ObjectId("56f4ea4ab1c609d5ac78b3f6"), "Patient id": "P1", "Doctor id": "DR3", "Drug id": "DG4", "Temp id": "T5",
"Datetime id": "DT3", "Daily cost": "550", "Total cost": "15000" }
{ "_id" : ObjectId("56f4ea4ab1c609d5ac78b3f7"), "Patient_id" : "P3", "Doctor_id" : "DR2", "Drug_id" : "DG2", "Temp_id" : "T2",
"Datetime_id": "DT1", "Daily_cost": "800", "Total_cost": "20000" }
{ "_id" : ObjectId("56f4ea4ab1c609d5ac78b3f8"), "Patient_id" : "P4", "Doctor_id" : "DR4", "Drug_id" : "DG3", "Temp_id" : "T3",
"Datetime_id": "DT2", "Daily_cost": "750", "Total_cost": "12000" }
```

Code:

```
//transform.java
import com.mongodb.*;
import java.util.*;
import java.io.*;
public class transform extends BasicDBObject
       public static void main( String args[] )throws IOException
               int n=0,i=0;
               String date;
               List<String> a = new ArrayList<String>();
               MongoClient mongoClient = new MongoClient( "localhost", 27017);
               DB db = mongoClient.getDB( "medical" );
               System.out.println("Connect to database successfully");
    // seperating date's day month year in datetime table
               DBCollection datetime = db.getCollection("datetime");
    System.out.println("Collection for datetime selected successfully");
    DBCursor cursor = datetime.find();
    while (cursor.hasNext())
    {
       BasicDBObject obj = (BasicDBObject) cursor.next();
       a.add(""+obj.getString("datetime key"));
       a.add(""+obj.getString("datetime id"));
       date=obj.getString("Date id");
       String[] s=date.split("-");
       a.add(s[0]);
       a.add(s[1]);
       a.add(s[2]);
       a.add(""+obj.getString("Time_id"));
       n++;
    }
    datetime.remove(new BasicDBObject());
    while(n>0)
    {
       BasicDBObject doc = new BasicDBObject("datetime key", a.get(i++)).
       append("datetime id", a.get(i++)).
       append("Day", a.get(i++)).
       append("Month", a.get(i++)).
       append("Year", a.get(i++)).
       append("Time_id", a.get(i++));
       datetime.insert(doc);
       System.out.println("Document updated successfully");
```

```
n--;
}
// seperating measure time's hour min sec in temperature table
n=0;
i=0:
String time;
List<String> b = new ArrayList<String>();
DBCollection temperature = db.getCollection("temperature");
System.out.println("Collection for temperature selected successfully");
cursor = temperature.find();
while (cursor.hasNext())
  BasicDBObject obj = (BasicDBObject) cursor.next();
  b.add(""+obj.getString("temp key"));
  b.add(""+obj.getString("temp id"));
  b.add(""+obj.getString("Temperature"));
  time=obj.getString("Measure_time");
  String[] s=time.split(":");
  b.add(s[0]);
  b.add(s[1]);
  b.add(s[2]);
  b.add(""+obj.getString("Time_interval"));
  n++;
}
temperature.remove(new BasicDBObject());
while(n>0)
  BasicDBObject doc = new BasicDBObject("temp key", b.get(i++)).
  append("temp id", b.get(i++)).
  append("Temperature", b.get(i++)).
  append("Hour", b.get(i++)).
  append("Minute", b.get(i++)).
  append("Second", b.get(i++)).
  append("Measure_time", b.get(i++));
  temperature.insert(doc);
  System.out.println("Document updated successfully");
  n--;
}
// changing Male to M nd Female to F in patient table
DBCollection patient = db.getCollection("patient");
```

