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| Term Project  Nitro Drills |

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| Asif Mahmud  ID - C0837117  Product- Drills |

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| Database Design & SQL  Faculty – Jim Cooper  Term – Fall |  |



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| Company Description |

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| Company Name:  Nitro Drills Company Overview: Nitro Drills was establish in 2016 with the goal to deliver tools necessary in several works maintaining the quality, durability and lowest price possible to the customers. At first we were named ‘Nitro Tools’. But then as the sales growth in drills were much more than other products, we focused on just only one product to deliver the best drills possible to our customers.   Now we are known as one of the best drills seller in the country. We have drills of the best price range and functionality and our drills are particularly known for durability. We have several brands in our collection. We focus on customer satisfaction more than anything. We believe that customers are always right. |
| Product:  Drills Product Attribute:  |  |  | | --- | --- | | Attributes | Sample Data | | Product Id (UK) | 12345 | | Model Number | 58736 | | Product Name | Black & Decker Electronic Drill | | Assembly Required | No | | Batteries Required | Yes | | Batteries Included | Yes | | Manufacturer | JAKKS Pacific | | Stock | 100 | | Product Dimension | 5.08 x 21.29 x 24.13 cm; | | Weight | 900 gm | | Color | Yellow | | Warranty | 2 Years | |

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| Company Description |

## **Invoice:**

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| Customer Sale Invoice |

## ER Diagram (With M:M):

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| Entity Relationship Diagrams |

## ER Diagram (Without M:M):

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| --- |
| Entity Relationship Diagrams |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| PRODUCTS | | | | |
| Key Type | Optionality | Column Name | Datatype | Length |
| PK | \* | product\_id | INTEGER |  |
|  | \* | product\_name | VARCHAR | 30 |
| FK | \* | brand\_id | INTEGER |  |
| FK | \* | model\_id | INTEGER |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| MODELS | | | | |
| Key Type | Optionality | Column Name | Datatype | Length |
| PK | \* | model\_id | INTEGER |  |
| UK | \* | model\_name | VARCHAR | 30 |
|  | \* | dimension | VARCHAR | 50 |
|  | \* | warranty | INTEGER |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ORDERS | | | | |
| Key Type | Optionality | Column Name | Datatype | Length |
| PK | \* | order\_id | INTEGER |  |
|  | \* | order\_date | DATE |  |
|  | \* | total\_price | DECIMAL | 5,2 |
| FK | \* | associate\_id | INTEGER |  |
| FK | \* | customer\_id | INTEGER |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| CUSTOMERS | | | | |
| Key Type | Optionality | Column Name | Datatype | Length |
| PK | \* | customer\_id | INTEGER |  |
|  | \* | name | VARCHAR | 30 |
|  | 0 | joining\_date | DATE |  |
| UK | 0 | email | VARCHAR | 50 |
| UK | \* | mobile\_number | VARCHAR | 10 |
|  | \* | address | VARCHAR | 150 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| WAREHOUSE | | | | |
| Key Type | Optionality | Column Name | Datatype | Length |
| PK | \* | warehouse\_id | INTEGER |  |
|  | \* | address | VARCHAR | 150 |

# Relational (Physical) Model

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| --- | --- | --- | --- | --- |
| ASSOCIATES | | | | |
| Key Type | Optionality | Column Name | Datatype | Length |
| PK | \* | associate\_id | INTEGER |  |
|  | \* | name | VARCHAR | 30 |
|  | 0 | joining\_date | DATE |  |
| UK | 0 | Email | VARCHAR | 30 |
| UK | \* | mobile\_num | VARCHAR | 10 |

# Relational (Physical) Model

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| --- | --- | --- | --- | --- |
| PRODUCT\_WAREHOUSE | | | | |
| Key Type | Optionality | Column Name | Datatype | Length |
| PK,FK | \* | warehouse\_id | INTEGER |  |
| PK,FK | \* | product\_id | INTEGER |  |
|  | \* | quantity | INTEGER |  |

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| --- | --- | --- | --- | --- |
| PRODUCT\_ORDER | | | | |
| Key Type | Optionality | Column Name | Datatype | Length |
| PK,FK | \* | product\_id | INTEGER |  |
| PK,FK | \* | order\_id | INTEGER |  |
|  | \* | quantity | INTEGER |  |
|  | \* | unit\_price | DECIMAL | (5,2) |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| BRANDS | | | | |
| Key Type | Optionality | Column Name | Datatype | Length |
| PK | \* | brand\_id | INTEGER |  |
| UK | \* | brand\_name | VARCHAR | 30 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| COLORS | | | | |
| Key Type | Optionality | Column Name | Datatype | Length |
| PK | \* | color\_id | INTEGER |  |
| UK | \* | color\_name | VARCHAR | 30 |

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| --- | --- | --- | --- | --- |
| PRODUCT\_COLOR | | | | |
| Key Type | Optionality | Column Name | Datatype | Length |
| PK,FK | \* | product\_id | INTEGER |  |
| PK,FK | \* | color\_id | INTEGER |  |

# Relational Schema

PRODUCTS(**project\_id**, product\_name, **brand\_id**, **model\_id**)

FK brand\_id -> BRAND  
FK model\_id -> MODEL

MODELS(**model\_id**, model\_name, dimension, warranty)

ORDERS(**order\_id**, order\_date, total\_price, **associate\_id**, **customer\_id**)

FK associate\_id -> ASSOCIATE

FK customer\_id -> CUSTOMER

CUSTOMERS(**customer\_id**, customer\_name, joining\_date, email, mobile\_number, address)

WAREHOUSE(**warehouse\_id**, address)

ASSOCIATES(**associate\_id**, name, joining\_date, email, mobile\_num)

PRODUCT\_WAREHOUSE(**product\_id**, **warehouse\_id**, quantity)

FK product\_id -> PRODUCT  
FK warehouse\_id -> WAREHOUSE

PRODUCT\_ORDER(**product\_id**, **order\_id**, quantity, unit\_price)

FK product\_id -> PRODUCT

FK order\_id -> ORDER

BRANDS(**brand\_id**, brand\_name)

COLORS(**color\_id**, color\_name)

PRODUCT\_COLOR(**product\_id**, **color\_id**)

FK product\_id -> PRODUCT  
FK color\_id -> COLOR

|  |  |  |
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| PRODUCTS | | |
| Attribute | Constraint | Description |
| product\_id | product\_id BETWEEN 10 AND 199 | product\_id attribute should be in the range of 10-199 |

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| MODELS | | |
| Attribute | Constraint | Description |
| warranty | warranty BETWEEN 0 AND 4 | warranty attribute should be in the range of 0-4 |

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| ASSOCIATES | | |
| Attribute | Constraint | Description |
| joining\_date | joining\_date >= '2020-01-01' | joining\_date attribute should be after 1st January of 2021 |

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| --- | --- | --- |
| CUSTOMERS | | |
| Attribute | Constraint | Description |
| joining\_date | joining\_date >= '2020-01-01' | joining\_date attribute should be after 1st January of 2021 |

# Business Constraints