1. You should identify insertion, update, and deletion anomalies in the sample rows of the big patient table shown in Table 1. You should identify one example of each type of anomaly. The combination of *VisitNo* and *ProvNo* is the only unique column(s) for the table.

Table 1: Sample Rows for the Big Patient Table

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **VisitNo** | **VisitDate** | **PatNo** | **PatAge** | **PatCity** | **PatZip** | **ProvNo** | **ProvSpecialty** | **Diagnosis** |
| V10021 | 2/13/2015 | P1 | 36 | Denver | 80217 | D1 | internist | Ear Infection |
| V10021 | 2/13/2015 | P1 | 36 | Denver | 80217 | D2 | NURSE PractiTIoner | INFLUENZA |
| V93030 | 2/20/2015 | P3 | 17 | Englewood | 80113 | D2 | NURSE PRACTITIONER | pregnancy |
| V82110 | 2/18/2015 | P2 | 60 | Boulder | 85932 | D3 | cardiologist | murmur |
|  |  |  |  |  |  |  |  |  |

**Insertion Anomaly:** Since (VsitNo,ProvNo) together define a primary key, to insert a row we need to know the both of them.

**Updating Anomaly:** If we want to change the ProvSprciality of D2 to something else, we have to change 2 rows

**Deletion Anomaly**: If we delete the row where ProvNo = D2, we will lose the patient information of V10021.