

MIS 6326: Data Management

Presented to Vivek Mishra

Bolt Bikes Inc. **RELATIONAL DATABASE MANAGEMENT SYSTEM**



(Reference: <https://www.electrabike.com/hamburg>)

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Problem Description

Project Statement:

Bolt provides fun and sustainable transportation to get you where you want to go faster. Being in the competitive industry Bolt Bikes Inc wants to expand its size and scope of amenities to stay competitive. Currently, a book system is used to manage the retail management, however, the current system is inadequate for the competitive industry and for the future expansion plans of the company. Bolt Bikes inc needs a relational database to keep track of different Categories of bikes, quantity of each Categories of bike, prices of each bike, customer details for all the three stores located at different locations.

Organization Description:

Company Overview

Bolt Bikes Inc Is a bike production company with Three outlet stores in California, Newyork and Texas. The company aims at producing affordable bikes to all age groups and all terrains. After the production of bike is completed, based on the demand, the company ships the bike to the respective store for retail purpose. It is an upcoming organisation with future plans to expand its retail marketing to other cities in united states of america.

Brands

The company sells bikes with different brand names. The brand names it currently has are Electra, Haro, Heller, Pure Cycles, Ritchey, Strider, Sun Bicycles, Surly, Trek.

All Terrain

The company produces bikes all terrains and different age groups. Bolt Bike provides seven different categories like Children, comfort, cruisers, cyclocross, electric, mountain and road bikes.

SCOPE of DATABASE

Production Categories Table:

The production Categories table in the database, creates and captures important information such category id and category name. The category Id is the primary Key. For every Category Id there can be many Product id's.

Production Products Table:

The Production Products table, creates and captures important information such Product ID, Product Name, Brand ID, Category ID, model year and list price. Product ID is the primary key. One Product ID can only one category. One product Id can have only one brand id. One product Id can have only one Order id. One product Id can have only one store id.

Production Brands Table:

The production Brand table, creates and captures important information such brand Id and Brand name. Brand Id is the Primary Key for the Production brand Table. For One brand Id there can be many Product Id's.

Sales Customer Table:

The Sales Customer Table, creates and captures important information such as name of customer, contact details and address of customers. Every customer is assigned a unique customer ID. One customer Can buy one or Many sales order.

Sales Order Item Table:

The Sales Order Item table, creates and captures important information such as order id, Item Id, Product Id, Quantity, List price, Decimal. The Order ID and Item ID together act as primary key in this table.

Sales Staff Table:

Sales staff Table, creates and captures important information of staff working at the stores such as names of staff members, contact details and address of staff, Is he currently working, store Id of the staff working and the manager Id. One sales staff will only work in one store at a point of time. One sales staff can work on multiple sales order.

Production Stocks Table:

Production Stocks table acts as bridge table between production products and sales store..It captures the number of quantities of bikes. Store ID and Production ID together form a composite key.

Sales Store Table:

