# Java module 4

Exercises Day 4

| 1 - 1NF | Convert to 1NF |
| --- | --- |
| Instructions | Given the following table that stores information about customers and the products they have purchased.<br><br>Identify the violation(s) of 1NF in this table and normalize it to 1NF. |

| Customer_ID | Customer_Name | Product_List |
| --- | --- | --- |
| 101 | Alice | iPhone, MacBook, iPad |
| 102 | Bob | Samsung TV, PlayStation |
| 103 | Charlie | Xbox, PlayStation, Nintendo |

| 2 - 2NF | Convert to 2NF |
| --- | --- |
| Instructions | Consider the following Table about Students.<br><br>Identify the violation(s) of 2NF in this table and normalize it to 2NF. |

| Student_ID | Student_Name | Course_ID | Course_Name | Instructor_ID | Instructor_Name |
| --- | --- | --- | --- | --- | --- |
| 1 | Alice | 101 | Math | 201 | Mr. Smith |
| 1 | Alice | 102 | Physics | 202 | Ms. Johns |
| 2 | Bob | 101 | Math | 201 | Mr. Smith |
| 2 | Bob | 103 | Chemistry | 203 | Dr. Brown |
| 3 | Charlie | 102 | Physics | 202 | Ms. Johns |
| 3 | Charlie | 104 | Biology | 204 | Dr. Lee |

| 3 - 3NF | Convert to 3NF |
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| Instructions | Consider a table that stores information about customers, their orders, and the products ordered. Identify the violation(s) of 3NF in this table and normalize it to 3NF. |

| Customer_ID | Customer_Name | Order_ID | Product_Name | Product_Price |
| --- | --- | --- | --- | --- |
| 101 | Alice | 201 | iPhone | 999 |
| 101 | Alice | 202 | MacBook | 1299 |
| 102 | Bob | 203 | Samsung TV | 1499 |
| 103 | Charlie | 204 | Xbox | 499 |
| 103 | Charlie | 205 | PlayStation | 399 |