

Assignment Paroject Exam Help

https://tutorecfish.com/anguage)

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SQL (Structured Query Language)



Housekeeping

Assignment Project Exam Help

Assignment 1 on SQL will be available on Wattle at 11:59pm on 16 Aug (Tuesday) and due at 11:59pm on 30 Aug (Tuesday).

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Assignment Project Exam Help

 Assignment 1 on SQL will be available on Wattle at 11:59pm on 16 Aug (Tuesday) and due at 11:59pm on 30 Aug (Tuesday).

hand assessment should be done individually and no group work is

- You should not post any solutions/results/ideas/interpretations related to assessment items on the Wattle discussion forum.
- Additional drop-in sessions will be available in Week 4 and Week 5 if wou feeld and utable classification for Assign next 1.



Housekeeping

Assignment Project Exam Help

- Assignment 1 on SQL will be available on Wattle at 11:59pm on 16 Aug (Tuesday) and due at 11:59pm on 30 Aug (Tuesday).

 - You should not post any solutions/results/ideas/interpretations related to assessment items on the Wattle discussion forum.
 - Additional drop-in sessions will be available in Week 4 and Week 5 if wou feeld and utable cladification for Assign next 1.
- An optional exercise website is available for our course

https://cs.anu.edu.au/dab/bench/db-exercises/



Outline

Assignment Project Exam Help

Insert, Update, Delete Statements
ν.s. Relational Database State

https://tutorcs.com

Select Statements

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Insert, Update, Delete Statements

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Relational Database State – Example

Association and atabase state of Sis a set of felalion scuch than Help all the relations satisfy the integrity constraints IC.



	ENROL							
StudentID	CourseNo	Semester	Status	EnrolDate				
456	COMP2400	2016 S2	active	25/05/2016				
458	COMP1130	2016 S1	active	20/02/2016				
459	COMP2400	2016 S2	active	11/06/2016				



Assignment Project Exam Help Dob Date, Email VARCHAR(100));

- Will the following Insert statements work?
- INSERT THE STODEN TUSTORS SCOME MATILICANI);

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Assignment Project Exame Help Dob Date, Email VARCHAR(100));

- Will the following Insert statements work?
- INSETTING STODENT LUCTURES, S. COMEGMATI. COM'); Yes.

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Assignment Project Exam Help Dob Date, Email Varchar(100));

- Will the following Insert statements work?
- INSERT INTO STODE OF TULL OF C. S. COMEGNATICOM');

 Yes.
- INSERT INTO STUDENT (StudentID)

 VALUE (#59; hat: CStutorcs



Assignment Project Exam ARCHARCED DOB DATE, Email VARCHAR(100));

- Will the following Insert statements work?
- INSERT THE STODENT LISTOTES, S. COMOGMATICOM');
 VALUES (450, STOM', L25/01/1988, S. COMOGMATICOM');
 Yes.



Assignment Project Exam Help DOB DATE, Email VARCHAR(100));

- Will the following Insert statements work?
- INSERT TWO STODEN TULL OF S. COME MATERIAL STORY (450, STORY); Yes.
- INSERT INTO STUDENT(Name, DoB, Email)
 VALUES ('John', '15/11/1998', 'john@gmail.com');



Assignment Project Exam Help DOB DATE, Email VARCHAR (100));

- Will the following Insert statements work?
- INSERT INTO STODE OF TULL OF C.S. COMP. ();
 VALUES (450,5 Tom, 125/01/1988, Stomegmail.com');
 Yes.
- INSERT INTO STUDENT(Name, DoB, Email)

 VALUES ('John', '15/11/1998', 'john@gmail.com');

 No. The primary key value cannot be NULL.



Update Statement – Example

Assignment Project Exam Help

STUDENT						
StudentID	Name	DoB	Email			
456 Tom		25/01/1988	tom@gmail.com			
458	458 Peter		peter@gmail.com			
• /4 5 9 4 -¬	ran	1/09/1987	frankk@gmail.com			

• What is the resulting table after executing the following statement?

UPDATE STUDENT SET Name='Tom Lee', Email='tom.lee@yahoo.com'
WHERE StudentID=456;

WHERE StudentID=456; WeChat: cstutorcs



Update Statement – Example

Assignment Project Exam Help

	STUDENT																	
S	tude	ntID)	1	Vai	me		DoB				E	Ξm	ail				
	456 Tom 25/01/1988		Т	tom@gmail.com				\neg										
	45	β			Pet	ter		23/05/1993		1	peter@gmail.com				П			
•	745	9	1	1 1	Fra	7	N	1	1/09	75	87	J	anl	k@)g	pa	l.con	n
			г		П		Г			•								_

• What is the resulting table after executing the following statement?

UPDATE STUDENT SET Name='Tom Lee', Email='tom.lee@yahoo.com'
WHERE_StudentID=456;

		la attactactact												
ı		Н		Н	 		S TILL IT		4	~		_		
V		Ų	LŲ	Ц			240		W)	
	StudentID		Name		DoB			Email						
	456 T C		Tom L	.ee	25/	01/198	38	to	m.le	ee@y	ahoo.	com		
	458 Peter		23/	05/199	93		oete	er@g	mail.co	m				
	459			Frar	1	11/	11/09/1987		frankk@gmail.com		om			



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				STUDENT		
	S	tudentID	Name	DoB	Email	
4		456	Tom	25/01/1988	tom@gmail.com	
httno	٠ ا	458	Peter	23/05/1993	peter@gmail.com	
HUUN		<i>4</i> 59	Fr. n	1 1/09/1387	frunk @ grna .com	
https	5	/458 /59	l feter Fr(n)	23/05/1993 1 /09/1987	77 77	

• What is the resulting table after executing the following statement?

DELETE FROM STUDENT WHERE StudentID=456;

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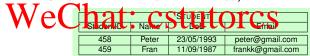


Assignment Project Exam Help

			STUDENT			
	Studen	tID Name	DoB	Email		
4	456	Tom	25/01/1988	tom@gmail.com		
httpo	• 458	- Peter	23/05/1993	peter@gmail.com		
\mathbf{H}	4 59		1 /09/1387	frunk @g na .com		

What is the resulting table after executing the following statement?

DELETE FROM STUDENT WHERE StudentID=456;





Assignment Project Exam Help

StudentID Name		DoB	Email		
456 Tom		25/01/1988	tom@gmail.com		
458	Peter	23/05/1993	peter@gmail.com		
/ 45 9	Fran	11/09/1987	frankk@gmail.com		

• What is the resulting table after executing the following statement?

DELETE FROM STUDENT;

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Assignment Project Exam Help

StudentID	Name	DoB	Email	
l 456	Tom	25/01/1988	tom@gmail.com	
	-			
458	Peter	23/05/1993	peter@gmail.com	
100				
/ 45 0 .	Fran	11/09/1987	frankk@gmail.com	
17904	Tan	11/03/1307	nankk@gman.com	

• What is the resulting table after executing the following statement?

DELETE FROM STUDENT;





Assignment Project Exam Help

456 Tom 25/01/1988 tom@gmail.	
	l.com
458 Peter 23/05/1993 peter@gmai	il.com
/459 Fran 11/09/1987 frankk@gma	ail.com

What is the resulting table after executing the following statement?

DELETE FROM STUDENT;



The Table STUDENT is deleted.



Assignment Project Exam Help

StudentID	Name	DoB	Email		
456	Tom	25/01/1988	tom@gmail.com		
730	10111		tomegman.com		
458	Peter	23/05/1993	matau@amail.aama		
458	Peter	23/05/1993	peter@gmail.com		
			4		
/45 0 .	Fran	11/09/1987	frankk@gmail.com		
1.904	1.411	, 55/ 100/			

• What is the resulting table after executing the following statement?

DELETE FROM STUDENT;

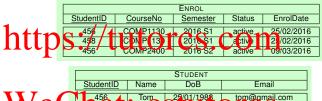


The Table STUDENT is deleted

Note the difference between the Delete and Drop Table statements.



A SSI STREET (Student D) REPORTS STUDENT (Student ID) THE PORT ON DELETE NO ACTION



• What will happen if we execute the following statement?

DELETE FROM STUDENT WHERE StudentID=456;



Assignment (student Due Review Student Description on Delete No Action

			ENROL		
	StudentID	<u>CourseNo</u>	Semester	Status	EnrolDate
httm	456 4	COMP1130	2016.S1	active	25/02/2016
	458	C DN P (13)	2016 \$1	active	2:/02/2016
	456	COMP2400	2016 S2	active	09/03/2016
_					
			STUDENT		
	StudentII	D Name	DoB	En	nail
TT7 -	456	1 Tom	25/01/1988	tom@ar	mail.com
we	458	Peler	20 /0 /1 99	e er @ho	nail.com

- What will happen if we execute the following statement?
 DELETE FROM STUDENT WHERE StudentID=456;
- The deletion of a student who has enrolled at least one course will throw out an error concerning the foreign key.



