

Credit Task 4.2.1

| Dependency | Possible (Yes/No) | Why/Why Not? |
|------------|-------------------|--|
| A → B | No | A1 = B1, B2 |
| A → C | No | A1 = C1, C3 |
| A → D | No | A1 = D3, D2 |
| B → A | No | B2 = A1, A2 |
| B → C | Yes | B1 = C1, B2 = C2, B3 = C5 |
| B → D | No | B2 = D2, D4 |
| C → A | No | C3 = A1, A2 |
| C → B | Yes | C1 = B1, C3 = B2, C5 = B3 |
| C → D | No | C3 = D2, D4 |
| {A, B} → C | Yes | A1B1 = C1, A1B1 = C3, A2B2 = C3, A3B3 = C5 |
| {A, B} → D | Yes | A1B1 = D3 |
| {B, C} → A | No | B2C3 = A1, A2 |
| {B, C} → D | No | B2C3 = D2, D4 |
| {C, D} → A | Yes | All combinations have unique combinations C1D3 = A1, C3D2 = A1, C3D4 = A2, C5D4 = A3 |
| {C, D} → B | Yes | ^ All keys do not result into more than one result |
| {A, C} → B | Yes | ^ |
| {A, C} → D | Yes | ^ |

Interpretation: B → A means that A depends on B, or;

- B = Student ID
- A = Student Name
 - Student ID → Student Name

To understand the why/why not;

- Student ID 111 → Student Name John Doe
 - This is good
- Student ID 111 → Student Name John Doe, Jane Doe
 - This is bad
- Student ID 111, 112 → Student Name John Doe
 - Possibility to have two students called John Doe

Hence;

- B2 = C1, B3 = C2
 - Good, due to every primary key having only one result
- B2 = C1, C2
 - Bad, due to the fact that primary key must only respond to one result
- B2 = C1, B3 = C1
 - Good, because every primary key has only one result