**Department of Computer Science and Engineering**

| **Course Code: CSE 370** | **Credits: 3.0** |
| --- | --- |
| **Course Name: Database Systems** | **Semester: Spring 24** |

**Lab 02: SQL Subqueries & Aggregate Functions  
Activity List**

* **All commands are shown in the red boxes.**
* **In the green box, write the appropriate query/answer.**
* **All new queries should be typed in the command window after mysql>**
* **Start by connecting to the server using: mysql –u root –p [password:root]**
* **For more MySQL queries, go to** [**www.w3schools.com/sql**](http://www.w3schools.com/sql) **or google it!**

**Initial Table: It's a bit different than Lab 01!**

| **std\_id** | **name** | **major** | **section** | **days\_present** | **project\_marks** | **cgpa** | **submission\_date** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| s001 | Abir | CS | 1 | 10 | 18.5 | 3.91 | 2018-09-15 |
| s002 | Nafis | CSE | 1 | 12 | 20 | 3.86 | 2018-08-15 |
| s003 | Tasneem | CS | 1 | 8 | 18 | 3.57 | 2018-09-18 |
| s004 | Nahid | ECE | 2 | 7 | 16.5 | 3.25 | 2018-08-20 |
| s005 | Arafat | CS | 2 | 11 | 20 | 4.0 | 2018-09-13 |
| s006 | Tasneem | CSE | 1 | 12 | 17.5 | 3.7 | 2018-08-15 |
| s007 | Muhtadi | ECE | 1 | 10 | 19 | 3.67 | 2018-09-16 |

**Link for Table Data:** [**https://docs.google.com/document/d/1ZFFMN863k9GOjTG6ibbCAEEdqF3ExJzug-ymPON6ofA/**](https://docs.google.com/document/d/1ZFFMN863k9GOjTG6ibbCAEEdqF3ExJzug-ymPON6ofA/)

**Task 1: Aggregate Functions, Group By and Having:**







* How will you retrieve the last submission date? 





* What is the purpose of the group by keyword? In the above command, if we group by sub\_date, instead of major, what will be the output?









* The having and where clauses are both used to specify a condition when selecting rows. What is the difference between them?



**Task 2: Sub Queries/Nested Queries, Any and All:**

* Think about how you can retrieve the names of students who got the highest project marks. Try out your query, did you get the “correct” response according to the table?





Why is the “in” operator used instead of “=” in the above command?





* Did you understand the role of “any” and “all” in the above queries? Explain below.



* Retrieve the names of the students who have received marks greater than at least 1 student doing the same major as them.[Hint: see next command]

**Task 3: Correlated Subqueries and Exists:** 



* L1 and L2 are temporary aliases and create two separate instances for Lab\_Grades; why are they required?







* Please identify the difference between the above two queries. [Hint: 1 asks for unique-only 1 student got the highest and the other didn’t]













* The statement below is the general format for a “Select” statement. State what each keyword (marked in blue) is used for.



**Task 4: Take a Quiz**

Go to <https://sqlzoo.net/wiki/Nested_SELECT_Quiz> to test your understanding of the queries taught in class.