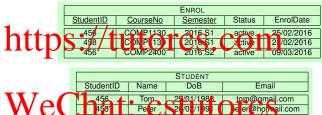
Assignment (student D) represents student of the Country of the Co



			STUDENT	
	StudentID	Name	DoB	Email
WeC	1456 t	Tom Pe er	25/01/1988 2(/0.//1)9	tom@gmail.com



Assignment of the following foreign key defined on Enfol: ON DELETE CASCADE Consider the following foreign key defined on Enfol: ON DELETE CASCADE



What will happen if we execute the following statement?
 DELETE FROM STUDENT WHERE StudentID=456;



Assignment of the following foreign key defined on Enforce Student Defined

		ENROL						
_	StudentID	<u>CourseNo</u>	Semester	Status	EnrolDate			
httm	456	_COMP1130_	2016-S1	active	25/02/2016			
	458	C N P (13)	2016 \$1	active	2: /02/2016			
	456	COMP2400	2016 S2	active	09/03/2016			
		STUDENT						

		OTOBENT								
	StudentID	Name	DoB	Email						
WeC	456 458	Tom	25/01/1988 20/01/199	tom@gmail.com						
	/1144	• •								

- What will happen if we execute the following statement?
 DELETE FROM STUDENT WHERE StudentID=456;
- We would have ENROL below after deleting the student 456.

StudentID	<u>CourseNo</u>	<u>Semester</u>	Status	EnrolDate
458	COMP1130	2016 S1	active	25/02/2016



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Select Statement

```
https://tutorcs.com

SELECT *
FROM World
WHERE ** TOUR OF CS
LIKE ** YOU **
```



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• The trace the following Saste form

```
SELECT attribute_list
FROM table_list
WHERE condition to the complete condition [GROUP by attribute_list [HAVENE group_condition]]
[ORDER BY attribute_list];
```





• What is the result for the following Select statement?

SELECT * FROM STUDENT WHERE Email like '%gmail.com'

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• What is the result for the following Select statement?

SELECT * FRUM STUDENT WHERE Email like '%gmail.com'

		StudentID		Name		Dol	В	I	Email					
Wal	T	458	4	Peter	2	3/05/	1993		pete	er@g	ma	il.com		
	У		·t	- TIRIT	5 1				1	Tree G	3	ii.com		





• What is the result for the following Select statement?

SELECT * FROM STUDENT WHERE Email like "Ggmail.com"

		StudentID)	Name			DoB				Email					
WAC	H	458	Н	۱.	Pet	ter	7	23/0	5/1	993 98 7		pe	ter	@gn	nai	l.com	7
	廾	116	H	t.			5	U	H		U	H	_		3	- 7	_

SELECT StudentID FROM STUDENT WHERE Email like '%@gmail.com';





• What is the result for the following Select statement?

SELECT * FROM STUDENT WHERE Email like '%gmail.com'

	StudentID	Name	DoB	Email				
MILO	458	Peter	23/05/1993	peter@gmail.com				
weu	459	Fran	1 /0 9/1 98 /	rankk@glnáil.com				

SELECT StudentID FROM STUDENT WHERE Email like '%@gmail.com';

	StudentID
Ī	458
ĺ	459





• What is the result for the following Select statement?

SELECT * FRUM STUDENT WHERE Name = 'Peter':

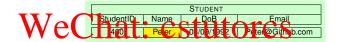
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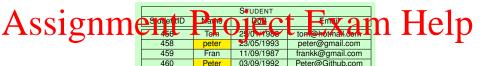


• What is the result for the following Select statement?

SELECT * FROM STUDENT WHERE Name = 'Peter':

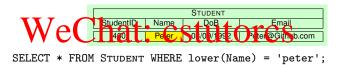






• What is the result for the following Select statement?

SELECT * FRUM STUDENT WHERE Name = 'Peter':

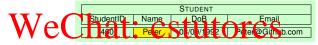




Assignment Description of the Part of the

• What is the result for the following Select statement?

SELECT * FRUM STUDENT WHERE Name = 'Peter':



SELECT * FROM STUDENT WHERE lower(Name) = 'peter';

STUDENT									
StudentID	Name	DoB	Email						
458	peter	23/05/1993	peter@gmail.com						
460	Peter	03/09/1992	Peter@Github.com						



Select + Group By

Assignment trops the tree tvale and the intelligence to be attributed in the list.

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Select + Group By

Assignment trops the free tyale and the intellip

 Aggregate functions can be applied to aggregate a group of attribute values into a single value, e.g.,

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AVG returns the average of argument values

Wechal. CStutores

- MAX returns the maximum value of the arguments
- SUM returns the sum of the argument values



Select + Group By

Assignment trops the free tyale xubito in the lp

 Aggregate functions can be applied to aggregate a group of attribute values into a single value, e.g.,

Attps://thuttoresacoms

AVG returns the average of argument values

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- MAX returns the maximum value of the arguments
- SUM returns the sum of the argument values
- We can use HAVING condition to add the condition on the groups.



Aggregate Functions – Example

Assignment Project Le Fix am, thelp

	Γ		Course																									
ht	Ь	OMP1/30 Unication of Advanced Computing I							Unit																			
111	F	O	ŌÌ	VI	3 1	/	3 ()	H	P	r	d	40	ίC	n	6	Ac	Va	n	e c	O	01	ηŗ	u	ing	jΙ	Π	6
	7	COMP2400)	Relational Databases												6											
		COMP3600				Algorithms									4													

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Aggregate Functions – Example

Assignment Project Le Fix am, thelp

	Г	Course																						
htt		Company Chame Chame Chapting I							Unit															
	4	t	M	P1	13	30	t	h	r(d	uo	ίc	n	6	Ac	Val	be	dC) OI	ηŗ	u	ing	I	6
		CC	M	P2	40	00						Re	əla	tio	na	ıl D	ata	bas	ses	S				6
		CC	M	P3	60	00								Α	lgo	orith	nms	;						4

SELECTION (white) AMAX (write) TROM COURSE CS



Aggregate Functions – Example

Assignment Project Le Fix am, thelp

	Г	Course																						
htt		Company Chame Chame Chapting I							Unit															
	4	t	M	P1	13	30	t	h	r(d	uo	ίc	n	6	Ac	Val	be	dC) OI	ηŗ	u	ing	I	6
		CC	M	P2	40	00						Re	əla	tio	na	ıl D	ata	bas	ses	S				6
		CC	M	P3	60	00								Α	lgo	orith	nms	;						4

SELECTION (unit) 2 MAX (unit) FROM FOUR SECS

The query result will be:

COUNT	MAX
3	6



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https://

		WIODI	
	<u>StudentID</u>	<u>CourseNo</u>	Hours
	111	COMP2400	120
	/4_222	COMP2400	115
/		STATS00	1 2C
	111	BUSN2011	110
	111	ECON2102	120
	333	BUSN2011	130

What out apper to the following self to the By StudentID?

SELECT ...
FROM STUDY
Group By StudentID;



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	Group	J	31001	
	StudentID	StudentID	CourseNo	Hours
		111	COMP2400	120
1-44	7174	4 111	BUSN2011	110
nub	S://tu	LOTE	E(O(2)02	120
	222	222	COMP2400	115
	333	333	STAT2001	120
	333	333	BUSN2011	130

• What out approprie to for the following th

SELECT ...
FROM STUDY
Group By StudentID;



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_	Studentib	Studentib	Courseivo	Tiours
		111	COMP2400	120
	111	111	BUSN2011	110
httm	a • / /411	t 0100	ECON2102	120
IIII	5./222LU		GCMF2400	115
•	333	333	STAT2001	120
	333	333	BUSN2011	130

What is the result for the following SELECT Group By StudentID?

SELECT StudentID FROM STUDY Group By StudentID;



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	Studentib	Studentib	Courseivo	Tiours
		111	COMP2400	120
	111	111	BUSN2011	110
httm	a • / /+ • •	totto	ECON2102	120
IIII	5./222LU		GCMF2400	115
•	333	333	STAT2001	120
	333	333	BUSN2011	130

What s the result for the following SELECT Group By StudentID?

SELECT StudentID FROM STUDY Group By StudentID;

StudentID	
111	
222	
333	



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OttadontiB	Otadontib	000100110	110010
	111	COMP2400	120
111	111	BUSN2011	110
~ • / / 4	t 0120	ECON2102	120
) · /2½2 L L		GCMF2400	115
222	333	STAT2001	120
333	333	BUSN2011	130
	· //+·	111 111 111 111 111 111 111 111 111 11	111 COMP2400 111 BUSN2011 111 ECON2102 111 ECON2102 111 ECON2102 111 ECON2102 111 ECON2102 111 ECON2102 111 ECON2102 111 ECON2102

• What s the result for the following SELECT Group By StudentID?

SELECT StudentID, COUNT(*)
FROM STUDY
Group By StudentID;



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_	Studentib	Studentib	Courseivo	Hours
		111	COMP2400	120
	111	111	BUSN2011	110
http	a • / /411	t 0120	ECON2102	120
IIII	5./222LU		GCMF2400	115
•	333	333	STAT2001	120
	333	333	BUSN2011	130

• What s the result for the following SELECT Group By StudentID?

SELECT StudentID, COUNT(*)
FROM STUDY
Group By StudentID;

StudentID	COUNT
111	3
222	1
333	2



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OttadontiB	Ctadontib	000100110	110010
	111	COMP2400	120
111	111	BUSN2011	110
~ • / / 4	totto	ECON2102	120
) • /2½2 L		GCMF2400	115
333	333	STAT2001	120
333	333	BUSN2011	130
	n • / /411	111 111 111 111 111 111 111 111 111 11	111 COMP2400 111 BUSN2011 111 ECON2102 111 ECON2102 111 ECON2102 111 ECON2102 111 ECON2102 111 ECON2102 111 ECON2102 111 ECON2102

What is the result for the following SELECT Group By StudentID?

