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**Class : SE1748**

**DBI202 Assigment 1**

**1.**

**a/**

Purchase

Book

stocks

for

from

Stock

by

Customer

To get this 100% right is tricky, because **Purchase** does not include from in its key. Logically, it is weak on **Custome**r and **Book**; its key is the union of these, plus the additional key part of when.

(I gave most full credit for getting that **Purchase** is weak, and involving Customer and **Stock** and / or **Book**.)

**b/**

from

Book

from

Book

Book

This is fairly straightforward. **Stock** is weak on **Book**. And **Purchase** is related to **Stock**.

**c/**

A many – many, **Wrote**.

**2.**

**a/** E

**b/** C

**c/** B

**d/** D

**e/** A

**f/** C

**g/** D

**h/** E

**i/** D

**j/** D

**3.**

**a/**

1. Intern(intern#, name)

2. Area(area)

3. MedStaff(med#, name)

4. Site(site)

5. rotation(intern#, area, med#\*, site\*, grade)

FK (intern#) refs Intern

FK (area) refs Area

FK (med#, site) refs affiliated // evaluate 6.

FK (site) refs site // located 7.

8. hosts(area, site)

FK (area) refs Area

FK (site) refs Site

9.affiliated(med#, site)

FK (med#) refs MedStaff

FK (site) refs Site

\* = not nullable

10. Setting med# and site# to NOT NULL in 5. for manditory participation, and having attribute grade in rotation

Note the fourth FK in 5. for ”located” can be dropped because it is logically subsumed by the third FK.

**b/**

1. Add back FK in rotation

FK (site) refs Site // located

2. Drop FK in rotation representing ”evaluated”.

3. Make a table evaluated

evaluated(intern#, area, med#, site)

FK (intern#, area, site) refs rotation (intern#, area, site)

FK (med, site) refs affiliated

(Can add unique(intern#, area, site) to rotation so the FK works.)

4. Attach grade to rotation (as it was

This is elegant as it ensures every med-staff person participating in the evaluation of an intern’s rotation is affiliated with the Site the rotation is at.

(I gave credit for effectively making evaluated a many-many.)

**c/**

Add to table **rotation** the FK

FK (area, site) refs hosts

**4.**

**a/**

The attribute closure of **AD** is **ACDEG**, which does not include all attributes. Therefore **AD** is not a key.

**b/**

The attribute closure of **BG** consists of all the attributes; hence, **BG** is key and **BDG** is superkey.

**c/**

The attribute closure of **ADC** is **ADCGE**. This does not contain **F**. Therefore the answer is no.

**d/**

The candidate keys are **BG** and **AB**.

Is in **2NF**. No **FD** violates.

Is not in **3NF**. E.g., **D** → **E** violates.

So is not in **BCNF** either.