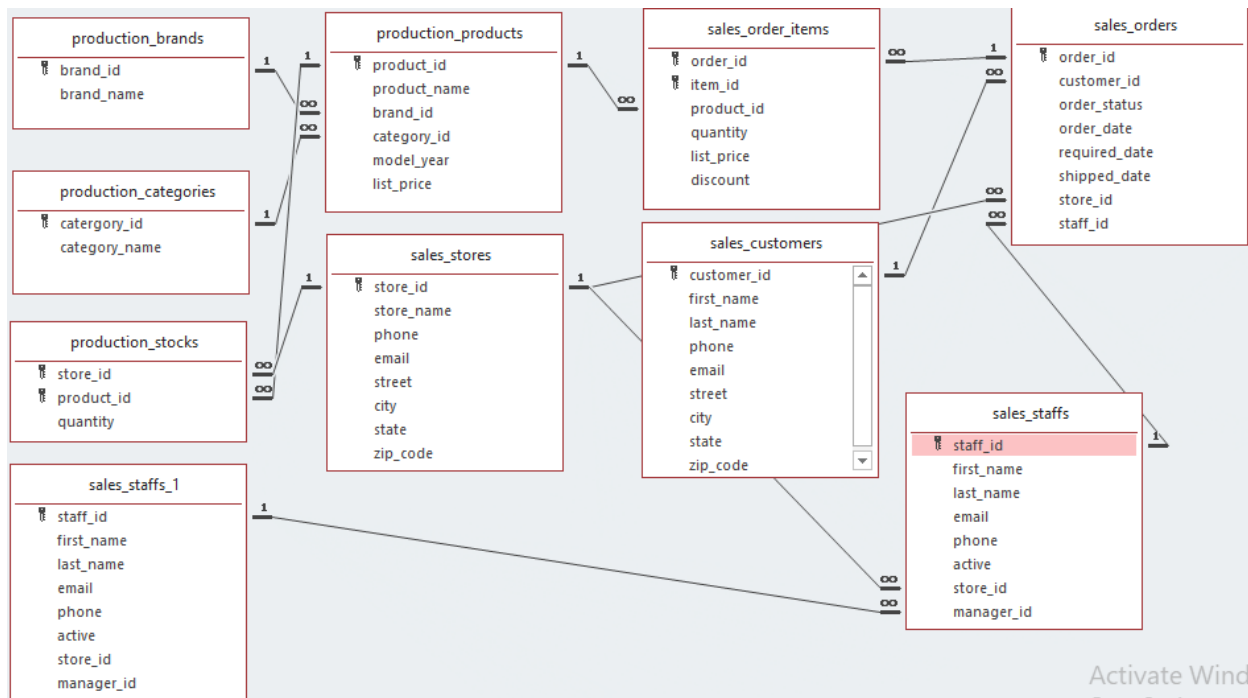
Sales store table has the details related to store. The table contains information such as store name, store contact details, store address. Store Id is a unique key and acts as primary key. every sales store has many orders.

Sales order Table:

The Sales Order table, creates and captures important information of sales order. The table has unique table order id. It also captures customer id, order status, order date, required date, shipping date, store id and staff ID. One sales order can be from only one store. One sales order can have multiple sales order item.

ENTITY RELATIONSHIP DIAGRAM





Activate Windows
Go to Settings to activate Windows.

RELATIONAL DATABASE SCHEMA

-- create schemas

CREATE SCHEMA production;

go

CREATE SCHEMA sales;

go

-- create tables

CREATE TABLE production.categories (

category_id	INT IDENTITY (1, 1)	PRIMARY KEY,
category_name	VARCHAR (255)	NOT NULL

);

CREATE TABLE production.brands (

brand_id	INT IDENTITY (1, 1)	PRIMARY KEY,
brand_name	VARCHAR (255)	NOT NULL

);

CREATE TABLE production.products (

product_id	INT IDENTITY (1, 1)	PRIMARY KEY,
product_name	VARCHAR (255)	NOT NULL,
brand_id	INT	NOT NULL,
category_id	INT	NOT NULL,
model_year	SMALLINT	NOT NULL,
list_price	DECIMAL (10, 2)	NOT NULL,

FOREIGN KEY (category_id) REFERENCES production.categories (category_id) ON
DELETE CASCADE ON UPDATE CASCADE,

FOREIGN KEY (brand_id) REFERENCES production.brands (brand_id) ON DELETE
CASCADE ON UPDATE CASCADE

);

CREATE TABLE sales.customers (

customer_id	INT IDENTITY (1, 1)	PRIMARY KEY,
first_name	VARCHAR (255)	NOT NULL,
last_name	VARCHAR (255)	NOT NULL,
phone	VARCHAR (25),	
email	VARCHAR (255)	NOT NULL,
street	VARCHAR (255),	
city	VARCHAR (50),	
state	VARCHAR (25),	
Zip_code	VARCHAR (5)	

