Assignment 3

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Using the Invoice table structure shown in Table P6.3, do the following:

1. Relational schema and dependency diagram

INV\_NUM (PK)

PROD\_NUM (PK)

SALE\_DATE

PROD\_LABEL

VEND\_CODE

VEND\_NAME

QUANT\_SOLD

PROD\_PRICE

1NF (INV\_NUM, PROD\_NUM, SALE\_DATE, PROD\_LABEL, VEND\_CODE, VEND\_NAME, QUANT\_SOLD, PROD\_PRICE)

PARTIAL DEPENDENCY:

(IPROD\_NUM 🡪 PROD\_LABEL, PROD\_PRICE, VEND\_CODE, VEND, NAME)

TRANSITIVE DEPENDENCIES:

(PROD\_LABEL 🡪 PROD\_PRICE)

(VEND\_CODE 🡪 VEND\_NAME)

1. Remove all partial dependencies, write the relational schema, dependency diagram and identify the normal forms.

PRODUCT

PROD\_NUM (PK)

PROD\_LABEL

PROD\_PRICE

VEND\_CODE

VEND\_NAME

INVOICE

SALE\_DATE

INV\_NUM (PK)

PROD\_NUM (PK)

QUANT\_SOLD

(2NF)

PRODUCT (IPROD\_NUM, PROD\_LABEL, PROD\_PRICE, VEND\_CODE, VEND, NAME)

INVOICE (INV\_NUM, PROD\_NUM, SALE\_DATE, QUANT\_SOLD)

TRANSITIVE DEPENDENCIES:

(PROD\_LABEL 🡪 PROD\_PRICE)

(VEND\_CODE 🡪 VEND\_NAME)

PRODUCT

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| PROD\_NUM | PROD\_LABEL | PROD\_PRICE | VEND\_CODE | VEND\_NAME |
| AA-E3422QW | ROTARY SANDER | 49.95 | 211 | NeverFail, INC |
| QD-300932X | 0.25-IN. DRILL BIT | 3.45 | 211 | NeverFail, INC |
| RU-995748G | Band saw | 39.99 | 309 | BeGood, INC |
| AA-E3422QW | ROTARY SANDER | 49.95 | 211 | NeverFail, INC |
| GH-778345P | Power drill | 87.75 | 157 | ToughGo, INC |

INVOICE

|  |  |  |  |
| --- | --- | --- | --- |
| INV\_NUM | PROD\_NUM | SALE\_DATE | QUANT\_SOLD |
| 211347 | AA-E3422QW | 15-Jan-2018 | 1 |
| 211347 | QD-300932X | 15-Jan-2018 | 8 |
| 211347 | RU-995748G | 15-Jan-2018 | 1 |
| 211348 | AA-E3422QW | 15-Jan-2018 | 2 |
| 211349 | GH-778345P | 16-Jan-2018 | 1 |

1. Remove all transitive dependencies write the relational schema, dependency diagram and identify the normal forms.

PROUCT

PROD\_NUM (PK)

PROD\_LABEL

VEND\_CODE

INVOICE

SALE\_DATE

INV\_NUM (PK)

PROD\_NUM (PK)

QUANT\_SOLD

VENDOR LABEL

PROD\_LABEL

PROD\_PRICE

VEND\_CODE

VEND\_NAME

(3NF)

PRODUCT (IPROD\_NUM, PROD\_LABEL, VEND\_CODE)

INVOICE (INV\_NUM, PROD\_NUM, SALE\_DATE, QUANT\_SOLD)

VENDOR (VEND\_CODE, VEND\_NAME)

LABEL (PROD\_LABEL, PROD\_PRICE)

PRODUCT

|  |  |  |
| --- | --- | --- |
| PROD\_NUM | PROD\_LABEL | VEND\_CODE |
| AA-E3422QW | ROTARY SANDER | 211 |
| QD-300932X | 0.25-IN. DRILL BIT | 211 |
| RU-995748G | Band saw | 309 |
| AA-E3422QW | ROTARY SANDER | 211 |
| GH-778345P | Power drill | 157 |

INVOICE

|  |  |  |  |
| --- | --- | --- | --- |
| INV\_NUM | PROD\_NUM | SALE\_DATE | QUANT\_SOLD |
| 211347 | AA-E3422QW | 15-Jan-2018 | 1 |
| 211347 | QD-300932X | 15-Jan-2018 | 8 |
| 211347 | RU-995748G | 15-Jan-2018 | 1 |
| 211348 | AA-E3422QW | 15-Jan-2018 | 2 |
| 211349 | GH-778345P | 16-Jan-2018 | 1 |

VENDOR

|  |  |
| --- | --- |
| VEND\_CODE | VEND\_NAME |
| 211 | NeverFail, INC |
| 211 | NeverFail, INC |
| 309 | BeGood, INC |
| 211 | NeverFail, INC |
| 157 | ToughGo, INC |

LABEL

|  |  |
| --- | --- |
| PROD\_LABEL | PROD\_PRICE |
| ROTARY SANDER | 49.95 |
| 0.25-IN. DRILL BIT | 3.45 |
| Band saw | 39.99 |
| ROTARY SANDER | 49.95 |
| Power drill | 87.75 |