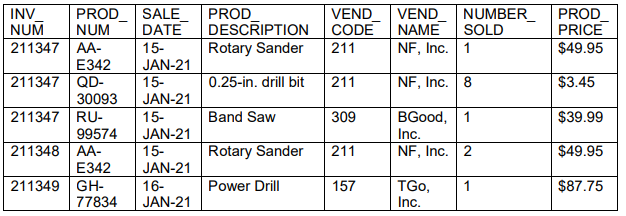
IFB 105 assignment 3b

**Task 4.**

Using the following INVOICE table structure, identify all functional dependences and decompose this table into a set of 3NF relations.



Assumptions 1. There are no multivalued dependencies.

2. Any invoice numbers may reference more than one product.

3. Any given product is supplied by a single vendor, but a vendor can supply many products

Functional dependencies

FD: VEND\_NAME → VEND\_CODE

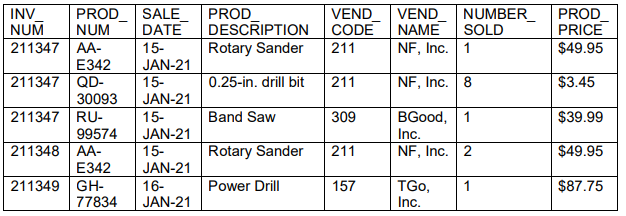
FD: PROD\_DESCRIPTION → PROD\_PRICE

FD: PROD\_NUM → PROD\_DESCRIPTION

FD: PROD\_NUM → PROD\_PRICE

3NF relationship

1nf leave as it as all values are atomic attributes that only contain one value



2nf

|  |  |  |
| --- | --- | --- |
| ORDER\_NUM | INV\_NUM | SALE\_DATE |
| 1 | 211347 | 15-JAN-21 |
| 1 | 211347 | 15-JAN-21 |
| 1 | 211347 | 15-JAN-21 |
| 2 | 211348 | 15-JAN-21 |
| 3 | 211349 | 16-JAN-21 |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| ORDER\_NUM | PROD\_NUM | PROD\_DESCRIPTION | VEND\_CODE | VEND\_NAME | NUMBER\_SOLD | PROD\_PRICE |
| 1 | AAE342 | Rotary Sander | 211 | NF Inc. | 1 | $49.95 |
| 1 | QD30093 | 0.25-in. drill bit | 211 | NF, Inc. | 8 | $3.45 |
| 1 | RU99574 | Band Saw | 309 | BGood, Inc. | 1 | $39.99 |
| 2 | AAE342 | Rotary Sander | 211 | NF, Inc. | 2 | $49.95 |
| 3 | GH77834 | Power Drill | 157 | TGo, Inc. | 1 | $87.75 |

3nf

|  |  |  |
| --- | --- | --- |
| ORDER\_NUM | INV\_NUM | SALE\_DATE |
| 1 | 211347 | 15-JAN-21 |
| 1 | 211347 | 15-JAN-21 |
| 1 | 211347 | 15-JAN-21 |
| 2 | 211348 | 15-JAN-21 |
| 3 | 211349 | 16-JAN-21 |

|  |  |  |  |
| --- | --- | --- | --- |
| ORDER\_NUM | PROD\_NUM | PROD\_DESCRIPTION | PROD\_PRICE |
| 1 | AAE342 | Rotary Sander | $49.95 |
| 1 | QD30093 | 0.25-in. drill bit | $3.45 |
| 1 | RU99574 | Band Saw | $39.99 |
| 2 | AAE342 | Rotary Sander | $49.95 |
| 3 | GH77834 | Power Drill | $87.75 |

|  |  |  |  |
| --- | --- | --- | --- |
| ORDER\_NUM | VEND\_CODE | VEND\_NAME | NUMBER\_SOLD |
| 1 | 211 | NF Inc. | 1 |
| 1 | 211 | NF, Inc. | 8 |
| 1 | 309 | BGood, Inc. | 1 |
| 2 | 211 | NF, Inc. | 2 |
| 3 | 157 | TGo, Inc. | 1 |

**Task 5. Analysis of client brief**

1. **Explain the role of databases in your organisation**

Databases are important in almost all organisations let us take eBay for example where the database would store information such as users’ details, addresses, usernames, passwords, and things of the like. It would also store payment details such as credit card numbers, PayPal logins, and gift card balances. But that is not all as the products sold on eBay would also have their data stored in some sort of database including things like product category, price, size, and colour to name a few. All these databases are indispensable to the system and eBay as a whole, as without solid and secure databases the website would not be able to run at all and without proper databases security and privacy would be an issue that would plague the sites marketplace.

1. **Define security and privacy. How are the two concepts related?**

Security in relation to databases is defined as using a broad range of information security controls to protect information from compromises of information and confidentiality, integrity, and availability. It also calls on various types of controls such as technical, procedural, and physical. Privacy in terms of databases is defined as the protection of information contained in digital databases and protection of the databases itself and should be a practice used by all companies to ensure the safety of sensitive, confidential, and critical information that resides in databases. These two concepts are heavily related as you cannot have privacy without having security nor can you have security without having privacy. So, in essence these two concepts share much of the same objective which is keeping data safe and in turn have common solutions such as encrypting data, proxy servers, physical security, and real time monitoring. To conclude these definitions have been explained and the two concepts have been shown to be heavily related in practice and theory.