**Regular Expressions**

1. Given a string “12, 14-15, 18, 23- 2”, produce the list “[12, 14, 15, 18, 23, 2]”.
2. Write a program to get the all the numbers from the following string:

*“1007 Lakshman 1008 Karthik 1009-Ramesh -1010 Suresh”*

Expected output: [1007, 1008, 1009, 1010]

**MongoDB**

1. Connect to MongoDB (using mongo shell).
2. Create a database with name (ems) - use ems.
3. Insert the following data into the collection "*faculty*" (use *insertMany()*):

db.faculty.insertMany([

{ "name":"Krish", "age":35,"gender":"M","exp":10,subjects:["DS","C","OS"],"type":"Full Time","qualification":"M.Tech" },

{ "name":"Manoj", "age":38,"gender":"M","exp":12,subjects:["JAVA","DBMS"],"type":"Full Time", "qualification":"Ph.D"},

{ "name":"Anush", "age":32,"gender":"F","exp":8,subjects:["C","CPP"],"type":"Part Time","qualification":"M.Tech" },

{ "name":"Suresh", "age":40,"gender":"M","exp":9,subjects:["JAVA","DBMS","NETWORKING"],"type":"Full Time", "qualification":"Ph.D"},

{ "name":"Rajesh", "age":35,"gender":"M","exp":7,subjects:["DS","C","OS"],"type":"Full Time","qualification":"M.Tech" },

{ "name":"Mani", "age":38,"gender":"F","exp":10,subjects:["JAVA","DBMS","OS"],"type":"Part Time", "qualification":"Ph.D"},

{ "name":"Sivani", "age":32,"gender":"F","exp":8,subjects:["C","CPP","MATHS"],"type":"Part Time","qualification":"M.Tech" },

{ "name":"Nagesh", "age":39,"gender":"M","exp":11,subjects:["JAVA","DBMS","NETWORKING"],"type":"Full Time", "qualification":"Ph.D"},

{ "name":"Nagesh", "age":35,"gender":"M","exp":9,subjects:["JAVA",".Net","NETWORKING"],"type":"Full Time", "qualification":"Ph.D"},

{ "name":"Latha", "age":40,"gender":"F","exp":13,subjects:["MATHS"],"type":"Full Time", "qualification":"Ph.D"}

]);

Write the following queries:

1. Get the details of all the faculty members.
2. Get the count of all the faculty members.
3. Get all the faculty members whose *qualification* is “Ph.D”.
4. Get all the faculty members whose *exp* (experience) is between 8 to 12 years.
5. Get all the faculty members who teach the subjects “MATHS” or “NETWORKING”.
6. Get all the faculty members who teach “MATHS” and whose *age* is more than 30 years and whose *qualification* must be “Ph.D”.
7. Get all the faculty members who are working part-time or who teach the subject “JAVA”.
8. Add the following new faculty member:

{"name":"Suresh Babu", "age":55,"gender":"M","exp":25,subjects:["MATHS","DE"],"type":"Full Time", "qualification":"Ph.D"}

1. Update the data of all faculty members by incrementing their *age* and *exp* by one year.
2. Update the data of the faculty member “Sivani” as follows:
   * update *qualification* to “Ph.D”
   * *type* to “Full Time”
3. Update all faculty members who are teaching the subject “MATHS” such that they should now teach the subject “ML” too.
4. Delete all the faculty members whose *age* is more than 55 years.
5. Get only the *name* and *qualification* of all the faculty members.
6. Get the *name*, *qualification* and *exp* of all the faculty members and display the same in ascending order of *exp*.
7. Sort the details of the faculty members by their *age* in descending order and get the details of five of those faculty members.
8. Get the names of all the faculty members who are teaching the subject “JAVA”.
9. Count the number of faculty members who are teaching the subject “JAVA”.
10. Display the *name* of each faculty member along with the number of subjects he or she is teaching.
11. Display the count of the faculty members who teach the subject “JAVA” and whose *gender* is “F”.
12. Display the count of the faculty members by *qualification* and the count should be in ascending order.

**Project Work**

Create either of the following 2 applications:

* Online Quiz (creating the quiz and taking the quiz)
* Contact Book

The following functionality is required in these applications:

1. CRUD (Create/Read/Update/Delete) operations
2. Mass import/export of data
3. Sensitive data should be encrypted/decrypted

Use MongoDB to store the data.