```
System.out.println("Collection for patient selected successfully");
cursor = patient.find();
while (cursor.hasNext())
  BasicDBObject obj = (BasicDBObject) cursor.next();
  BasicDBObject maleDocument = new BasicDBObject();
  maleDocument.append("$set", new BasicDBObject().append("P_gender", "M"));
  BasicDBObject searchQuery = new BasicDBObject().append("P gender", "Male");
  patient.update(searchQuery, maleDocument);
cursor = patient.find();
while (cursor.hasNext())
  BasicDBObject obj = (BasicDBObject) cursor.next();
  BasicDBObject femaleDocument = new BasicDBObject();
  femaleDocument.append("$set", new BasicDBObject().append("P gender", "F"));
  BasicDBObject searchQuery = new BasicDBObject().append("P_gender", "Female");
  patient.update(searchQuery, femaleDocument);
  System.out.println("Document updated successfully");
// changing M to Male nd F to Female in doctor table
DBCollection doctor = db.getCollection("doctor");
System.out.println("Collection for doctor selected successfully");
cursor = doctor.find();
while (cursor.hasNext())
  BasicDBObject obj = (BasicDBObject) cursor.next();
  BasicDBObject maleDocument = new BasicDBObject();
  maleDocument.append("$set", new BasicDBObject().append("D gender", "Male"));
  BasicDBObject searchQuery = new BasicDBObject().append("D gender", "M");
  doctor.update(searchQuery, maleDocument);
cursor = doctor.find();
while (cursor.hasNext())
  BasicDBObject obj = (BasicDBObject) cursor.next();
  BasicDBObject femaleDocument = new BasicDBObject();
  femaleDocument.append("$set", new BasicDBObject().append("D_gender", "Female"));
  BasicDBObject searchQuery = new BasicDBObject().append("D_gender", "F");
  doctor.update(searchQuery, femaleDocument);
  System.out.println("Document updated successfully");
}
   }
```

}

<u>Transformations performed:</u>

- 1. Separating Date_id's day month year in datetime table (Splitting)
- 2. Separating Measure_time's hour min sec in temperature table (Splitting)
- 3. Changing Male to M and Female to F in patient table (Modification)
- 4. Changing M to Male and F to Female in doctor table (Modification)

Output of Data Extraction:

Database collections:

```
> db.datetime.find()
{ "_id" : ObjectId("56f4ec53b1c67ac9aef28b82"), "datetime key" : "DT1", "datetime id" : "1001", "Day" : "20", "Month" : "12", "Year" : "2015", "Time_id" : "10:08:17" }
{ "_id" : ObjectId("56f4ec53b1c67ac9aef28b83"), "datetime key" : "DT2", "datetime id" : "2001", "Day" : "16", "Month" : "01", "Year" : "2016", "Time_id" : "21:21:20" }
{ "_id" : ObjectId("56f4ec53b1c67ac9aef28b84"), "datetime key" : "DT3", "datetime id" : "5001", "Day" : "12", "Month" : "12", "Year" : "2014", "Time_id" : "18:28:57" }
{ "_id" : ObjectId("56f4ec53b1c67ac9aef28b85"), "datetime key" : "DT4", "datetime id" : "6001", "Day" : "17", "Month" : "08", "Year" : "2015", "Time_id" : "15:51:26" }
> db.doctor.find()
```

