

DASC 5333 Database Systems for Data Science CSCI 4333 Design of Database Systems Spring 2024 Suggested Solution to Homework #1

Annotations on solutions are included below. Students do not need to include annotations.

2. For examples:

(a)

The screenshot shows a query plan for 'Query 1'. It consists of three tables: 'faculty', 'class', and 'enroll'. The 'faculty' table has fields: facId, fName, lName, deptCode, rank. The 'class' table has fields: classId, courseId, semester, year, facId, room. The 'enroll' table has fields: stuld, classId, grade, n_alerts. The query plan shows a join between 'faculty' and 'class' on the 'facId' field, and another join between 'class' and 'enroll' on the 'classId' field. Below the diagram is a table with the following structure:

Field:	faculty: [faculty].[fName] & ' ' & [faculty].[lName]	classId	stuld	grade		
Table:	faculty	class	enroll	enroll		
Sort:						
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Criteria:						
or:						

(b)

The screenshot shows a query plan for 'Query 2'. It consists of two tables: 'student' and 'department'. The 'student' table has fields: stuld, fName, lName, major, minor, ach, advisor. The 'department' table has fields: deptCode, deptName, schoolCode, numStaff. The query plan shows a join between 'student' and 'department' on the 'deptCode' field. A yellow callout box with blue text says: "The join between student.major and department.deptCode is removed." Below the diagram is a table with the following structure:

Field:	student: [student].[fName] & ' ' & [student].[lName]	minor: deptName	major			
Table:	student	department	student			
Sort:						
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Criteria:			In ('CSCI','CINF','ITEC')			
or:						

(c)

Join Properties

Left Table Name	Right Table Name
department	student

Left Column Name	Right Column Name
deptCode	minor

1: Only include rows where the joined fields from both tables are equal.
 2: Include ALL records from 'department' and only those records from 'student' where the joined fields are equal.
 3: Include ALL records from 'student' and only those records from 'department' where the joined fields are equal.

OK Cancel New

Field:	stuld	student: [student].[fname] & ' ' & [student].[lname]	major: deptName	minor: deptName	major
Table:	student	student	department_1	department	student
Sort:					
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Criteria:					In ('CSCI','CINF','ITEC')
or:					

(d) Include all students in the school:

Field:	schoolCode	Major: deptName	stuld	student: [student].[fname] & ' ' & [student].[lname]	advisor: [faculty].[fname] & ' ' & [faculty].[lname]
Table:	department	department	student	student	faculty
Sort:					
Show:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Criteria:	= [Enter School Code:]				
or:					

Includes students enrolled in at least one course in the school:

Query 4 b

Property Sheet
Selection type: Query Properties

General

Description	
Default View	Datasheet
Output All Fields	No
Top Values	All
Unique Values	Yes
Unique Records	No
Source Database	(current)
Source Connect Str	
Record Locks	No Locks
Recordset Type	Dynaset
ODBC Timeout	60
Filter	
Order By	
Max Records	
Orientation	Left-to-Right
Subdatasheet Name	
Link Child Fields	
Link Master Fields	
Subdatasheet Height	0"
Subdatasheet Expanded	No
Filter On Load	No
Order By On Load	Yes

Field: Major: deptName | stuld | student | student: [student].[fnam] | advisor: [faculty].[fname] | schoolCode | department

Table: department | enroll | student | faculty

Sort:

Show:

Criteria: [Enter School Code:]

or:

(e)

Query 5

Property Sheet
Selection type: Query Properties

General

Description	
Default View	Datasheet
Output All Fields	No
Top Values	All
Unique Values	Yes
Unique Records	No
Source Database	(current)
Source Connect Str	
Record Locks	No Locks
Recordset Type	Dynaset
ODBC Timeout	60
Filter	
Order By	
Max Records	
Orientation	Left-to-Right
Subdatasheet Name	
Link Child Fields	
Link Master Fields	
Subdatasheet Height	0"
Subdatasheet Expanded	No
Filter On Load	No
Order By On Load	Yes

Field: stuld | fname | lname | major | minor | ach | advisor

Table: student | student | student | student | student | student | student

Sort:

Show:

Criteria: In ('CSCI','CINF','ITEC') | In ('CSCI','CINF','ITEC')

or: