Assignment Project Exam Help

SQL – Part 3

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Simple SQL Queries

- SQL provides the SELECT statement for retrieving data from a database.
- The SELECT statement has the following basic form:

```
[ORDER BY attribute_list];
```

Note:

- Only SELECT and FROM are mandatory
- The symbol ∗ means all the attributes.
- Attribute names may be qualified with the table name (required, if attribute-names are not unique).
- Attribute and table names can be given an alias.
- DISTINCT is used for removing duplicate tuples in the query result.
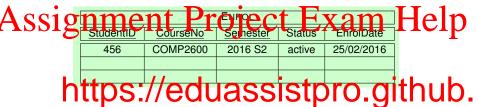
SQL Queries – Select Clause

ENROL				
_____	_____	_____		

```
SELECT * FROM ENROL;
```

StudentID	CourseNo	Semeste		
456	COMP2600	2016 S2	active	25/02/2016
458	COMP1130	2016 S1	active	25/02/2016
456	COMP2400	2016 S2	active	09/03/2016

SQL Queries – Select Clause

Enrol

StudentID	CourseNo	Semester	Status	EnrolDate
456	COMP2600	2016 S2	active	25/02/2016

```
SELECT Enrol.StudentID, Semester FROM Enrol;

SELECT e.StudentID as SID, e.Semester FROM

SELECT DISTINCT StudentID, Semester FROM
```

StudentID	Semester
456	2016 S2
458	2016 S1
456	2016 S2

SID	Semester
456	2016 S2
458	2016 S1
456	2016 S2

StudentID	Semester
456	2016 S2
458	2016 S1

SQL Queries – Where Clause

- Unspecified WHERE-clause means no condition.
  - all tuples of a relation in the FROM-clause are selected.
  - if multiple relations are specified in the FROM-clause without join
    e careful).

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```
SELECT * FROM Student, Course
SELECT * FROM Student WHERE Stu
SELECT * FROM Student WHERE Ema
SELECT * FROM Student WHERE Ema
```

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- **Question:** *Assume that we have 1000 tuples in* Student *and 100 tuples in* Course. *How many tuples we will have in the results of the first two queries?*

- **Answer:** **1st query result: 1000 tuples; 2nd query result: 100000 tuples.**

SQL Queries – Group By Clause

- GROUP BY *attribute_list* groups tuples for each value combination in the attribute_list.

- A ... int...

  - AVG returns the average of argument valu...

  - MIN returns the minimum value of the argu...

  - MAX returns the maximum value of the argu...

  - SUM returns the sum of the argument values

- We can use HAVING *condition* to add the condition on the groups.

SQL Queries – Group By Clause

- List the total number of courses, the sum of the units of courses, the minimum unit in COURSE

		it
COMP3600	Algorithms	4

```
SELECT COUNT(*), SUM(unit), MIN
FROM COURSE;
```

- The query result may look like:

COUNT	SUM	MIN
3	16	4

SQL Queries – Group By Clause

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- List each course offered in Semester 2 2016 together with the number of students who have enrolled in the course

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```
GROUP BY e.CourseNo ;
```

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ENROL

StudentID	CourseNo	Seme		
458	COMP2400	2016 S2	active	25/02/2016
458	COMP1130	2016 S1	active	25/02/2016
456	COMP2400	2016 S2	active	25/02/2016
...	....	....	...	....

SQL Queries – Group By Clause

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- List each course offered in Semester 2 2016 together with the number of students who have enrolled in the course

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```
GROUP BY e.CourseNo ;
```

- The query result may look like:

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CourseNo	Num
COMP2400	120
COMP2600	100
COMP1130	150
…	…

- List each course offered in Semester 2 2016 together with the number of students that is at least 120

```
HAVING COUNT(*)>= 120 ;
```

- The query result may look like:

CourseNo	Num
COMP2400	120
COMP1130	150
. . .	. . .

SQL Queries – Order By Clause

- The `ORDER BY` clause allows us to sort the tuples in a query result.
  - ASC indicates ascending order (default).
  - DESC indicates descending order.

- W

```
GROUP BY e.CourseNo
ORDER BY NumberOfStudents DESC;
```

- This would return all tuples sorted by the number of e descending order.

CourseNo	NumberOfStudents
COMP1130	150
COMP2400	120
COMP2600	100
…	…