SELECT StudentID, MAX(hours)
FROM STUDY
Group By StudentID;



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_	Ottadentib	Ottuderaid	000130140	Tiours
		111	COMP2400	120
	111	111	BUSN2011	110
httn	a • / /411	totto	ECON2102	120
пир	S./222LU		GCMF2400	115
•	333	333	STAT2001	120
	333	333	BUSN2011	130

What s the result for the following SELECT Group By StudentID?

SELECT StudentID, MAX(hours) FROM STUDY Group By StudentID;

StudentID	MAX
111	120
222	115
333	130



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_	Studentib	Studentib	Courseivo	Tiours
		111	COMP2400	120
	111	111	BUSN2011	110
http	a • / /+ 1 1	tothog	ECON2102	120
пир) ·/2/2 LU	tOLC:	GCMF2400	115
•	333	333	STAT2001	120
	333	333	BUSN2011	130

What is the result for the following SELECT Group By StudentID?

SELECT StudentID, COUNT(StudentID)
FROM STUDY
Group By StudentID;



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_	Ottadentib	Ottuderaid	Oddiscivo	Tiours
		111	COMP2400	120
	111	111	BUSN2011	110
http	a • / /411	totto	ECON2102	120
пир	3./222LU	tole:	GCMF2400	115
•	333	333	STAT2001	120
	333	333	BUSN2011	130

What s the result for the following SELECT Group By StudentID?

SELECT StudentID, COUNT(StudentID)
FROM STUDY
Group By StudentID;

StudentID	COUNT
111	3
222	1
333	2



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\sim				
	StudentID	StudentID	CourseNo	Hours
		111	COMP2400	120
1 44	111,	111	BUSN2011	110
nttn	s://tu	TOTCS	EGON2102	120
Trup	222	222	COMP2400	115
	333	333	STAT2001	120
	333	333	BUSN2011	130

• What the sult for the following SELECT + Group Sy StudentID?

SELECT StudentID, CourseNo FROM STUDY Group By StudentID;



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	StudentID	StudentID	CourseNo	Hours	
		111	COMP2400	120	
1 44	111,	111	BUSN2011	110	
nttn	S://tu	TOTCS	EGON2102	120	
Treep.	222	222	COMP2400	115	
	333	333	STAT2001	120	
	333	333	BUSN2011	130	

• What the sult in the following SELECT + 1 roup Sy StudentID?

SELECT StudentID, CourseNo FROM STUDY Group By StudentID;

Error Message.



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	StudentID	StudentID	CourseNo	Hours	
		111	COMP2400	120	
1 44	1/17	111	BUSN2011	110	
nttn	s://tu	tores	EGON2102	120	
Trup	222	222	COMP2400	115	
	333	333	STAT2001	120	
	333	333	BUSN2011	130	

• What the sult of the following SELECT + Group Sy StudentID?

SELECT *
FROM STUDY
Group By StudentID;



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	StudentID	StudentID	CourseNo	Hours	
		111	COMP2400	120	
1 44	111,	111	BUSN2011	110	
nttn	s://tu	torcs	EGON2102	120	
Treep.	222	222	COMP2400	115	
	333	333	STAT2001	120	
	333	333	BUSN2011	130	

• What the sult in the following SELECT + Group Sy StudentID?

SELECT *
FROM STUDY
Group By StudentID;

Error Message



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_	Ottadentib	Ottuderaid	000130140	Tiours
		111	COMP2400	120
	111	111	BUSN2011	110
httn	a • / /411	totto	ECON2102	120
пир	S./222LU		GCMF2400	115
•	333	333	STAT2001	120
	333	333	BUSN2011	130

• What sthe result for the following SELECT Group By StudentID?

SELECT COUNT(*)
FROM STUDY
Group By StudentID;



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	Studentib	Studentid	Courseivo	Hours
		111	COMP2400	120
	111	111	BUSN2011	110
httm	a • / /411	t 0100	ECON2102	120
IIII	5./222LU		GCMF2400	115
•	333	333	STAT2001	120
	333	333	BUSN2011	130

• What s the result for the following SELECT Group By StudentID?

SELECT COUNT(*)
FROM STUDY
Group By StudentID;

COUNT
3
1
2



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	יוסטו 🍑	
StudentID	<u>CourseNo</u>	Hours
111	COMP2400	120
/4_222	COMP2400	115
38(STATS00	1 2C
111	BUSN2011	110
111	ECON2102	120
333	BUSN2011	130

• What out appring the following self to the By CourseNo?

SELECT ...
FROM STUDY
Group By CourseNo;



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		l •//		
	CourseNo	StudentID	CourseNo	Hours
	BUSN2011	USN2011 111		110
1-44	/_/	333	BUSN2011	130
nttp	COMP2400	LOTES	COM 22110	120
	2400 P	222	COMP2400	115
	ECON2102	111	ECON2102	120
***	STAT2001	333	STAT2001	120

• What would happen to the following set to TCos By CourseNo?

SELECT ... FROM STUDY Group By CourseNo;



xam Help Assignment **BUSN2011** 110 111 **BUSN2011** 333 **BUSN2011** 130 COMP2400 120 COMP21 115 ECON2102 111 120 **STAT2001** 333 STAT2001 120

• What sther sult for the following SELEGT Group By CourseNo?

SELECT CourseNo, COUNT(*)
FROM Study
Group By CourseNo;



xam Help Assignment **BUSN2011** 110 111 **BUSN2011** 333 **BUSN2011** 130 COMP2400 120 COMP21 115 ECON2102 111 120 **STAT2001** 333 STAT2001 120

• What sther sult for the following SELEGT Group By CourseNo?

SELECT CourseNo, COUNT(*)
FROM STUDY
Group By CourseNo;

CourseNo	COUNT
BUSN2011	2
COMP2400	2
ECON2102	1
STAT2001	1



Assignment Project Exam Help

1	Cours	eNo	StudentID	CourseNo	Hours
	BUSN2011		PURNO11 111		110
			333	BUSN2011	130
nttn	Scomp	2110	torcs	COM 2210	120
Herp	JUDJIVIJE ZEUULIL	222	COMP2400	115	
	ECON	2102	111	ECON2102	120
	STAT2	2001	333	STAT2001	120

What I the sult to detallowings Electropy CourseNo?

SELECT CourseNo, Hours FROM STUDY Group By CourseNo;



Assignment Project Exam Help

_	CourseNo	StudentID	CourseNo	Hours
	BUSN2011	111	BUSN2011	110
1 44	//4	333	BUSN2011	130
nttn	Scomp24001	torcs	COMP2110	120
neep	Capivir-2 eugs	222	COMP2400	115
	ECON2102	111	ECON2102	120
	STAT2001	333	STAT2001	120

• What it the sult fa defollowing SELECT Or Gross Course No?

SELECT CourseNo, Hours FROM STUDY Group By CourseNo;

Error Message



Assignm	ent I	ro	e	GtubEX	am	ı Hel	lp
	CourseNo	Studen	ID	CourseNo	Hours		

http	BUSN2011	111	BUSN2011	110
	a / /4 x x	333	BUSN2011	130
	Scomp24db	LOLC:	COMP2466 COMP2460	115
	ECON2102	111	ECON2102	120
	STAT2001	333	STAT2001	120

What the sult of the tollowing still the true by + Having?

SELECT CourseNo FROM STUDY Group By CourseNo Having MAX(Hours) > 120;



Assignment Projectus Exam Help

http				
	BUSN2011	111 333	BUSN2011 BUSN2011	110 130
	Scompation 1	torcs	COMP2400	120 115
	ECON2102	111	ECON2102	120
	STAT2001	333	STAT2001	120

• What the sult of He tollowing SELECTH Group By + Having?

SELECT CourseNo FROM STUDY Group By CourseNo Having MAX(Hours) > 120;

CourseNo BUSN2011



Assignn	rent F	Proje	CSTUDY	am	Hel	b
	CourseNo	StudentID	CourseNo	Hours		r

	BUSN2011	111	BUSN2011	110
	DOGNZOTT	333	BUSN2011	130
httn	Schupstidh]	toto	COMP2496	120
πιιρ	30/11/2001		COMP2410	115
•	ECON2102	111	ECON2102	120
	STAT2001	333	STAT2001	120

• What the sult of Retailoungs ELECT+ Group By + Having?

SELECT CourseNo FROM STUDY Group By CourseNo Having COUNT(*) > 1;



•	/ T	•			TT 1	1
Assignm	reaat l	/rate	CHUDY Y	am	Hel	1
	CHIE I					l
	Courseno	StudentiD	Courseino	Hours		_

	BUSN2011	111	BUSN2011	110
	DOCKETT	333	BUSN2011	130
httn	Scompation 1	torce	COMP2496	120
nup	3.772001	LOTECS	COMR2410	115
_	ECON2102	111	ECON2102	120
	STAT2001	333	STAT2001	120

• What the sult of the following SELECTH Group Sy + Having?

SELECT CourseNo FROM STUDY Group By CourseNo Having COUNT(*) > 1;

CourseNo	
BUSN2011	
COMP2400	



A Bunch of Tables

Assignment Project Exam Help

A Bunch of Tables

https://tutorcs.com

A SQL query walks up to two We wild in a restaurant and asks:

Mind if I join you?



