**Capstone Proposa**l: RFID Shopping

**Concept:**

The RFID Shopping was an application which uses RFID to verify IDs and purchase groceries. The application shall provide the functions, including what a list of products, prices, and total price which are token by a customer. What ingredients of each product? What receipt history look like.

**The system shall have these screens:**

* A portal for login customer account.
* A dashboard for users to decide the actions, look up history, purchase groceries, and sign out.
* A screen to show a list of products, quantities, prices and total cost which customers want to purchase.
* A page for showing a product information including name, price, category, nutrition facts, and ingredients.

**Database:**

Primary tables:

* Customer : Primary key: Customer\_Id
* Receipts : Primary key: Receipt\_Id ; Foreign key: Customer\_Id, payment\_way
* Products : Primary key: Product\_Id ; Foreign key: category\_name
* NutritionFacts : Primary key: NutritionFacts\_Id

The Customers table will contain name, customer id, RFID ID, password, e-mail, and phone number, receipt(s). The Products tables will have, Product\_Id, product name,category, price, and ingredients. The Receipts table would have the Receipt\_Id , Customer\_Id , sum of prices, payment\_way, date, and product(s). NutritionFacts will include serving size,serving per container, calories,saturated fat, trans fat, sodium, potassium, total carbohydrate, dietary fiber, sugars, and protein.

The following support/lookup tables:

* Categories : Primary key: category\_name
* Ways\_to\_pay : Primary key: payment\_way

Category identify what kind of categories (i.e. Grocery, Household Essential, School & Office Supplies, etc) is it. Ways to pay will identify the payment method types, such as credit/debit cards or cash.

Linking tables:

* Customers\_to\_Receipts : Primary key: CToR\_Id ; Foreign key: Customer\_Id , Receipt\_Id
* Receipts\_to\_Products : Primary key: RToP\_Id ; Foreign key: Receipt\_Id, Product\_Id

Since a customer can have multiple receipts, and a receipt can have multiple products, intermediary tables are needed.

**Ideas/concerns:**

A vendor will categorize all the products into specific groups, but some products belong to multiple categories. For example, adhesive tapes are not only office supplies but also paint supplies. If a vendor want to give a discount on tapes via using “office supplies” to query products, the vendor would miss altering the tapes whose categories are “Paint supplies”. To simplify first phase, I will postpone updating nutrition facts for each product. It will only include default values. In the future, I propose to memory the lowest prices of each product.