```
{ "id": ObjectId("56f4ea4ab1c609d5ac78b3ea"), "doctor key": "DR1", "doctor id": "31", "D name": "Raj", "Affiliation":
"Sergeon", "D_residence" : "Mumbai", "D_gender" : "Male" }
{ "id": ObjectId("56f4ea4ab1c609d5ac78b3eb"), "doctor key": "DR2", "doctor id": "41", "D name": "Riya", "Affiliation": "MD",
"D_residence": "Pune", "D_gender": "Female" }
{ "id": ObjectId("56f4ea4ab1c609d5ac78b3ec"), "doctor key": "DR3", "doctor id": "81", "D_name": "Pam", "Affiliation":
"Senior", "D_residence": "Banglore", "D_gender": "Female" }
{ "_id" : ObjectId("56f4ea4ab1c609d5ac78b3ed"), "doctor key" : "DR4", "doctor id" : "48", "D_name" : "Karan", "Affiliation" :
"Sergeon", "D_residence": "Rajkot", "D_gender": "Male" }
> db.drug.find()
{ "_id" : ObjectId("56f4ea4ab1c609d5ac78b3ee"), "drug key" : "DG1", "drug id" : "301", "Medicine_type" : "Senchenizer",
"Quantity": "5", "Cost": "350" }
{ "_id" : ObjectId("56f4ea4ab1c609d5ac78b3ef"), "drug key" : "DG2", "drug id" : "401", "Medicine_type" : "Antidote", "Quantity" :
"2", "Cost" : "400" }
{ "_id" : ObjectId("56f4ea4ab1c609d5ac78b3f0"), "drug key" : "DG3", "drug id" : "101", "Medicine_type" : "Antidote", "Quantity" :
"3", "Cost": "150" }
{ "id": ObjectId("56f4ea4ab1c609d5ac78b3f1"), "drug key": "DG4", "drug id": "201", "Medicine type": "Painkiler", "Quantity":
"1", "Cost": "200" }
> db.patient.find()
{ "_id" : ObjectId("56f4ea4ab1c609d5ac78b3f2"), "patient key" : "P1", "patient id" : "85", "P_gender" : "F", "P_name" : "Prachi",
"P_residence": "Govandi", "Age": "25", "Fever_type": "Timely" }
{ "id": ObjectId("56f4ea4ab1c609d5ac78b3f3"), "patient key": "P2", "patient id": "21", "P gender": "M", "P name": "Rahul",
"P residence": "Chembur", "Age": "55", "Fever type": "High" }
{ "_id" : ObjectId("56f4ea4ab1c609d5ac78b3f4"), "patient key" : "P3", "patient id" : "45", "P_gender" : "M", "P_name" : "Parsh",
"P_residence": "Mumbai", "Age": "21", "Fever_type": "Continuous" }
{ "_id" : ObjectId("56f4ea4ab1c609d5ac78b3f5"), "patient key" : "P4", "patient id" : "78", "P_gender" : "F", "P_name" : "Prisha",
"P_residence": "Mahad", "Age": "20", "Fever_type": "Lowgrade" }
> db.temperature.find()
{ "id": ObjectId("56f4ec53b1c67ac9aef28b86"), "temp key": "T1", "temp id": "1", "Temperature": "104", "Hour": "10", "Minute"
: "40", "Second" : "20", "Measure time" : "6" }
{ "id": ObjectId("56f4ec53b1c67ac9aef28b87"), "temp key": "T2", "temp id": "2", "Temperature": "100", "Hour": "22", "Minute"
: "16", "Second" : "05", "Measure_time" : "8" }
{ "_id" : ObjectId("56f4ec53b1c67ac9aef28b88"), "temp key" : "T3", "temp id" : "3", "Temperature" : "104", "Hour" : "10", "Minute"
: "40", "Second" : "20", "Measure time" : "14" }
{ "id": ObjectId("56f4ec53b1c67ac9aef28b89"), "temp key": "T4", "temp id": "4", "Temperature": "100", "Hour": "22", "Minute"
: "16", "Second" : "05", "Measure time" : "5" }
{ "id": ObjectId("56f4ec53b1c67ac9aef28b8a"), "temp key": "T5", "temp id": "5", "Temperature": "125", "Hour": "12", "Minute"
: "45", "Second" : "04", "Measure_time" : "45" }
> db.fact.find()
{ "_id" : ObjectId("56f4ea4ab1c609d5ac78b3f6"), "Patient_id" : "P1", "Doctor_id" : "DR3", "Drug_id" : "DG4", "Temp_id" : "T5",
"Datetime_id": "DT3", "Daily_cost": "550", "Total_cost": "15000" }
{ "id": ObjectId("56f4ea4ab1c609d5ac78b3f7"), "Patient id": "P3", "Doctor id": "DR2", "Drug id": "DG2", "Temp id": "T2",
"Datetime id": "DT1", "Daily cost": "800", "Total cost": "20000" }
{ "_id" : ObjectId("56f4ea4ab1c609d5ac78b3f8"), "Patient_id" : "P4", "Doctor_id" : "DR4", "Drug_id" : "DG3", "Temp_id" : "T3",
"Datetime id": "DT2", "Daily cost": "750", "Total cost": "12000" }
```