);


```

CREATE TABLE sales.stores (
    store_id INT IDENTITY (1, 1) PRIMARY KEY,
    store_name      VARCHAR (255)          NOT NULL,
    phone           VARCHAR (25),
    email           VARCHAR (255),
    street          VARCHAR (255),
    city            VARCHAR (255),
    state           VARCHAR (10),
    Zip_code        VARCHAR (5)
);

CREATE TABLE sales.staffs (
    staff_id        INT IDENTITY (1, 1)      PRIMARY KEY,
    first_name      VARCHAR (50)             NOT NULL,
    last_name       VARCHAR (50)             NOT NULL,
    email           VARCHAR (255)            NOT NULL UNIQUE,
    phone           VARCHAR (25),
    active          tinyint                  NOT NULL,
    Store_id        INT                      NOT NULL,
    manager_id      INT,
    FOREIGN KEY (store_id) REFERENCES sales.stores (store_id) ON DELETE
CASCADE ON UPDATE CASCADE,
    FOREIGN KEY (manager_id) REFERENCES sales.staffs (staff_id) ON DELETE NO
ACTION ON UPDATE NO ACTION
);

CREATE TABLE sales.orders (
    order_id        INT IDENTITY (1, 1)      PRIMARY KEY,
    customer_id     INT,
    order_status    tinyint                  NOT NULL,
    -- Order status: 1 = Pending; 2 = Processing; 3 = Rejected; 4 = Completed
    order_date      DATE                    NOT NULL,
    required_date   DATE                    NOT NULL,
    shipped_date     DATE,
    store_id        INT                      NOT NULL,
    staff_id        INT                      NOT NULL,
    FOREIGN KEY (customer_id) REFERENCES sales.customers (customer_id) ON
DELETE CASCADE ON UPDATE CASCADE,
    FOREIGN KEY (store_id) REFERENCES sales.stores (store_id) ON DELETE
CASCADE ON UPDATE CASCADE,
    FOREIGN KEY (staff_id) REFERENCES sales.staffs (staff_id) ON DELETE NO
ACTION ON UPDATE NO ACTION
);

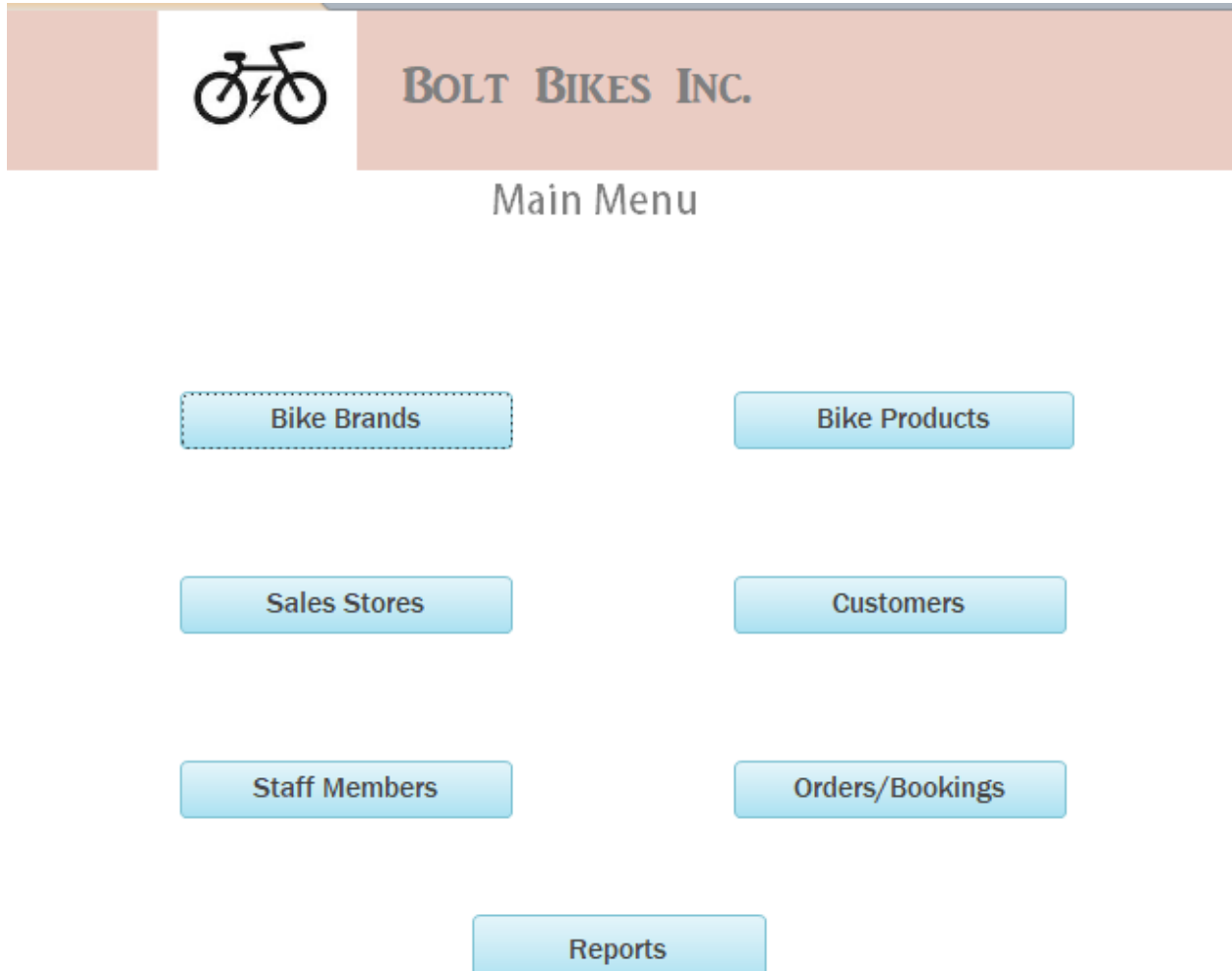
```

```
CREATE TABLE sales.order_items (  
    order_id          INT,  
    item_id           INT,  
    product_id        INT          NOT NULL,  
    quantity          INT          NOT NULL,  
    list_price        DECIMAL (10, 2) NOT NULL,  
    discount          DECIMAL (4, 2) NOT NULL DEFAULT 0,  
    PRIMARY KEY (order_id, item_id),  
    FOREIGN KEY (order_id) REFERENCES sales.orders (order_id) ON DELETE  
CASCADE ON UPDATE CASCADE,  
    FOREIGN KEY (product_id) REFERENCES production.products (product_id) ON  
DELETE CASCADE ON UPDATE CASCADE  
);
```

```
CREATE TABLE production.stocks (  
    store_id          INT,  
    product_id        INT,  
    quantity          INT,  
    PRIMARY KEY (store_id, product_id),  
    FOREIGN KEY (store_id) REFERENCES sales.stores (store_id) ON DELETE  
CASCADE ON UPDATE CASCADE,  
    FOREIGN KEY (product_id) REFERENCES production.products (product_id) ON  
DELETE CASCADE ON UPDATE CASCADE  
);
```

