**Lab 12 – NoSQL using MongoDb**

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| Student Name: | Basil khowaja |
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Questions:

Note: For each Question, you are required to write the Query as well as attach a screenshot of the output. Make sure your screenshots include the executed query.

1. Display all students.

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| db.students.find({}) |

1. Display all the students with CS major.

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| db.students.find({ Major: "CS" }) |

1. Display all the students with SDP major.

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| db.students.find({ Major: "SDP" }) |

1. Display all the students from Karachi City.

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| db.students.find({ "Address.City": "Karachi" }) |

1. Display all the students not from Karachi City.

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| db.students.find({ "Address.City": { $ne: "Karachi" } }) |

1. Display all the students having CGPA more than 3.

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| db.students.find({ CGPA: { $gt: 3 } }) |

1. Display all the students having CGPA equal to 3.5

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| db.students.find({ CGPA: 3.5 }) |

1. Display all the students from Karachi with a CS Major.

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| db.students.find({ "Address.City": "Karachi", Major: "CS" }) |

1. Display all the students for the SDP and EE majors.

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| db.students.find({ Major: { $in: ["SDP", "EE"] } }) |

1. Display only the first and last name of all students

Result: FirstName, LastName

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| db.students.find({}, { FirstName: 1, LastName: 1, \_id: 0 }) |

1. Display only the first name, last name, and city for all students.

Result: FirstName, LastName, City

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| db.students.find({}, { FirstName: 1, LastName: 1, "Address.City": 1, \_id: 0 }) |

1. Display only the first name, last name for all the students with CGPA greater than or equal to 3.5 (without Object IDs)

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| db.students.find({ CGPA: { $gte: 3.5 } }, { FirstName: 1, LastName: 1, \_id: 0 }) |

1. Insert a student record with the following information (refer to manual)

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| db.students.insertOne({FirstName: "Fatima", LastName: "Tariq",  Phone: "03124567891",  Address:{  Street: "Zainab Street Saddar",  City: "Karachi"  }  }) |

1. Display all the student who do not have major property.

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| db.students.find({ Major: { $exists: false } }) |

1. Insert the following students using insertMany (refer to manual)

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| db.students.insertMany([{ FirstName: "Zahid", LastName: "Hakim", Major: "CS" },  { FirstName: "Ayesha", LastName: "Asif" },  { FirstName: "Faheem", LastName: "Faiz", Phone: "0213456789" }  ]) |

1. Display all the students have taken the CS355 course.

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| db.students.find({ "Courses.course\_id": "CS355" }) |

1. Display all the students have not taken the CS355 course.

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| db.students.find({ "Courses.course\_id": { $ne: "CS355" } }) |

1. Increment the CGPA of all students by 0.1.

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| db.students.updateMany({}, { $inc: { CGPA: 0.1 } }) |

1. Set the CGPA of all students to 0.1

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| db.students.updateMany({}, { $set: { CGPA: 0.1 } }) |

1. Introduce a new attribute Minor for the students with the value CH

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| db.students.updateMany({}, { $set: { Minor: "CH" } }) |

1. Add a new course all students with the following information (refer to manual)

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| db.students.updateMany({}, { $push: { Courses: { courseId: "CH101",  courseName: "Liberal Core",  credits: 1} } }) |

1. Delete all the students with CGPA less than 3.0

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| db.students.deleteMany({ CGPA: { $lt: 3.0 } }) |