Set Operations

Assignment Project Exam Help

- SQL incorporates several set operations: UNION (set union) and INTERSECT (set union), and intersect (set union), and intersect (set union).
- Set operations result in return of a relation of tuples (no duplicates).
 Cstutores
- Set operations apply to relations that have the same attribute types appearing in the same order.



Set Operations

Assignment Project Exam Help

https://

111			COMP24	120				
222		2	COMP24	115				
, 333		}	STAT200	120				
1	7111	1	1808020°		7119	<u> </u>		
LALO			ECON21)2	120			
333			BUSN20	130				

What is the result for the following SQL query?

at: cstutorcs

WHERE CourseNo='COMP2400'

UNION

SELECT StudentID FROM STUDY WHERE CourseNo='ECON2102':



Set Operations

Assignment Project Exam Help

https://

111		COMP2400			120					
222		C	COMP2400			115				
, 333		1 '	STAT2001			120				
/1	771	П	\cap			420			110	n
CHILO		E	ESON2102			120				
333			BUSN2011			130				

• What is the result for the following SQL query?

StudentID FROM STUDY STUDY STUDY

WHERE CourseNo='COMP2400'

UNION

SELECT StudentID FROM STUDY WHERE CourseNo='ECON2102':

111 222

UNION

StudentID 111



Assignment Project Exam Help

https://

111	COMP2400	120	
222	COMP2400	115	
333	STAT2001	120	
tinto	120SN201		
CHILO	ECON2102	120	
333	BUSN2011	130	

What is the result for the following SQL query?

WeChat: cstutores

DEELOI DUUGENTID INDI DIO

WHERE CourseNo='COMP2400'

UNION

SELECT StudentID FROM STUDY WHERE CourseNo='ECON2102':

StudentID			
111			
222			



Assignment the Student Power am Help

COMP2400

115 120

130

	, 333	STAT2001
httng./	tuto	BUSN2011
Hups://		ECON2102
.	333	BUSN2011

What is the result for the following SQL query?

WeChat: cstutores

222

WHERE StudentID=111

EXCEPT

SELECT CourseNo FROM STUDY WHERE StudentID=222;

37/85



Exam Help Assignmentsuento Turnet

https://

111	CONF2400	120
222	COMP2400	115
, 333	STAT2001	120
141114	BUSN2011	119
tuto	ECON2102	Tred
333	BUSN2011	130

What is the result for the following SQL query?

echat cstutore CourseNo

WHERE StudentID=111

EXCEPT

SELECT CourseNo FROM STUDY

WHERE StudentID=222;

BUSN2011

FCON2102

EXCEPT

CourseNo

COMP2400



Assignment Land Help

https://

111	COMP2400	120
222	COMP2400	115
, 333	STAT2001	120
/ + 14 +	BUSN2017	Copt C
LUILU	ECON2102	
333	BUSN2011	130

What is the result for the following SQL query?

WeChat: cstutores

WHERE StudentID=111

EXCEPT

SELECT CourseNo FROM STUDY

WHERE StudentID=222;

CourseNo BUSN2011 ECON2102



Assignment Exam Help

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111	COMP2400	120
222	COMP2400	115
, 333	STAT2001	120
4144	BUSN2011	0 ¹¹⁹ 0
tuto	ECON2102	Tra
333	BUSN2011	130

What is the result for the following SQL query?

WeChat: cstutores

WHERE StudentID=111

EXCEPT

SELECT StudentID FROM STUDY WHERE CourseNo='ECON2102';



Assignmen to the student of the state of the Exam Help

https://

111	COMP2400	120
222	COMP2400	115
, 333	STAT2001	120
/+14+~	BUSN2011	119
tuto	ECON2102	
333	BUSN2011	130

What is the result for the following SQL query?

echat cstutore CourseNo

WHERE StudentID=111

EXCEPT

SELECT StudentID FROM STUDY WHERE CourseNo='ECON2102';

FCON2102 **EXCEPT**

BUSN2011

StudentID 111



Assignment Exam Help

	111	COMP2400	120	
	222	COMP2400	115	
	, 333	STAT2001	120	
/	/t14ta	BUSN2011	149	
//	tuto	ECON2102		
	333	BUSN2011	130	

https:/

What is the result for the following SQL query?

WeChat: cstutores

WHERE StudentID=111

EXCEPT

SELECT StudentID FROM STUDY WHERE CourseNo='ECON2102';

ERROR MESSAGE



Join Operations

Assignment Project Exam Help to use join operations.

- Inner Join: tuples are included in the result only if there is at least one malching in both relations.
- Len/hight bohn: all tuples of the leftinght table are included in the result, even if there are no matches in the relations.





Inner Join - Example

Assignment No Professional Databases 46 am Help BUSNO211 Management Accounting 6 BUSNO212 Macroeconomics 6

https://subship.cusevo.senestr.sats | Subship.cusevo.senestr.sats | Subship.cusevo.senestr.s

• What would happen for the following INNER JOIN statement?

FROM COURSE INNER JOIN ENROL ON COURSE. No=ENROL. CourseNo;



Inner Join – Example

Assignment of the Course of th

10 44 40 00	//44	ENRO	2 00	100
HILDSI	Stude ttl 0	C u se No	Se neșter	Status
	111	BUSN2011	2016 S1	active
-	222	COMP2400	2016 S1	active
	111	COMP2400	2016 S2	active

• What would happen for the following INNER JOIN statement?

FROM COURSE INNER JOIN ENROL ON COURSE. No=Enrol. CourseNo;

Course			Enrol			
No	Cname	Unit	StudentID	CourseNo	Semester	Status
COMP2400	Relational Databases	6	222	COMP2400	2016 S1	active
COMP2400	Relational Databases	6	111	COMP2400	2016 S2	active
BUSN2011	Management Accounting	6	111	BUSN2011	2016 S1	active



Inner Join – Example

Assignment of the Course of th

better	1/44	ENRO	7 00	100
HUDS.	Stude ttl)	C u se No	Se nest er	Status
P ~ 1	222	COMP2400	2016 S1 2016 S1	active
	111	COMP2400	2016 S2	active

• What is the result for the following INNER JOIN statement?

FROM Course INNER JOIN ENROL ON COURSE. No=Enrol. CourseNo;

Course		ENROL				
No	Cname	Unit	StudentID	CourseNo	Semester	Status
COMP2400	Relational Databases	6	222	COMP2400	2016 S1	active
COMP2400	Relational Databases	6	111	COMP2400	2016 S2	active
BUSN2011	Management Accounting	6	111	BUSN2011	2016 S1	active



Inner Join - Example

Assignment No Professor Live am Help COMP2400 Relational Databases 6 BUSING Management Accounting 6 ECON2102 Macroeconomics 6

https://suberille.cuseve.sens.gr/satus/ 11 BUSN2011 2016 S1 active/ 111 COMP2400 2016 S1 active/ 1111 COMP2400 2016 S2 active/

• What's the result for the following INNER JOIN statement? SELECT COURSE, No. 21. CSTUTOTCS

FROM COURSE INNER JOIN ENROL ON COURSE. No=ENROL. CourseNo;

ı	No
I	COMP2400
ĺ	COMP2400
I	BUSN2011



Course xam Help Assignme BUSN2011 Mariagement Accounting ECON2102 Macroeconomics



What would happen for the following LEFT JOIN statement?

nat: cstutorcs
T JOIN ENROL ON COURSE.No=ENROL.CourseNo;



Course xam Help Assignmen Mariagement Accounting ECON2102 Macroeconomics

1 44	114 4	Enroi		
httng	\$tude htip 1	Optise 10	1 Semester	SATUS
TITLE OF THE	// 001	BVS 12 11	20 6 S	<u>a tive</u>
1	222	COMP2400	2016 S1	active
	111	COMP2400	2016 S2	active

What would happen for the following LEFT JOIN statement?

VeChat: cstutores COURSE LEFT JOIN ENROL ON COURSE. No=ENROL. CourseNo;

	Course			ENROL			
	No Cname Unit		StudentID	CourseNo	Semester	Status	
Ī	COMP2400	Relational Databases	6	222	COMP2400	2016 S1	active
	COMP2400	Relational Databases	6	111	COMP2400	2016 S2	active
Ì	BUSN2011	Management Accounting	6	111	BUSN2011	2016 S1	active
ĺ	ECON2102	Macroeconomics	6	NULL	NULL	NULL	NULL



Course xam Help Assignmen Mariagement Accounting ECON2102 Macroeconomics

1 44	114 4	Enroi		
httng	\$tude htip 1	Optise 10	1 Semester	SATUS
TITLE OF THE	// 001	BVS 12 11	20 6 S	<u>a tive</u>
1	222	COMP2400	2016 S1	active
	111	COMP2400	2016 S2	active

What is the result for the following LEFT JOIN statement?

COURSE LEFT JOIN ENROL ON COURSE. No=ENROL. CourseNo;

Course			ENROL			
No	Cname	Unit	StudentID	CourseNo	Semester	Status
COMP2400	Relational Databases	6	222	COMP2400	2016 S1	active
COMP2400	Relational Databases	6	111	COMP2400	2016 S2	active
BUSN2011	Management Accounting	6	111	BUSN2011	2016 S1	active
ECON2102	Macroeconomics	6	NULL	NULL	NULL	NULL



Assignment No Project Front am Help BUSNUT Mariagement Accounting 6 ECON 2102 Macroecon Accounting 6 ECON 2102 Macroecon Accounting 6



• What is the result for the following LEFT JOIN statement?

selavores hat: cstutores

FROM Course LEFT JOIN ENROL ON Course.No=Enrol.CourseNo;

No
COMP2400
COMP2400
BUSN2011
ECON2102



Natural Join

Assignment Project Exam Help

A natural join is considered as one kind of inner join.
 https://tutorcs.com

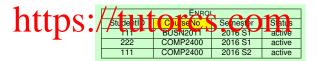
In a natural join, two relations are joined implicitly by comparing all attributes
of the same names in both relations.