MENU AND DATA INPUT SCREEN FORMS

The following section includes descriptions and illustrations of the database Data Input Screens. Descriptions follow the print screen or illustration.



The main menu shown above, informs customer service agents where data about Bike brands, Bike Products, Sales Stores, Customers, orders/Bookings and Staff Members can be entered and/or edited.



Bolt Bikes Inc.

Bike Brands

Add New Bike Brand

Back to Main Menu

brand_id	brand_name						
1	Electra1						
2	Haro						
3	Heller						
4	Pure Cycles						
5	Ritchey						
6	Strider						
7	Sun Bicycles						
8	Surly						

Record: 1 of 11 No Filter Search

frm_Bike Brands: This form allows customer service agents the ability to enter new data and/or edit specific data relating to a Bike Brand.



Bolt Bikes Inc.

Bike Brand Form

Brand ID

Brand Name

Add New Brand

Cancel

frm_Bike Brand _Bike Brand Form: The above form allows customer service agents and managers the ability to enter new Bike Brand.



Bolt Bikes Inc.

Bike Product Details

Add New Bike Product

Back to Main Menu

product_i	product_name	brand_id	category_	mode	list_p
1	Trek 820 - 2016	9	6	2016	
2	Ritchey Timberwolf Frameset -	5	6	2016	
3	Surly Wednesday Frameset - 2	8	6	2016	
4	Trek Fuel EX 8 29 - 2016	9	6	2016	
5	Heller Shagmaw Frame - 201	3	6	2016	
6	Surly Ice Cream Truck Frameset	8	6	2016	
7	Trek Slash 8 27.5 - 2016	9	6	2016	
8	Trek Remedy 29 Carbon Frame	9	6	2016	
9	Trek Conduit+ - 2016	9	5	2016	
10	Surly Straggler - 2016	8	4	2016	
11	Surly Straggler 650b - 2016	8	4	2016	

Record: 1 of 321 No Filter Search

frm_Bike products: This form allows customer service agents the ability to enter new data and/or edit specific data relating to a Bike products.



