**Lab 7: Database Normalization**

**1.**

**A.** No the table is not normalized, because columns ***Studno*** and ***Name*** have values with incorrect data types in the last row. There are also two columns with the column name ***Name***.

**B.**

|  |  |  |
| --- | --- | --- |
| **Studno** | **fullName** | **Enrolled\_Sports\_Codes** |
| 223120004 | John Tomango | 011\_BBALL, 012\_FBALL |
| 223120001 | Eden Holly | 012\_FBALL, 013\_VBALL |
| 223120003 | Michael Wong | 014\_RUGBY |
| 223120010 | Danielle Olsen | 022\_TENNIS, 027\_NBALL |
| 223120010 | Michelle Rita | 023\_TBTENNIS |

**NB: Because there are two name columns assume that the 1st column is for firstname and 2nd column is for surname.**

**2. A.**

* **Insertion anomalies –** if we insert a new ***Studno*** value e.g. 220391715, we should also update all other columns found in the table. If we fail to do so we will have an insert anomaly as some of the data is missing.
* **Updating anomalies –** if we update ***Studno*** attribute at ***row 2,*** for example, with a new value e.g. 226306918, then we will then have to update columns ***Student\_Name*** and ***Enrolled\_Course,*** as these columns may change depending on the student. Failure to do so will result in an updating anomalies.
* **Deletion anomalies –**

**B.**

|  |  |  |
| --- | --- | --- |
| **Studno** | **Student\_Name** | **Enrolled­­­\_Course** |
| 223120000 | John Tomango | 07BAIF |
| 223120001 | Eden Holly | 07BACS |
| 223120002 | Eden Holly | 07BACS |
| 223120003 | Danielle Olsen | 07BAIF |

**Students**

|  |  |  |
| --- | --- | --- |
| **Enrolled\_Course** | **HOD** | **Office\_Tel** |
| 07BAIF | E. Wellington | +264 61 201 2264 |
| 07BACS | W. Miranda | +264 61 201 2235 |
| 07BACS | W. Miranda | +264 61 201 2235 |
| 07BAIF | E. Wellington | +264 61 201 2264 |

**Courses**