WeChat: cstutorcs

 A natural join retains all the data of the two tables for only the matched rows, without duplication.



Assignment of the first of the



• What would happen for the following NATURAL JOIN statement?



Assignment of the Course of th

1-44	//44			
ntins:	Stude ttl)	C u se No	Semester	Satus
	111	BUSN2011	2016 S1	active
_	222	COMP2400	2016 S1	active
	111	COMP2400	2016 S2	active

• What would bappen for the following NATURAL JOIN statement?

	Course			ENROL	
CourseNo	Cname	Unit	StudentID	Semester	Status
COMP2400	Relational Databases	6	222	2016 S1	active
COMP2400	Relational Databases	6	111	2016 S2	active
BUSN2011	Management Accounting	6	111	2016 S1	active



Assignment Course to Cours

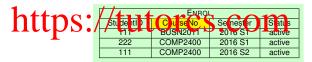
better	//44	ENRO	2 00	100
HILDSI	Studentl)	C u se No	Se nester	Status
	111	BUSN2011	2016 S1	active
_	222	COMP2400	2016 S1	active
	111	COMP2400	2016 S2	active

• What is the result for the following NATURAL JOIN statement?

	Course			ENROL	
CourseNo	Cname	Unit	StudentID	Semester	Status
COMP2400	Relational Databases	6	222	2016 S1	active
COMP2400	Relational Databases	6	111	2016 S2	active
BUSN2011	Management Accounting	6	111	2016 S1	active







• What is the result for the following NATURAL JOIN statement?

SELECT COURSENO. CSTUTORS





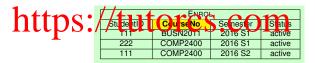
111 COMP2400 2016 52 active

• What's the result for the following NATURAL JOIN statement?

FROM Course NATURAL JOIN ENROL;



Assignment Profes Exam Help COMP2400 Relational Databases 6 BUSING Management Accounting 6 ECON2102 Macroeconomics 6



• What's the result for the following NATURAL JOIN statement?

FROM Course NATURAL JOIN ENROL;

If there are no matching attributes in two tables for NATURAL JOIN,

SELECT *
FROM Course, Enrol;



Assignment Project Exam Help

000130110	Oname	Offic
COMP2400	Relational Databases	6
BUSN2011	Management Accounting	6
ECON2102	Macroeconomics	6

https://

/ /44		~ ~ ~	400
	ENRO	\ C ()	\mathbf{H}
StudentID	CourseNo	Semester	Status
111	BUSN2011	2016 S1	active
222	COMP2400	2016 S1	active
111	COMP2400	2016 S2	active

• What the sult in Retionoring NATUFACION Setement?

SELECT *

FROM COURSE NATURAL JOIN ENROL ON COURSE.CourseNo=ENROL.CourseNo;



Assignment Project Exam Help

Courseivo	Oname	UIIIL
COMP2400	Relational Databases	6
BUSN2011	Management Accounting	6
ECON2102	Macroeconomics	6

https://

//44	- 0 44 0 6	~ ~ ~	100
	ENRO	S.CO	
StudentID	CourseNo	Semester	Status
111	BUSN2011	2016 S1	active
222	COMP2400	2016 S1	active
111	COMP2400	2016 S2	active

• What the sult in the following NATUFA ON Stement?

SELECT *

FROM COURSE NATURAL JOIN ENROL ON COURSE.CourseNo=ENROL.CourseNo;

ERROR MESSAGE because a NATURAL JOIN **implicitly** compares all attributes of the same names in two table.



Assignment Project Exam Help



- List a information of students who have enrolled in a course with CourseNo=X and the CourseNo of these courses.
 - 1 Use SELECT + FROM (Cartesian Product) + WHERE
 - 2 Use SELECT + FROM (INNER JOIN) + ON
 - Use SELECT + FROM (INNER JOIN) + ON + WHERE
 - Use SELECT + FROM (NATURAL JOIN) + WHERE



Assignment Project Exam Help

https://fudentibres.com

- List all information of students who have enrolled in a course with CourseNo='X' and the CourseNo of these courses.
- (1) Use SELECT + FROM (Cartesian Product) + WHERE CSTUTOTCS



Assignment Project Exam Help

https://tudenta_courseNc_Status

- List all information of students who have enrolled in a course with CourseNo='X' and the CourseNo of these courses.
- (1) Use SELECT + FROM (Cartesian Product) + WHERE CSTULOTCS

FROM STUDENT, ENROL
WHERE (STUDENT.StudentID=ENROL.StudentID)
 AND (ENROL.CourseNo = 'X');



Assignment Project Exam Help

https://tudenth CourseNo Status

- List all information of students who have enrolled in a course with CourseNo='X' and the CourseNo of these courses.
- (2) the SELECT FROM (INNER JOIN) + ON CSTUTOTCS



Assignment Project Exam Help

https://Eudentle CourseNo Status

- List all information of students who have enrolled in a course with CourseNo='X' and the CourseNo of these courses.
- (2) Use SELECT FROM (INNER JOIN) + ON CSTUS OTCS

FROM STUDENT INNER JOIN ENROL
ON (STUDENT.StudentID=ENROL.StudentID)
 AND (ENROL.CourseNo = 'X');



Assignment Project Exam Help

https://turnerconserved.com

- List all information of students who have enrolled in a course with CourseNo='X' and the CourseNo of these courses.
- (3) WE SELECT FROM (INNER JOIN) + ON + WHERE CSTUTOTCS



Assignment Project Exam Help

https://two recent of the land of the land

- List all information of students who have enrolled in a course with CourseNo='X' and the CourseNo of these courses.
- (3) VISE SELECT FROM (INNER JOIN) + ON + WHERE CSTULOTCS

 SELECT STUDENT.*: ENROL, COURSENO

FROM STUDENT INNER JOIN ENROL
ON STUDENT.StudentID=ENROL.StudentID
WHERE ENROL.CourseNo = 'X';



Assignment Project Exam Help

https://fudentibres.com

- List all information of students who have enrolled in a course with CourseNo='X' and the CourseNo of these courses.
- (4) We SELECT FROM (NATURAL JOIN) + WHERE CSTUTORCS



Assignment Project Exam Help

https://fudently Coursello Status

- List all information of students who have enrolled in a course with CourseNo='X' and the CourseNo of these courses.
- (4) Use SELECT FROM (NATURAL JOIN) + WHERE CSTULLOTCS

FROM STUDENT NATURAL JOIN ENROL WHERE ENROL.CourseNo = 'X';



Subqueries

A SSI GUE ITS CATTON I TWO PAST TO PORT OF THE PROPERTY OF THE

- Subqueries can be specified within the FROM-clause.
- Sulditre of also of the time him the with thise, e.g.,
 - In subquery tests if tuple occurs in the temporary table of the subquery.
 - empty or not.
 - using ALL, SOME or ANY before a subquery makes subqueries usable in comparison formulae (SOME and ANY are interchangeable).
 - in all these cases the condition involving the subquery can be negated using a preceding NOT.



Subqueries IN – Example

Assignment Project Exam Help

https://findentible.com/selections/

 List all information of students who have enrolled in a course with CourseNo='X' and the CourseNo of these courses, we have:

VSILECT STUDENT.*, ENROL COURSENO TCS
WHERE ENROL.COURSENO = 'X':

 Now if we want to list all information of students who have enrolled in a course that has less than 10 students enrolled and the CourseNo of these courses.



Assignment Project Examination that the part of the Course No of these courses.

https://tutorcs.com



Assignment Project Examination that the part of the Course No of these courses.

• List the CourseNo of the courses in Enrol that have less than 10

https://tutorcs.com



Assignment Project Exampled Help than 10 students enrolled and the CourseNo of these courses.

List the CourseNo of the courses in Enrol that have less than 10

https://witutores.com

FROM ENROL

GROUP BY CourseNo



Assignment Project Example Help than 10 students enrolled and the CourseNo of these courses.

• List the CourseNo of the courses in Enrol that have less than 10

https://witutores.com

FROM ENROL

GROUP BY CourseNo

HAVING COUNT(*)<10:

Ast all nformation of students who have a course with CourseNo='X' and the CourseNo of these courses



Assignment Project Example Help than 10 students enrolled and the CourseNo of these courses.

• List the CourseNo of the courses in Enrol that have less than 10

https://oututores.com

FROM ENROL

GROUP BY CourseNo

HAVING COUNT(*)<10:

st all nformation of students wild have an old in a course with CourseNo='X' and the CourseNo of these courses

SELECT Student.*, Enrol.CourseNo FROM STUDENT NATURAL JOIN ENROL WHERE Enrol.CourseNo = 'X':



Assignment Project Exam Help Listal information of students who have enrolled in a course that has less than 10 students enrolled and the CourseNo of these courses.

