

Project Summary:

I decided to build an inventory and order management system. The system I developed has three primary components:

- A database hosted on a Google Cloud Products MySQL instance. The database will be described in greater detail in a later section. The schema I have used to support this system relies on 3 tables; a table to store purchase orders and sales orders (inventory in and out, sales and expense), a table to store information about the 'parts' or products being sold (Gizmos), and a table that contains information about people or external entities that are tied to the sales and purchase orders.
- A python program with a text prompt that allows the user to perform a set of basic actions, interacting with the MySQL database with the SQLAlchemy library and methods;
 - o Generate a purchase order
 - o Generate a sales order
 - o Create a new part
 - o Create a new customer/supplier
- A Tableau dashboard that displays the following measurements;
 - o Profit by Week, and cumulative
 - o Products ranked by margin %, margin \$, and sales \$
 - o Customers ranked by sales \$
 - o Current on-hand inventory
 - o An 'inventory planner' that looks at avg units sold per day, and flags parts with < 7 days of inventory on hand
 - o Reference information, related to the People and Parts tables

Video Link:

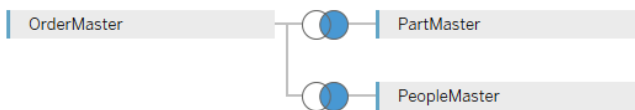
<https://youtu.be/KZa0FIxL4Vs>

Learning Outcomes:

- Demonstrate proficiency in designing and building a basic database, that maintains control over the data to ensure integrity. This will be accomplished through the proper use of relations, primary and foreign keys, and triggers or other stored procedures. - Display a general understanding of the application of technologies such as Google Cloud Products, MySQL workbench, and SQLAlchemy.

Gizmo Store Database (Google Cloud Products mySQL instance):

OrderMaster+ (GIZMO_STORE)



OrderMaster - Contains sales orders and purchase orders, including fields;

- Part ID - Transaction ID - People ID - Quantity - Date

PartMaster - Contains information related to the parts that are bought and sold, including fields;

- Part ID - People ID - Part Description - Buy Price - Sell Price - Current Inventory

PeopleMaster - Contains information related to customers and suppliers, including fields;

- People ID - Supplier / Customer Name - Email - Phone Number

The database was generated with the following commands;

```
CREATE SCHEMA IF NOT EXISTS GIZMO_STORE;  
  
DROP TABLE IF EXISTS OrderMaster;  
  
CREATE TABLE OrderMaster (  
    partID INT REFERENCES PartMaster(partID)  
    ,transactionType VARCHAR(1)  
    ,transactionID INT PRIMARY KEY  
    ,peopleID INT REFERENCES PeopleMaster(peopleID)  
    ,quantity INT CHECK (quantity >= 0)  
    ,tdate date  
);
```

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```
DROP TABLE IF EXISTS PartMaster;

CREATE TABLE PartMaster (

    partID INT PRIMARY KEY

    ,peopleID INT REFERENCES PeopleMaster(peopleID)

    ,partDescription VARCHAR(50)

    ,buyPrice float CHECK (buyPrice >=0)

    ,sellPrice float CHECK (sellPrice >=0)

);


DROP TABLE IF EXISTS PeopleMaster;

CREATE TABLE PeopleMaster (

    peopleID INT PRIMARY KEY

    ,sRcName VARCHAR(50)

    ,email VARCHAR(50)

    ,phone VARCHAR(50)

);
```

And then in order to get the system running initially, I loaded several records into each table;

```
/*INSERT INTO PeopleMaster VALUES

(0,"Vester McGufrin","VmcG@gmail.com","555-368-1023"),

(1,"Welda Speezberger","wspeez@aol.com","555-961-7452"),

(2,"Captain Incredible's Gizmo Warehouse","cap@gizmos.edu","555-888-8888"),

(3,"Wheeley Sneekers and the Monkey Juggler","thesneeker@wsmj.org","555-636-6363"),

(4,"Urgulgru Octoberfest ","urgulgru@dundermifflin.com","555-351-6954"),

(5,"Slim Jinkin","slim@netscape.com","555-335-6621"),

(6,"Charles Widmore","cw@dharma.ini","555-111-2223"),

(7,"Creed Bratton","creed@creedthoughts.gov","555-123-7852");

*/


/*

INSERT INTO PartMaster VALUES

(0,2,"Super Gizmo",1.23,4.99),

(1,2,"Turbo Bang Bang",5.36,15.05),

(2,3,"Wunder Widget",50.95,70.5),

(3,3,"Crabbily Nappler",259.99,399.99),

(4,3,"Spiz-Force Incentivize Tronic",1020.99,1549.95);

*/

/*
```

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```
INSERT INTO OrderMaster VALUES
(0,"P",0,2,100,CONVERT('2020-7-1',DATE)),
(0,"S",1,0,10,CONVERT("2020-7-4",DATE)),
(0,"S",2,1,30,CONVERT("2020-7-7",DATE)),
(0,"S",3,0,10,CONVERT("2020-7-10",DATE)),
*/
```

Gizmo Store Python Program:

This program allows a user to interact with the database with the SQLAlchemy library and methods, simulating some potential use cases.

- Main Menu

```
***** Welcome to Gizmo Store *****
***** We Sell Great Gizmos *****
***** and that's all *****
***** Option Menu *****
(S)ales Order
(P)urchase Order
(C)reate New Part
(N)ew Customer or Supplier
(D)one
```

What would you like to do?

- Order Entry

```
***** Order Entry *****
ENTER PART ID: 2
ENTER PEOPLE ID: 1
ENTER QUANTITY: 
```

- New Part

```
***** Part Creation *****
ENTER PART DESCRIPTION: X10 Zorb
ENTER PEOPLE ID: 2
ENTER BUY PRICE: 15.00
ENTER SELL PRICE: 
```

- New Customer

```
***** New Customer or Supplier *****
ENTER CUSTOMER / SUPPLIER NAME: Garth Simonfunkel
ENTER CUSTOMER / SUPPLIER EMAIL: G.Simonfunkel@aol.com
ENTER CUSTOMER / SUPPLIER PHONE: 
```

Gizmo Store Tableau Dashboard:

Finally, I built a Tableau dashboard to report out the data to the user, in real time. The dashboard displays basic metrics for sales, profitability, inventory levels, and reference data. In a real life setting, this would be broken out into several distinct reports focusing on one area, but wanted to communicate for the project a handful of applications for the data being collected.

Gizmo Store - Summary Dashboard

