Baking Outlet Narrative

Given the popularity of the series *The Great British Baking Show*, the local Pittsburgh PBS station WQED has scrapped the studio of Mr. Rogers Neighborhood and has converted it to the set for the next huge television hit series: *The Great Pittsburgh Baking Show*. Seeing local Pittsburgh people preparing culinary delights will revive the station and bring in much needed viewers. Moreover, to monetize this series further, the station wants to create an online store called the Great Pittsburgh Bakery Outlet, where amateur chefs purchase a variety of baking equipment and supplies that are used on the show. Since this is a PBS station, their budget is extremely limited, so they have hired you as a technical consultant to create this ecommerce system due to your remarkable skills and low rates (i.e., pro bono).

What is the Great Pittsburgh Baking Outlet?

The idea behind the Great Pittsburgh Baking Outlet (GPBO) is that customers will be able to go online and order from a selection of baking equipment and supplies, such as baking sheets, muffin pans, a variety of flours, extracts, and the like that have been featured on the television series. Customers can search for these items, find them on a featured items page, or browse from lists in different categories to find items that they want to purchase and then add those items to a cart. When finished, customers can complete their purchases, paying for the items as well as shipping and sales taxes, using a major credit card.

To do that WQED needs an online application where customers can visit, create an account, view various items, order those items and manage their personal information. The system needs to also generate a list of items (and quantities) that need to be shipped at the end of each day, including an itemized list of what was ordered and the address that the order has to be shipped to. Finally, it will need some analytic capability for the store administrators to be able to determine the inventory for various items, identify top customers, and see trends in consumer demand.

Inventory and Pricing at GPBO

When it comes to baking supplies, there is a diverse set of categories that they fall into. For now, the GPBO is going to focus on a small set of categories: pans, utensils, decorations, and ingredients. Over time, WQED expects the range of baking categories will expand as the series' viewership grows and the demand for products rises. For now, the categories are limited to make inventory management an easier task. Each item has an inventory level which changes when new inventory is added, and more importantly, when purchases are made. In addition, each item has a set reorder level – when the inventory level drops below the reorder level, the administrator has to be notified so he/she has time to order new inventory and keep the pipeline moving.

From a business perspective, the most important feature about an item is its price. Of course, prices change over time – sometimes there are special sales where for a few days the item's price goes down, but generally speaking prices go up over time. The key thing is that for accurate accounting purposes, it is necessary to keep a price history of every item offered by the GPBO. It is also important to note that while one can always change the current price, no one should be able to retroactively change the price history in the system.

Tying in the price with inventory, it is also clear that there are two types of prices that need to be tracked. First is the retail price – this is the price that the consumer pays to purchase the item from GPBO. The second price is the wholesale price that GPBO pays to its various wholesalers to acquire the items for GPBO inventory. The difference between the retail and wholesale prices represents the profit margin for a particular item.

Ordering from the Great Pittsburgh Baking Outlet

When guests go to the GPBO site, they see the home page and information that you (the developer) feels is most important for new visitors or returning customers to see. They are also able to look over various listings of items offered by the GPBO and can explore any of these options in more detail if they like. If they can't find the item on a particular list, customers are always free to search for items; if the search returns a single item, the customer goes right to an item details view;

otherwise they are given a list of items that fit However, to actually be able to order items from the Great Pittsburgh Baking Outlet, a user must make a customer account and log into the system.

To create a customer account, a person must provide their first and last names, their email address and a phone number they can be reached at in case of issues with their order. Moreover, every customer sets up a user account which has a unique username and a password so they can log into the account at any time and access their information, along with a greeting (default to first name if empty) that they will see when they log in.