Bolt Bikes Inc.

Bike Product Form

Product ID	<input type="text"/>
Product Name	<input type="text"/>
Brand ID	<input type="text"/>
Category ID	<input type="text"/>
Model Year	<input type="text"/>
List Price	<input type="text" value="0"/>

Add New Bike Product

Cancel

frm_Bike product _Bike product Form: The above form allows customer service agents and managers the ability to enter new Bike product.



Bolt Bikes Inc.

Bike Store Details

Add New Sales Store

Back to Main Menu

store_id ▾	store_name ▾	phone ▾	email ▾
1	Santa Cruz Bikes	(831) 476-4321	santacruz@bikes.shop
2	Baldwin Bikes	(516) 379-8888	baldwin@bikes.shop
3	Rowlett Bikes	(972) 530-5555	rowlett@bikes.shop

Frm_sales stores: This form allows customer service agents the ability to enter new data edit and/or view specific data relating to a Bike stores.



Bolt Bikes Inc.

Bike Sales Store Form

Store ID	<input type="text"/>
Store Name	<input type="text"/>
Phone No	<input type="text"/>
Email ID	<input type="text"/>
Street	<input type="text"/>
City	<input type="text"/>
State	<input type="text"/>
Zip Code	<input type="text"/>

Add New Sales Store

Cancel

frm_Bike store details_Bike sales store form: The above form allows customer service agents and managers the ability to enter new Bike store details.



Bolt Bikes Inc.

Customer Details

Add New Customer

Back to Main Menu

customer	first_name	last_name	phone
1	Debra	Burks	NULL
2	Kasha	Todd	NULL
3	Tameka	Fisher	NULL
4	Daryl	Spence	NULL
5	Charolette	Rice	(916) 381-6003
6	Lyndsey	Bean	NULL
7	Latasha	Hays	(716) 986-3359
8	Jacqueline	Duncan	NULL
9	Genoveva	Baldwin	NULL
10	Pamelia	Newman	NULL
11	Deshawn	Mendoza	NULL

Record: 1 of 1445 No Filter Search

Frm_customer Details: This form allows customer service agents the ability to enter new data edit and/or view specific data relating to a Customer details.



Bolt Bikes Inc.

First Name	<input type="text"/>
Last Name	<input type="text"/>
Phone No	<input type="text"/>
Email ID	<input type="text"/>
Street	<input type="text"/>
City	<input type="text"/>
State	<input type="text"/>
Zip Code	<input type="text"/>

Add New Customer

Cancel

Frm_customer Details_new customer detail form: The above form allows customer service agents and managers the ability to enter new customer details.



Bolt Bikes Inc.

Staff Details

[Add New Staff](#)[Back to Main Menu](#)

staff_id	first_name	last_name	email	phone
1	Fabiola	Jackson	fabiola.jackson@bikes.shop	(831) 555-5554
2	Mireya	Copeland	mireya.copeland@bikes.shop	(831) 555-5555
3	Genna	Serrano	genna.serrano@bikes.shop	(831) 555-5556
4	Virgie	Wiggins	virgie.wiggins@bikes.shop	(831) 555-5557
5	Jannette	David	jannette.david@bikes.shop	(516) 379-4444
6	Marcelene	Boyer	marcelene.boyer@bikes.shop	(516) 379-4445
7	Venita	Daniel	venita.daniel@bikes.shop	(516) 379-4446
8	Kali	Vargas	kali.vargas@bikes.shon	(972) 530-5555

Frm_staff Details: This form allows customer service agents the ability to enter new data edit and/or view specific data relating to a Staff details.



Bolt Bikes Inc.

Staff Member Form

Staff ID	<input type="text"/>
First Name	<input type="text"/>
Last Name	<input type="text"/>
Email ID	<input type="text"/>
Phone No	<input type="text"/>
Active	<input type="text"/>
Store ID	<input type="text"/>
Manager ID	<input type="text"/>

[Add New Staff](#)[Cancel](#)

Frm_Staff Details_new staff detail form: The above form allows customer service agents and managers the ability to enter new staff details.



Bolt Bikes Inc.