NELECT STUDENT.*, COURSENO

FILE SUDENT LATERIO THE COURSENO
WHELE COURSENO IN (SELECT COURSENO
FROM ENROL
GROUP BY COURSENO

We Chat: CSTUTO (CS);



Assignment Project Exam Help
Listal information of students who have enrolled in a course that has less
than 10 students enrolled and the CourseNo of these courses.

NELECT STUDENT.*, CourseNo

FILE SUPERIT LATERIO THE SOLCOM

WHELE COURSENO IN (SELECT COURSENO

FROM ENROL

GROUP BY CourseNo

We Chat: CSTUTOTCS

THE WING 20UNT(*)(10);

Does the above query look confusing?



Assignment Project Exam Help
Listal information of students who have enrolled in a course that has less
than 10 students enrolled and the CourseNo of these courses.

here Course in (SELECT Course No FROM ENROL GROUP BY COURSE NO WHELE COURSE NO FROM ENROL GROUP BY COURSE NO HAWING TO WITCH (19);

Does the above query look confusing?
 It is better to distinguish two ENROL tables.



Assignment Project Exam Help Listal information of students who have enrolled in a course that has less than 10 students enrolled and the CourseNo of these courses.

SELECT STUDENT.*,e1.CourseNo

FION SUDENT TATIFAL OFFICE COURSENO
WHELE e1.CourseNo IN (SELECT e2.CourseNo
FROM ENROL e2
GROUP BY e2.CourseNo
WeChat: CHAVING 20UNT(*C10);



Assignment Project Exam Help
Listal information of students who have enrolled in a course that has less
than 10 students enrolled and the CourseNo of these courses.

NELECT STUDENT.*,e1.CourseNo

FIONS SUPERIOR FROM CAROL COURSENO
FROM ENROL e2
GROUP BY e2.CourseNo

Wechat: CStutor(*);

Why do we use aliases e1 and e2 for ENROL?



Assignment Project Exam Help
Liscal information of students who have enrolled in a course that has less than 10 students enrolled and the CourseNo of these courses.

NELECT STUDENT.*,e1.CourseNo

FIO SUDENT TATIRAL OF CENTRE OF COURSENO
WHELE e1.CourseNo IN (SELECT e2.CourseNo
FROM ENROL e2
GROUP BY e2.CourseNo

HAWING COUNT(*)(10);

Why do we use aliases e1 and e2 for ENROL?
 Distinguish two ENROL tables.



Assignment Project Exam Help Listal information of students who have enrolled in a course that has less than 10 students enrolled and the CourseNo of these courses.

SELECT STUDENT.*,e1.CourseNo

FROM ENGLE e1.CourseNo IN (SELECT e2.CourseNo, COUNT(*)

FROM ENGL e2

GROUP BY e2.CourseNo

WeChat: CSTUTOTES);



Assignment Project Exam Help
Listal information of students who have enrolled in a course that has less
than 10 students enrolled and the CourseNo of these courses.

SELECT STUDENT.*,e1.CourseNo

FROM ENGL e2

GROUP BY e2.CourseNo

WHERE e1.CourseNo IN (SELECT e2.CourseNo, COUNT(*)

FROM ENROL e2

GROUP BY e2.CourseNo

WeChat: CStutorcs

CStutorcs

HAVING COUNT(*)

GROUP STORY

GROUP STORY

GROUP STORY

HAVING COUNT(*)

CSTUTORCS

GROUP STORY

GROUP STORY

HAVING COUNT(*)

CSTUTORCS

GROUP STORY

GROUP STORY

HAVING COUNT(*)

GROUP STORY

HAVING COUNT(*)

HAVING COUNT(*)

GROUP STORY

GROUP ST

Is the above query correct?



Assignment Project Exam Help

than 10 students enrolled and the CourseNo of these courses.

SELECT STUDENT.*,e1.CourseNo

FROD Spent TATIRIO TECSOLEO

WHELE e1.CourseNo IN (SELECT e2.CourseNo, COUNT(*)

FROM ENROL e2

GROUP BY e2.CourseNo

WeChat: CSTUTOTCS

TATIRIO TECSOLOGICA

GROUP BY e2.CourseNo

HAVING GOUNT(*)

CSTUTOTCS

Is the above query correct?

No. IN subquery tests if tuple occurs in the temporary table of the subquery.





Count the number of students who have enrolled in at least one course?
 https://tutorcs.com





Count the number of students who have enrolled in at least one course?

https:///tutorcs.com

FROM STUDENT S

WHERE EXISTS (SELECT *

FROM ENROL e

WeChiefe s creature (continue);





Count the number of students who have enrolled in at least one course?

https://tutorcs.com

FROM STUDENT S

WHERE EXISTS (SELECT *

FROM ENROL e

WeChiefe s. c. (c. t. (p. t. c. (p. t.

1st tuple of STUDENT, EXISTS

StudentID	CourseNo	Semester
111	BUSN2011	2016 S1
111	COMP2400	2016 S2

2st tuple of STUDENT, EXISTS

StudentID	CourseNo	Semester
222	COMP2400	2016 S1

The above query (returning 2) is correct!





Count the number of students who have enrolled in at least one course?

https://tutorcs.com

FROM ENROL e

WHERE EXISTS (SELECT *

FROM STUDENT s

WeChiete e studentipis (studentid);





Count the number of students who have enrolled in at least one course?

https://tutorcs.com

FROM ENROL e

WHERE EXISTS (SELECT *

FROM STUDENT s

WeChieff . Endfull (Special);

1st tuple in ENROL, EXISTS 2nd tuple in ENROL, EXISTS 3rd tuple in ENROL, EXISTS

StudentID	Name
111	Tom
StudentID	Name
222	Emily
StudentID	Name
111	Tom
111	10111

The above query (returning 3 instead of 2) is incorrect!





• Count the number of students who have enrolled in at least one course?

https://tutores.com

WHERE EXISTS (SELECT *

FROM ENROL e

WHERE S. Student ID TO Student ID);

```
FROM STUDENT s
WHERE EXISTS (SELECT StudentID
FROM ENROL e
WHERE s.StudentID=e.StudentID);
```





• Count the number of students who have enrolled in at least one course?

http://tutores.com

WHERE EXISTS (SELECT *

FROM ENROL e

WHERE S. Student ID To . Student ID);

FROM STUDENT S

WHERE EXISTS (SELECT StudentID

FROM ENROL e

WHERE s.StudentID=e.StudentID);

 Both queries are correct! EXISTS subquery tests whether the temporary table of the subquery is empty or not.





Count the number of students who have enrolled in at least one course?

FROM STUDENT, ENROL

WHERE STUDENT.StudentID=ENROL.StudentID;



Assimilar Projection Bush 1 Same of Plant Projection 111 Bush 2016 St 222 Emily 333 John 111 COMP2400 2016 St 111 COMP2400 2016 St 222 COMP2400 2016 St 222 COMP2400 2016 St 223 COMP2400 2016 St 224 COMP2400 2016 St 245 COMP2400 2016 St 245

• Count the number of students who have enrolled in at least one course?

FROM STUDENT, ENROL

WHERE STUDENT.StudentID=ENROL.StudentID;

0.002		202		
StudentID	Name	StudentID	CourseNo	Semester
111	Tom	111	BUSN2011	2016 S1
111	Tom	111	COMP2400	2016 S2
222	Emily	222	COMP2400	2016 S1



Assistant Projectivently Care of Company Compa

Count the number of students who have enrolled in at least one course?

FROM STUDENT, ENROL

WHERE STUDENT.StudentID=ENROL.StudentID;

WeChat: cstutorcs

0.002		252		
StudentID Name		StudentID	CourseNo	Semester
111	Tom	111	BUSN2011	2016 S1
111	Tom	111	COMP2400	2016 S2
222	Emily	222	COMP2400	2016 S1

The above query is incorrect!



Assistant Projection Business element Projection 111 Business

• Count the number of students who have enrolled in at least one course?

FROM STUDENT, ENROL

WHERE STUDENT.StudentID=ENROL.StudentID:

WeChat: cstutorcs

StudentID	Name	StudentID	CourseNo	Semester
111	Tom	111	BUSN2011	2016 S1
111	Tom	111	COMP2400	2016 S2
222	Emily	222	COMP2400	2016 S1

The above query is incorrect!
 We should use COUNT(DISTINCT StudentID) instead of COUNT(*).



Using INNER JOIN - Same Example

ent Project 2016 S1 Tom COMP2400 2016 S1 Emily COMP2400 2016 S2 .lohn

romber of students who have enrolled in at least one course?

SELECT COUNT(*)

FROM STUDENT'S INNER JOIN ENROL e



Using INNER JOIN – Same Example

• Count the number of students who have enrolled in at least one course?

222

COMP2400

2016 S1

SELECT COUNT(*)

FROM STUDENT s INNER JOIN ENROL e

ON s.StudentID=e.StudentID;

Emily



Using INNER JOIN – Same Example

Assignment Project Exam Help

Studentild Codes No Semester

111 Tom
222 Emily
333 John
111 COMP2400 2016 S2

111 COMP2400 2016 S2

Ount the nomber of students who have enrolled in at least one course?

SELECT COUNT(*)

FROM STUDENT'S INNER JOIN ENROL e

ON s.StudentID=e.StudentID:

$\mathbf{X}I_{\mathbf{A}}$		h	١.	t • c	01		to	ro	C
			1				e		
	Stu	ıdentlL)	Name	Stude	entID	Cours	seNo	Semester
		111		Tom	11	1	BUSN	2011	2016 S1
		111		Tom	11	1	COMF	2400	2016 S2
		222		Emily	20	2	COME	2400	2016 61

The above query is incorrect!