What information can a customer access? A customer who is logged in can view a list of their past orders as well as look at the details from past orders. Furthermore, customers can add addresses into the system for where they'd like orders shipped to. There is no limit on the amount of addresses a customer could add to their account. Of course, for every account there is only one address that is the billing address associated with the customer; the billing address can be, and usually is, also a shipping address. (It is important for credit card processing to know the billing address of a customer, but shipping addresses are where baked goods are actually sent.) Every address needs to have the name of the person who is receiving the order (could be the customer his/herself, a family member or a friend), a street address (two lines possible), city, state and zip code.

Of course, the most important function of a customer is to place orders with the Great Pittsburgh Baking Outlet. To place a new order, the customer goes to a page which lists all the items available and their costs. With each item is a button or link which allows a customer to add one or more of those items to the cart. When an item is added to the cart, the cart status on the right hand side is updated appropriately. (The cart is not visible on the right if nothing is in it.) If a customer wants to remove an item from the cart, clicking on an icon or link to remove the desired item should remove the item from the cart completely.

Once the customer has filled the cart with all the baked goods he/she wants they click on the checkout option where they are shown an itemized list of the goods they are ordering (including quantity and subtotal), the order subtotal, the shipping costs, sales taxes, and the grand total for the order. The customer then has to choose an address to ship the order to from a list of addresses associated

with the customer. All this information, along with the grand total for each order in the system and the date the order was placed, is saved for each customer's order.

One tricky aspect of this process is that state and local sales taxes have to be collected based on the billing address of the customer. You will be provided with a list of state sales tax rates and these sales taxes (when applicable) must be calculated for the entire order and added to the grand total. In addition, because WQED is located in Pittsburgh, if the billing address zip code is one of the 154 zip codes that belong to Allegheny County (list to be provided), then a local sales tax of 1 percent is added to the order; for any other area, no local sales tax collection is required.

In terms of shipping, costs are calculated based on the total weight of the items in the order. GPBO charges a base fee for shipping of the first 5 pounds of the order; currently that base fee is $5, but it can change as management feels appropriate. After that, there is an incremental fee for each additional pound of the shipment above the initial 5 pounds. However, to be customer friendly, the weight is always rounded down to the next lowest integer value. In this case, an order weighing 6.95 pounds would round down to an even 6 pounds, so customers save a little on the shipping and not feel too self-conscious of the weight. The increment is currently at 25 cents per additional pound, but the recent inflation surge and the supply chain crisis are causing administrators at GPBO to consider raising this rate soon.

Note: in addition to this information, we will be saving an encoded payment receipt for each order. Since we will not be connecting to an actual payment gateway, we will simulate the payment process with some Ruby methods that will be discussed in later phases.

Employees

As implied earlier, the Great Pittsburgh Baking Outlet has two types of employees that use this system: administrators and shippers. Employees who use the system get a user account with a username and a password so they can log into the system. When an employee logs into the system, the generic home page of GPBO is replaced by a customized dashboard providing relevant information that this particular employee ought to know to do his/her job. For administrators, this

includes a variety of data analytics related to sales, customers, and inventory so that the administrator can understand what is happening with the GPBO business and can make data-driven decisions.

On the other hand, what shippers need to see after logging into the system is a list of all the unshipped orders broken down by order. For each order, the shipper needs to see the items and quantities ordered as well as information on the recipient and address who is getting the order. As each order item is placed in the shipping box, the shipper can check off that item and its shipped date will be marked with the current date. In most cases, all the items for an order are shipped together at one time. That said, if there is a backlog for a particular item in the inventory, then a partial shipment is made and what can be shipped is sent and the rest of the order filled when new inventory arrives. When the order is complete and all the items in the order are in a sealed box (or set of boxes), the order should disappear from the shipping list.

Final notes

Given the small size of this operation and the need to maintain records for possible later use, we will not be deleting any item prices, customers, and users from the database this term. It is possible to delete items and addresses in the system if they have never been associated with an order; if they have been associated with prior orders, then destroying an item or an address is prohibited. Administrators should, however, be able to deactivate items, customers, users and addresses that are no longer considered active.