Order Details

Add New Order

Back to the Main Menu

sales_ord	customer	order	order_date	required_date	shipped_date	store
1	259	4	1/1/2016	1/3/2016	1/3/2016	
1	259	4	1/1/2016	1/3/2016	1/3/2016	
1	259	4	1/1/2016	1/3/2016	1/3/2016	
1	259	4	1/1/2016	1/3/2016	1/3/2016	
1	259	4	1/1/2016	1/3/2016	1/3/2016	
2	1212	4	1/1/2016	1/4/2016	1/3/2016	
2	1212	4	1/1/2016	1/4/2016	1/3/2016	
3	523	4	1/2/2016	1/5/2016	1/3/2016	
3	523	4	1/2/2016	1/5/2016	1/3/2016	
4	175	4	1/3/2016	1/4/2016	1/5/2016	
5	1324	4	1/3/2016	1/6/2016	1/6/2016	

Frm_Order Details: This form allows customer service agents the ability to enter new data edit and/or view specific data relating to an order details of specific customer.



Bolt Bikes Inc.

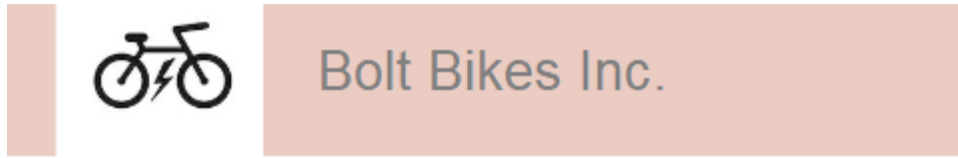
Order Details Form

Sales Order - Order	<input type="text"/>
Customer ID	<input type="text"/>
Order Status	<input type="text"/>
Order Date	<input type="text"/>
Required Date	<input type="text"/>
Shipped Date	<input type="text"/>
Store ID	<input type="text"/>
Staff ID	<input type="text"/>
Sales Order ID	<input type="text"/>
Item ID	<input type="text"/>

Frm_Order Details_new Order detail form: The above form allows customer service agents and managers the ability to enter new order details related to customer.

SAMPLE REPORTS

Reports Main Screen:



Report

All Orders Report

Available Bike Products

Available Stocks Report

Staff Report

All Customer Report

Back to Main Menu

All Orders Report:



BOLT BIKES INC.



All Orders

order_id	customer_id	order_status	order_date	required_date	shipped_date	store_id	st
201	280	4	5/1/2016	5/4/2016	5/2/2016	3	
202	600	4	5/3/2016	5/5/2016	5/4/2016	1	
203	1102	4	5/3/2016	5/5/2016	5/6/2016	3	
204	591	4	5/4/2016	5/7/2016	5/6/2016	2	
205	635	4	5/4/2016	5/5/2016	5/6/2016	2	
206	743	4	5/4/2016	5/6/2016	5/5/2016	3	
207	105	4	5/5/2016	5/7/2016	5/7/2016	2	
208	815	4	5/6/2016	5/7/2016	5/9/2016	2	
209	514	4	5/7/2016	5/8/2016	5/8/2016	2	
210	943	4	5/7/2016	5/8/2016	5/9/2016	2	
211	1140	4	5/7/2016	5/9/2016	5/8/2016	2	
212	1373	4	5/8/2016	5/9/2016	5/11/2016	2	
213	788	4	5/8/2016	5/9/2016	5/9/2016	3	
214	363	4	5/10/2016	5/12/2016	5/11/2016	2	
215	1420	4	5/10/2016	5/13/2016	5/12/2016	2	
216	267	4	5/11/2016	5/14/2016	5/13/2016	1	
217	716	4	5/11/2016	5/12/2016	5/14/2016	2	
218	1179	4	5/12/2016	5/14/2016	5/14/2016	2	
219	1338	4	5/12/2016	5/15/2016	5/15/2016	2	
220	1358	4	5/12/2016	5/14/2016	5/15/2016	2	
221	1218	4	5/13/2016	5/16/2016	5/14/2016	1	
222	51	4	5/13/2016	5/16/2016	5/14/2016	2	
223	1368	4	5/15/2016	5/16/2016	5/17/2016	2	
224	157	4	5/17/2016	5/18/2016	5/19/2016	1	
225	307	4	5/17/2016	5/20/2016	5/19/2016	1	
226	501	4	5/17/2016	5/19/2016	5/20/2016	1	
227	489	4	5/17/2016	5/18/2016	5/20/2016	2	

Available Bike Products:



BOLT BIKES INC.



