**9/9/2019**

**Data Problem**:

List *all* students (Names in one column call Student) and their major names (e.g. Computer Science) and their minor names (e.g. Computer Information Systems). List students who have both major and minors.

[1] Expected Results: 8 rows



|  |  |  |
| --- | --- | --- |
| **Student** | **Major** | **Minor** |
| Tony Hawk | Computer Science | Computer Information Systems |
| Mary Hawk | Computer Science | Computer Information Systems |
| … |  |  |
| Linda Johnson | Computer Information Systems | English |

| **student** |
| --- |
| **stuId** | **fname** | **lname** | **major** | **minor** | **credits** | **advisor** |
| 100000 | Tony | Hawk | CSCI | CINF | 40 | 1011 |
| 100001 | Mary | Hawk | CSCI | CINF | 35 | 1011 |
| 100002 | David | Hawk | CSCI | ITEC | 66 | 1011 |
| 100003 | Catherine | Lim | ITEC | CINF | 20 | 1017 |
| 100004 | Larry | Johnson | ITEC |  | 66 | 1017 |
| 100005 | Linda | Johnson | CINF | ENGL | 13 | 1015 |
| 100006 | Lillian | Johnson | CINF | ITEC | 18 | 1015 |
| 100007 | Ben | Zico | ACCT |  | 16 |  |
| 100008 | Bill | Ching | ARTS | ENGL | 90 | 1018 |
| 100009 | Linda | King | ARTS | CSCI | 125 | 1018 |

| **department** |
| --- |
| **deptCode** | **deptName** | **schoolCode** | **numFaculty** |
| ACCT | Accounting | BUS | 10 |
| ARTS | Arts | HSH | 5 |
| CINF | Computer Information Systems | CSE | 5 |
| CSCI | Computer Science | CSE | 12 |
| ENGL | English | HSH | 12 |
| ITEC | Information Technology | CSE | 4 |
| MATH | Mathematics | CSE | 7 |

**[2] Analysis**

**1. Output columns:**

1. Name, value: Student: student.fname, ‘ ‘, student.lname (e.g. ‘Tony’, ‘ ‘, ‘Hawk’)
2. Major: department.deptName
3. Minor: department.deptName

**2. Sources:**

1. Student
2. Department

**3. Conditions:**

1. Problem conditions: none
2. Join conditions:
	1. Student.major (FK in Student) = Department.deptCode (PK in Department)

**[3] Implementation:**

**2. Sources:**

1. Student
2. Department



**1. Output columns:**

1. Name, value: Student: student.fname, ‘ ‘, student.lname (e.g. ‘Tony’, ‘ ‘, ‘Hawk’)
2. Major: department.deptName
3. Minor: department.deptName

**Q: relabel your column name?**

1. **“**Place the cursor in front of the first letter of the field name (in this case, P).
2. Enter the new field name Insured followed by a colon (:).”

major:deptName



Access enforces two FK-PK relationships.

Student.major = Department.deptCode

Student.minor = Department.deptCode

* Student.major = Student.minor

Return empty result.

Generated SQL:

SELECT student.fname, department.deptName AS major

FROM department INNER JOIN student ON (department.deptCode = student.minor) AND (department.deptCode = student.major);





Generated SQL:

SELECT student.fname, department.deptName AS major

FROM department INNER JOIN student ON department.deptCode = student.major;

Output:

| **Query2** |
| --- |
| **fname** | **major** |
| Ben | Accounting |
| Bill | Arts |
| Linda | Arts |
| Linda | Computer Information Systems |
| Lillian | Computer Information Systems |
| Tony | Computer Science |
| Mary | Computer Science |
| David | Computer Science |
| Catherine | Information Technology |
| Larry | Information Technology |

**3. Conditions:**

1. Problem conditions: none
2. Join conditions:
	1. Student.major (FK in Student) = Department.deptCode (PK in Department)

**Automatic done by Access.**

**Q: How to construct the output values from multiple columns**

**Expression: concatenate three strings**

student.fname, ‘ ‘, student.lname

string\_1 & string\_2 & string\_n

 value: student.fname & ‘ ‘ & student.lname

student: student.fname & ‘ ‘ & student.lname

**1. Output columns:**

1. Name, value: Student: student.fname, ‘ ‘, student.lname (e.g. ‘Tony’, ‘ ‘, ‘Hawk’)
2. Major: department.deptName
3. Minor: department.deptName

**2. Sources:**

1. Student
2. Department d1
3. Department d2

**3. Conditions:**

1. Problem conditions: none
2. Join conditions:
	1. Student.major (FK in Student) = d1.deptCode (PK in Department)
	2. Student.minor (FK in Student) = d2.deptCode (PK in Department)

Student instance

| **student** |
| --- |
| **stuId** | **fname** | **lname** | **major** | **minor** | **credits** | **advisor** |
| 100000 | Tony | Hawk | CSCI | CINF | 40 | 1011 |

Department instance d1

| **department** |
| --- |
| **deptCode** | **deptName** | **schoolCode** | **numFaculty** |
| ACCT | Accounting | BUS | 10 |
| ARTS | Arts | HSH | 5 |
| CINF | Computer Information Systems | CSE | 5 |
| CSCI | Computer Science | CSE | 12 |
| ENGL | English | HSH | 12 |
| ITEC | Information Technology | CSE | 4 |
| MATH | Mathematics | CSE | 7 |

Department instance d2

| **department** |
| --- |
| **deptCode** | **deptName** | **schoolCode** | **numFaculty** |
| ACCT | Accounting | BUS | 10 |
| ARTS | Arts | HSH | 5 |
| CINF | Computer Information Systems | CSE | 5 |
| CSCI | Computer Science | CSE | 12 |
| ENGL | English | HSH | 12 |
| ITEC | Information Technology | CSE | 4 |
| MATH | Mathematics | CSE | 7 |



| **Query2** |
| --- |
| **student** | **major** | **minor** |
| Tony Hawk | Computer Science | Computer Information Systems |
| Mary Hawk | Computer Science | Computer Information Systems |
| David Hawk | Computer Science | Information Technology |
| Catherine Lim | Information Technology | Computer Information Systems |
| Linda Johnson | Computer Information Systems | English |
| Lillian Johnson | Computer Information Systems | Information Technology |
| Bill Ching | Arts | English |
| Linda King | Arts | Computer Science |



Data Problem:

List me the student, major, minor of major code entered by the user.

Expected output:

User input: CSCI:

| **Query2** |
| --- |
| **student** | **major** | **minor** |
| Tony Hawk | Computer Science | Computer Information Systems |
| Mary Hawk | Computer Science | Computer Information Systems |
| David Hawk | Computer Science | Information Technology |

Same:

Problem condition: student.major = user input value



<https://datatofish.com/how-to-create-an-input-box-in-access/>

[Please input the dept code] allows Access to get user input value