Using INNER JOIN – Same Example

Assignment Project Exam Help

| Studentild Course No Semester | 111 | Tom | 111 | BUSN2011 | 2016 S1 | 222 | Emily | 333 | John | 111 | COMP2400 | 2016 S2 | 111 | COMP2400 | 2016 S2 | 20

Count the number of students who have enrolled in at least one course?

SELECT COUNT(*)

FROM STUDENT'S INNER JOIN ENROL e

ON s.StudentID=e.StudentID;

222

Emily

The above query is incorrect!
 We should use COUNT(DISTINCT StudentID) instead of COUNT(*).

222

COMP2400

2016 S1



Assignment Project Exam Help

StudentID	Name	
111	Tom	
222	Emily	
333	John	

	ENTICE				
StudentID	CourseNo	Semester			
111	BUSN2011	2016 S1			
222	COMP2400	2016 S1			
111	COMP2400	2016 S2			

• Con the proser of stuent of the Sen old in east one course?

SELECT COUNT(*)

FROM STUDENT NATURAL JOIN ENROL;



Assignment Project Exam Help

StudentID	Name
111	Tom
222	Emily
333	John

ENTICE				
StudentID	CourseNo	Semester		
111	BUSN2011	2016 S1		
222	COMP2400	2016 S1		
111	COMP2400	2016 S2		

• Control of studies of Good at east one course?

SELECT COUNT(*)

FROM STUDENT NATURAL JOIN ENROL;





Assignment Project Exam Help

StudentID	Name
111	Tom
222	Emily
333	John

202					
StudentID	CourseNo	Semester			
111	BUSN2011	2016 S1			
222	COMP2400	2016 S1			
111	COMP2400	2016 S2			

• Controller of studies of the course?

SELECT COUNT(*)
FROM STUDENT NATURAL JOIN ENROL;

• The above query is incorrect!



Assignment Project Exam Help

StudentID	Name
111	Tom
222	Emily
333	John

202					
StudentID	CourseNo	Semester			
111	BUSN2011	2016 S1			
222	COMP2400	2016 S1			
111	COMP2400	2016 S2			

• Counting Ser of stuck of the Sen God Interest one course?

SELECT COUNT(*)
FROM STUDENT NATURAL JOIN ENROL

111011 2102211 11111011112 00211 2111102,							
TTT ~4							
	4_	4					
$\mathcal{M} \boldsymbol{\Theta}$	ทฆบ	STUDENT.	I I T (FI	ROL			
	at den UD.	Name	CourseNo	Seinester			
	111	Tom	BUSN2011	2016 S1			
	111	Tom	COMP2400	2016 S2			
	222	Emily	COMP2400	2016 S1			

The above query is incorrect!
 We should use COUNT(DISTINCT StudentID) instead of COUNT(*).



A Simple Solution – Same Example

Assignment Project Exam Help

STUDENT		ENROL	
StudentID Na	ame	StudentID CourseNo Semeste	$\overline{}$
111 To	om	111 BUSN2011 2016 S1	
222 En	nily / / 4	222 COMP2400 2016 S1	
337110		2016 S2	
)		

Count the number of students who have enrolled in at least one course?

SELECT COUNT(DISTINCT StudentID)



A Simple Solution – Same Example

Assignment Project Exam Help

STUDE	NT		ENROL		
StudentID	Name		StudentID	CourseNo	Semester
111	Tom		111	BUSN2011	2016 S1
1 222	Emily	///	222	COMP2400	2016 S1
3 3 7	Ohr	/tiltorc		100MP2400	2016 S2
		/ tutth C			

Count the humber of students who have enrolled in at least one course?

SELECT COUNT(DISTINCT StudentID)

• The above query is correct! CStutorcS



A Simple Solution – Same Example

Assignment Project Exam Help

STUDE	NT		ENROL		
StudentID	Name		StudentID	CourseNo	Semester
111	Tom		111	BUSN2011	2016 S1
1 222	Emily	///	222	COMP2400	2016 S1
3 3 7	Ohr	/tiltorc		100MP2400	2016 S2
		/ tutth C			

Count the number of students who have enrolled in at least one course?

SELECT COUNT(DISTINCT StudentID)

• The above query is correct! CStutorcS

 Is this the shortest query to answer the above question?
 Refer to the last slide on "[Credit Cookie] The Shortest Code/Program?".



Assistante Project of Transport Help

https://tutorcs.com



Assisppentive Piagiont of The Help

 List the CourseNo and the corresponding number of students enrolled for all courses in, Semester 2 2016

https://tutorcs.com



Assismana mive rings wet of mantenned Help

 List the CourseNo and the corresponding number of students enrolled for all courses in Semester 2 2016

https://delicoresascoments

WHERE Semester = '2016 S2'
GROUP BY CourseNo;



Assispense into Piagion of The Market Melp

 List the CourseNo and the corresponding number of students enrolled for all courses in Semester 2 2016

```
https://displeones.ascoments
```

WHERE Semester = '2016 S2'
GROUP BY CourseNo;

Vist the largest number of students enrolled in a course in



Assispendentive rigos out of the Help

 List the CourseNo and the corresponding number of students enrolled for all courses in Semester 2 2016

https://wishotowesasnomants

```
WHERE Semester = '2016 S2'
GROUP BY CourseNo:
```

Vist the largest number of students enrolled in a course in Semester 2 2016

```
SELECT MAX(NoOfStudents)
FROM (SELECT CourseNo, COUNT(*) AS NoOfStudents
    FROM ENROL
    WHERE Semester = '2016 S2'
    GROUP BY CourseNo):
```



Assignment Project Exam Help

```
SELECT CourseNo

FROM (SELECT/CourseNo COUNT(*) AS NoOfStudents

WHERE Semester = '2016 S2'

GROUP BY CourseNo)

WHERE NoOfStudents =

WE SELECT MAX(NoOfStudents)

FROM (SELECT COURSENO, COUNT(*) AS NoOfStudents

FROM ENROL

WHERE Semester = '2016 S2'

GROUP BY CourseNo));
```



Assignment Project Exam Help

```
SELECT CourseNo

FROM (SELECT/CourseNo, COUNT(*) AS NoOfStudents

WHERE Semester = '2016 S2'

GROUP BY CourseNo)

WHERE NoOfStudents =

We semester = '2016 S2'

FROM (SELECT MAX((NoOfBiologies))

FROM ENROL

WHERE Semester = '2016 S2'

GROUP BY CourseNo));
```

 ERROR: Subqueries specifying a derived table must be enclosed in parentheses and must be assigned a table alias name.



As Semester McMt Project Exam Help

```
SELECT e.CourseNo

FROM (SELECT/el-CourseNo COUNT(*) AS NoOfStudents

WHERE e1.Semester = '2016 S2'

GROUP BY e1.CourseNo) e

WHERE e.NoOfStudents =

WHERE e.NoOfStudents =

FROM (SELECT e1.CourseNo, COUNT(*) AS NoOfStudents

FROM ENROL e1

WHERE e1.Semester = '2016 S2'

GROUP BY e1.CourseNo) e2);
```

Which alias(es) are essential in the above query?



Assement Phone Project Exam Help

```
SELECT e.CourseNo

FROM (SELECT/el-CourseNo, COUNT(*) AS NoOfStudents

WHERE e1.Semester = '2016 S2'

GROUP BY e1.CourseNo) e

WHERE e.NoOfStudents =

WHERE e.NoOfStudents =

FROM (SELECT e1.CourseNo, COUNT(*) AS NoOfStudents

FROM ENROL e1

WHERE e1.Semester = '2016 S2'

GROUP BY e1.CourseNo) e2);
```

Which alias(es) are essential in the above query?
 The aliases e and e2 are essential but e1 is not.



Subqueries - Use "With"

Assignment Project Exam Help

Use "WITH" to break down complicated queries into simpler parts. 1

https://tutorcs.com



Subqueries – Use "With"

List the courses that have plargest number of students enrolled in the lipse seems that the lipse seems the lipse seems that the lipse

Use "WITH" to break down complicated queries into simpler parts. 1

```
WITH Sem2Students AS
     SECECT/entropy to rount (*COMPAStudents
     WHERE el.Semester = '2016 S2'
     GROUP BY e1.CourseNo)
  bECT CourseNo
                  cstutorcs
WHERE e.NoOfStudents
           (SELECT MAX(e2.NoOfStudents)
```

FROM Sem2Students e2):

Which alias(es) are essential in the above query?

https://www.postgresql.org/docs/current/static/queries-with.html



Subqueries – Use "With"

Assignment Project Exam Help

Use "WITH" to break down complicated queries into simpler parts. 1

```
WITH Sem2Students AS

http://www.encolor.com/students/red/* ENROL e1 COURSENO)

WHERE e1.Semester = '2016 S2'
GROUP BY e1.CourseNo)

WHOM Sem2Students = CStutorcs
WHERE e.NoOfStudents =
```

(SELECT MAX(e2.NoOfStudents)

FROM Sem2Students e2);

Which alias(es) are essential in the above query? None of the aliases e, e1 and e2 are essential.