Available Bike Products

product_id	product_name	brand_id	category_id	model_year	list_price
1	Trek 820 - 2016	9	6	2016	379.99
2	Ritchey Timberwolf Frameset - 2016	5	6	2016	749.99
3	Surly Wednesday Frameset - 2016	8	6	2016	999.99
4	Trek Fuel EX 8 29 - 2016	9	6	2016	2899.99
5	Helber Shagmaw Frame - 2016	3	6	2016	1320.99
6	Surly Ice Cream Truck Frameset - 2016	8	6	2016	469.99
7	Trek Slash 8 27.5 - 2016	9	6	2016	3999.99
8	Trek Remedy 29 Carbon Frameset - 2016	9	6	2016	1799.99
9	Trek Conduit+ - 2016	9	5	2016	2999.99
10	Surly Straggler - 2016	8	4	2016	1549
11	Surly Straggler 650b - 2016	8	4	2016	1680.99
12	Electra Townie Original 21D - 2016	1	3	2016	549.99
13	Electra Cruiser 1 (24-inch) - 2016	1	3	2016	269.99
14	Electra Girl's Hawaii 1 (16-inch) - 2015/2016	1	3	2016	269.99
15	Electra Moto 1 - 2016	1	3	2016	529.99
16	Electra Townie Original 7D 6Q - 2016	1	3	2016	599.99
17	Pure Cycles Vine 8-Speed - 2016	4	3	2016	429
18	Pure Cycles Western 3-Speed - Women's - 2015/2016	4	3	2016	449
19	Pure Cycles William 3-Speed - 2016	4	3	2016	449
20	Electra Townie Original 7D 6Q - Women's - 2016	1	3	2016	599.99
21	Electra Cruiser 1 (24-inch) - 2016	1	1	2016	269.99

Available Stock Report:





BOLT BIKES INC.




Available Production Stocks

store_id	product_id	quantity
1	1	27
1	2	5
1	3	6
1	4	23
1	5	22
1	6	0
1	7	8
1	8	0
1	9	11
1	10	15
1	11	8
1	12	16
1	13	13
1	14	8
1	15	3
1	16	4
1	17	2
1	18	16
1	19	4
1	20	26
1	21	24
1	22	29
1	23	9
1	24	10
1	25	10
1	26	16
1	27	21


All Staff Members Report:

		Bolt Bikes Inc.  All Staff Members Report			Sunday, December 2
staff_id	first_name	last_name	email	phone	active
1	Fabiola	Jackson	fabiola.jackson@bikes.shop	(831) 555-5554	1
2	Mireya	Copeland	mireya.copeland@bikes.shop	(831) 555-5555	1
3	Genna	Serrano	genna.serrano@bikes.shop	(831) 555-5556	1
4	Virgie	Wiggins	virgie.wiggins@bikes.shop	(831) 555-5557	1
5	Jannette	David	jannette.david@bikes.shop	(516) 379-4444	1
6	Marcelene	Boyer	marcelene.boyer@bikes.shop	(516) 379-4445	1
7	Venita	Daniel	venita.daniel@bikes.shop	(516) 379-4446	1
8	Kali	Vargas	kali.vargas@bikes.shop	(972) 530-5555	1
9	Layla	Terrell	layla.terrell@bikes.shop	(972) 530-5556	1
10	Bernardine	Houston	bernardine.houston@bikes.shop	(972) 530-5557	1

All Customer Report:



Bolt Bikes Inc.

 All Customer Report

customer_id	first_name	last_name	phone
1	Debra	Burks	NULL
2	Kasha	Todd	NULL
3	Tameka	Fisher	NULL
4	Daryl	Spence	NULL
5	Charolette	Rice	(916) 381-6003

Project Contribution

S.no	Team Members	Project Tasks
1	Femina	MS Access Forms
2	Amey chavan	SQL, ERD, Table Relationship
3	Sriram Kumar ReddyChalla	Report and Documentation
4	Felistus	Table Design and Modelling
5	Pradeep	MS Access Report

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