1https://www.postgresql.org/docs/current/static/queries-with.html



Subqueries - Result

Assignment Project Examulation Help Semester 2 2016

Input: https://tutorcs.com

	ENROL		1
StudentID			
1/11	BU N2011	2016 S2	44
VVI	CO //F 1190	2016 S2	tutores
111	COMP 2400	2016 32	rucoi ob
111	ECON2102	2016 S2	
222	BUSN2011	2016 S2	
222	COMP2400	2016 S2	1
333	BUSN2011	2016 S2	
333	COMP2400	2016 S2	
333	ECON2102	2016 S2	



Subqueries - Result

Assignment Project Examulation Help

Input: https://tutorcs.com

	ENROL			
StudentID	CourseNo	Semester		CourseNo
711	BU N2011	2016 S2	4114040	COMP2400
W ie t	CO //F 11/90	2016 S2	tutore	BUSN2011
111	COMP 2400	2016 32	catore	
111	ECON2102	2016 S2		
222	BUSN2011	2016 S2		
222	COMP2400	2016 S2		
333	BUSN2011	2016 S2		
333	COMP2400	2016 S2		
333	ECON2102	2016 S2		



Assignment Project Exam Help

• List all students' IDs and number who are under enrolled (< 4 courses) in Semester 2076:



Assignment Project Exam Help

- List all students: IDs artd narthes who are under enrolled (< 4 courses) in Semester 2016:
 - List the students' IDs and the corresponding number of enrolled courses in Semester 2 2016



Assignment Project Exam Help

- List all students: IDs and narries who are under emolied (< 4 courses) in Semester 2016:
 - List the students' IDs and the corresponding number of enrolled courses in Semester 2 2016

```
Westlebestudent Stuff (**) A Conferrols

WHERE e. Semester = '2016 S2'
```

```
GROUP BY e.StudentID;
```



Assembled Project Exam Help

https://tutorcs.com



Assemble III Project Exam Help

```
SELECT s.StudentID, s.Name
FROM (SELECT e.StudentID, COUNT(*) AS NoOfEnrols

TO SELECT e.StudentID, COUNT(*) AS NoOfEnrols

FROM ENABL e

GROUP BY e.StudentID) ne INNER JOIN STUDENT s

ON (s.StudentID = ne.StudentID) AND (ne.NoOfEnrols < 4);
```



Assignment Project Exam Help

```
SELECT s.StudentID, s.Name
FROM (SELECT e.StudentID, COUNT(*) AS NoOfEnrols
               e.StudentID) ne INNER JOIN STUDENT s
ON (s.StudentID = ne.StudentID) AND (ne.NoOfEnrols < 4):</pre>
          A tude S. TONT A TAC STENTOLS
      FROM ENROL e
      WHERE e.Semester = '2016 S2'
      GROUP BY e.StudentID)
SELECT s.StudentID, s.Name
FROM STUDENT'S INNER JOIN StudEnrols ne
ON (s.StudentID = ne.StudentID) AND (ne.NoOfEnrols < 4);</pre>
```



Subqueries – Is The Previous Query Correct?

Assisting the property of the content of the conten

		ENROL		
	StudentID	CourseNo	Semester	
1	4111	BUSN20/1	2016 S2	00000000
ш		COMP1/00	20 16 S2	rcs.com
_	THE	COMP2400	2016 52	
	111	ECON2102	2016 S2	
	222	BUSN2011	2016 S2	
	222	COMP2400	2016 S2	
	333	BUSN2011	2016 S2	
1	333	CO /P2400 4	- 2016 S2 C	tutorog
	V V 331	EC 0N 21/02	2016 S2	tutorcs
			~	

STUDENT		
StudentID	Name	
111	Tom	
222	Emily	
333	John	



Subqueries – Is The Previous Query Correct?

Assisainment de l'amis de Greenter-Enroy de l'Adours est el possibilité de l'amis de Greenter Enroy de l'Adours est el p

	Enrol			
L	StudentID	CourseNo	Semester	
1	4111	BUSN20/14	2016 S2	000000
ı		COMP1/00	20 16 S2	rcs.com
-	144	COMP2400	2016 52	
	111	ECON2102	2016 S2	Result:
	222	BUSN2011	2016 S2	
	222	COMP2400	2016 S2	
	333	BUSN2011	2016 S2	StudentID Name
1	333	CO /P2490 4	- 2016 S2 _	222 Emily
	V 333	EC IN 2102	2016 S2	Stutores 222 Emily John
			~	

STUDENT		
StudentID	Name	
111	Tom	
222	Emily	
333	John	



Subqueries – What About The Following Scenario?

Assisant part of the property of the context of the property o

		Enrol		
	StudentID	CourseNo	Semester	
1	111	BUSN2011	2016 S2	
ı	nttn	CCMP11/00	20 16 52	cs.com
J		TQMP2400	20 6 52	
	111	ECON2102	2016 S2	
	222	BUSN2011	2016 S2	
	222	COMP2400	2016 S2	
	333	BUSN2011	2016 S2	
٦	333	CD //P2400	2016 S2	4 - 4
	837	EC 0N 2102	2016 S2	tutorcs
				stutor cs

STUDENT		
StudentID	Name	
111	Tom	
222	Emily	
333	John	
444	Ana	



Subqueries – What About The Following Scenario?

Assisansum entanasoj eoter moza 140 ures elp

		ENROL		
	StudentID	CourseNo	Semester	
-	111	BUSN2011	2016 S2	
	nttn	CCMP 11/00	2016/62	cs.com
_		TQMP2400		
	111	ECON2102	2016 S2	Result (still correct?):
	222	BUSN2011	2016 S2	nesuit (still correct?).
	222	COMP2400	2016 S2	
	333	BUSN2011	2016 S2	StudentID Name
1	333	OD //P2400	2016 S2	
	337	EC 0N 2102	2016 S2	Stutore S333 John
	770			JOIN JOIN

STUDENT		
StudentID	Name	
111	Tom	
222	Emily	
333	John	
444	Ana	



Subqueries – Use LEFT/RIGHT JOIN?

Asseguable in Project Exam Help

```
SELECT s.StudentID, s.Name
FROM (SELECT e.StudentID, COUNT(*) AS NoOfEnrols
     GROUP BY e.StudentID) ne RIGHT JOIN STUDENT S
ON (s.StudentID = ne.StudentID) AND (ne.NoOfEnrols < 4):</pre>
          A tude S. TONT A TAC STENTOLS
      FROM ENROL e
      WHERE e.Semester = '2016 S2'
      GROUP BY e.StudentID)
SELECT s.StudentID, s.Name
FROM STUDENT'S LEFT JOIN StudEnrols ne
ON (s.StudentID = ne.StudentID) AND (ne.NoOfEnrols < 4);</pre>
```



Subqueries – Using LEFT/RIGHT JOIN Is Still Incorrect!

Sepesal Ment Project Exam Help

	Studentib	Courseivo	Semester				
	111	BUSN2011	2016 S2				
	111	COMP1100	2016 S2				
1	41414	COMP2400	2016 S2	ACC ACC	th/atill in	oorroo	+2).
I		ECO/12/02	20 16 S2	CS.CO	r (Sun m	correc	ι:).
1	222	BUSN2011	2016 S2				
	222	COMP2400	2016 S2		StudentID	Name	
	333	BUSN2011	2016 S2				
		COMP2400	2016 S2		111	Tom	
	333				222	Emily	
ų	333	ECON2102	2016 S2			,	
A			- 000	44	333	John	
1	VV AL	าเกรา		tutora	444	Ana	

StudentID	Name
111	Tom
222	Emily
333	John
444	Ana

STUDENT			
StudentID	Name		
111	Tom		
222	Emily		
333	John		
444	Ana		

Courochlo

• The reason why "111, Tom" is incorrectly included in the final result is due to "Query Processing and Optimisation", which will be discussed in Week 8.



Subqueries – Use Set Operations

A SSISCIPLE TO THE PROPERTY OF THE PROPERTY OF

The set of all students EXCEPT the set of students enrolled in at least 4 courses in Semester 2 2016.

https://tutorcs.com

FROM (SELECT StudentID FROM STUDENT

We selfiatide stutores

WHERE e.Semester = '2016 S2'
GROUP BY e.StudentID
HAVING COUNT(*) > 3) e4 INNER JOIN Student s
ON (e4.StudentID = s.StudentID);



Subqueries – Using Set Operations Works.

Assisant property of the context of

	Enrol					
	StudentID	CourseNo	Semester			
1	,11,1	BUSN2011	2016 S2			
	nttn	CCMF 11/00	20 6 S2	CS.CO	m	
J		TQMP240 (20 6 52			
	111	ECON2102	2016 S2	Resu	ılt:	
	222	BUSN2011	2016 S2			
	222	COMP2400	2016 S2			
	333	BUSN2011	2016 S2		StudentID	Name
7	333	OD //P2400	2016 S2	4 - 4	222	Emily
	837	EC IN 2102	2016 S2	tiitora	333	John
	770			stutore	444	Ana

STUDE	STUDENT		
StudentID	Name		
111	Tom		
222	Emily		
333	John		
444	Ana		



[Credit Cookie] The Shortest Code/Program?

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https://www.inimer.or.or.ckham



[Credit Cookie] The Shortest Code/Program?

As Shutible 1600 Greeks it? To ect Exam Help

https://kutcics.com/william of Ockham

 The minimum description length of a data set (i.e., Kolmogorov complexity) cannot be computed.

