2016

Group 11

[redacted]

IS6420 – DATABASE THEORY AND DESIGN

Additional Submission Items

Presentation:

[redacted]

Slide Deck

[redacted]

Full Size Models and Diagrams

[redacted]

Contents

Executive Summary

Since the creation of the internet we have seen the way people access their information change dramatically. As users continue to demand information to populate at the end of their fingertips we see a shift from the ways of old to the times of new.

As technology continues to make a larger impression on our day to day lives we have seen a sharp decline in dictionaries, phone books, post offices and physical maps. With online dictionaries, smart phones, email and Google Maps the way we used to interact with that information is now outdated and stale. Similarly, recipe books are falling from kitchen shelves by the wayside. With popular apps and websites such as Pinterest, FoodNetwork.com, food.com and allrecipies.com taking off, we are seeing an immediate change in how people gain access to kitchen knowledge.

For this project we are limiting the scope of the database to that of just the Recipe portion. We feel that the scope is large enough to produce a well-rounded and educational project on par with the expectations set forth in this class.

In order to achieve our prioritized goals we needed to create 8 tables which are as follows: Recipe, Ingredient, Author, Nutritional Fact, User, Review, Step and Category. As a team that was being brought in to map out how Allrecipes currently uses transactional databases, we were able to successfully implement those tables, populate them with data and verify the data integrity.

Overall we would consider this project to be a success and hope to one day work on future features to improve the Allrecipes organization as a whole.

About All Recipes

Introduction and History

Allrecipes was founded in 1997 by Tim Hunt a University of Washington anthropology graduate student who wanted cookies just like mom used to make. As he went through the internet he found that finding the recipe he wanted was challenging. He set out and created cookierecipe.com to see if others would embrace his idea for a new way of retrieving recipes. As cookierecipe.com became more successful Tim and his friends began adding additional domains until finally they grouped them under the single umbrella Allrecipes.com.

Allrecipes.com is now the world's largest food-focused social media site with over 40 million home cooks viewing over 3 billion pages of food inspiration annually. Allrecipes currently operates 19 sites in 24 countries in 13 different languages.

Since inception the organization has changed hands twice. The first being in 2006 when the organization was acquired by Reader's Digest for $66 million and again in 2012 when it was sold to Meredith for $175 million.

Allrecipes.com Mission Statement

Cooking Smarter. Together. Allrecipes is the original and largest food-focused social network created for cooks by cooks; where everyone plays a part in helping cooks discover and share the joy of home cooking.

Vision and Objectives

The vision of Allrecipes has changed a bit since inception. Originally Tim Hunt was looking for a way to just find a recipe, but as social media boomed and made its way to the forefront of the internet, Allrecipes moved away from being simply a recipe rolodex to a devoted online community of professionas, hobbyists and amateur chefs sharing not only recipes, but inspiration, support and feedback.

Products/Services

Allrecipes provides a free service that connects home cooks with recipes and cooking information. They are able to provide their service through both a web interface and an

app. The web interface is supported on Windows, Mac and Linux and their app is supported on IPhone, IPad, Windows Phone and Android.

How does All Recipes use Transactional Databases?

Allrecipes utilizes transactional databases in a variety of ways. The most prominent use is through the addition and overall management of recipes. Users can submit and view recipes for free which is the most widely used feature of the site/app.

Additionally, Allrecipes provides articles, tips, blogs, newsletters, cooking school, a store, advertisements and a magazine. However, for this project we have limited the scope to the recipe addition and management and how users interact with them.

Prioritized Requirements

For the scope of our project we limited our prioritized requirements to just the recipe portion of Allrecipes.com. We determined three requirements to go live which are the following:

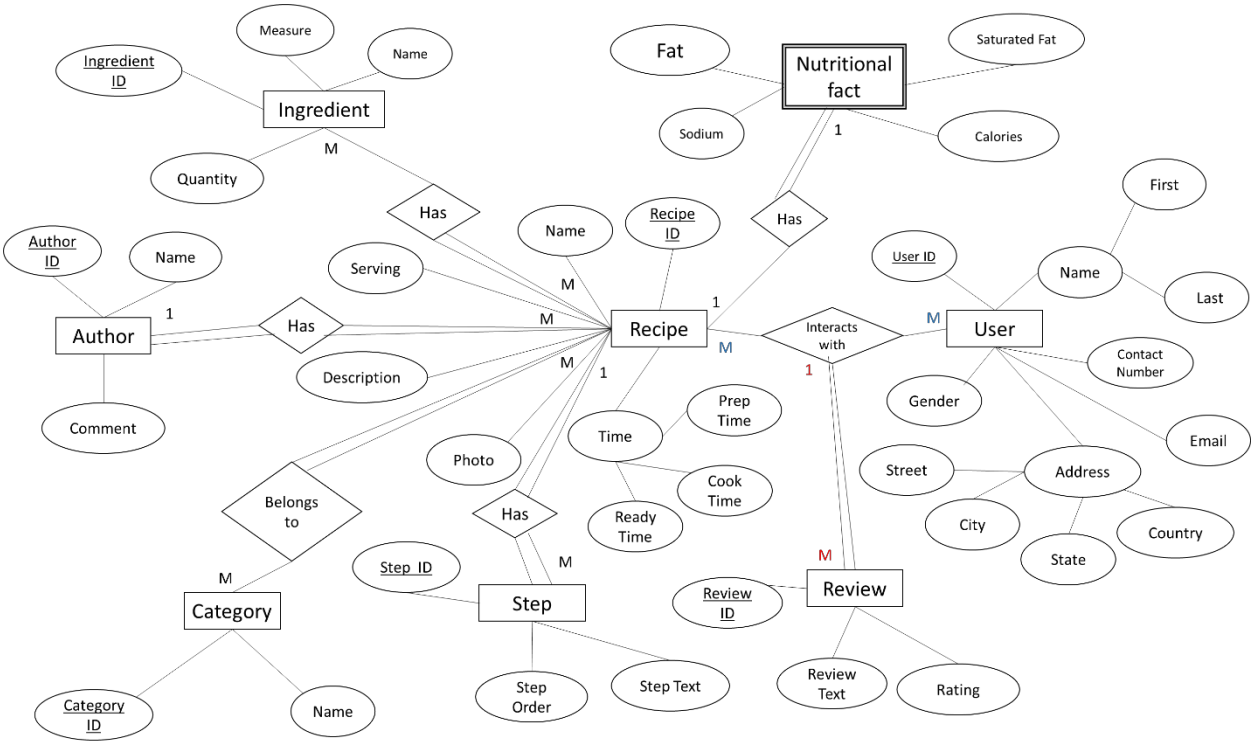
- Users must be able to author recipes
- Users must be able to view recipes
- Users must be able to leave reviews and rate recipes

In order to meet those requirements, we went through and started analyzing the organizational requirements and we believe we were able to narrow down our priorities to eight specific tables which are as follows:

- Recipe
- Ingredient
- Author
- Nutritional Fact
- User
- Review
- Step
- Category

Conceptual Model

Conceptual Model



Conceptual Model Description

The above diagram is our conceptual model. As you can see the recipe table is in the middle of all the action. The recipe table is what everything else moves around. Users will view recipes, ingredients belong to recipes, categories contain recipes etc.

One of the more unique features of our conceptual model is that there is a ternary relationship between the user, recipe and review table that has two separate cardinality constraints. For example a user can view many recipes and vice versa. Additionally many users can leave many reviews, but those many reviews can belong to only that recipe. This feature was definitely one of the more interesting pieces to work through to fully understand how those tables interacted.

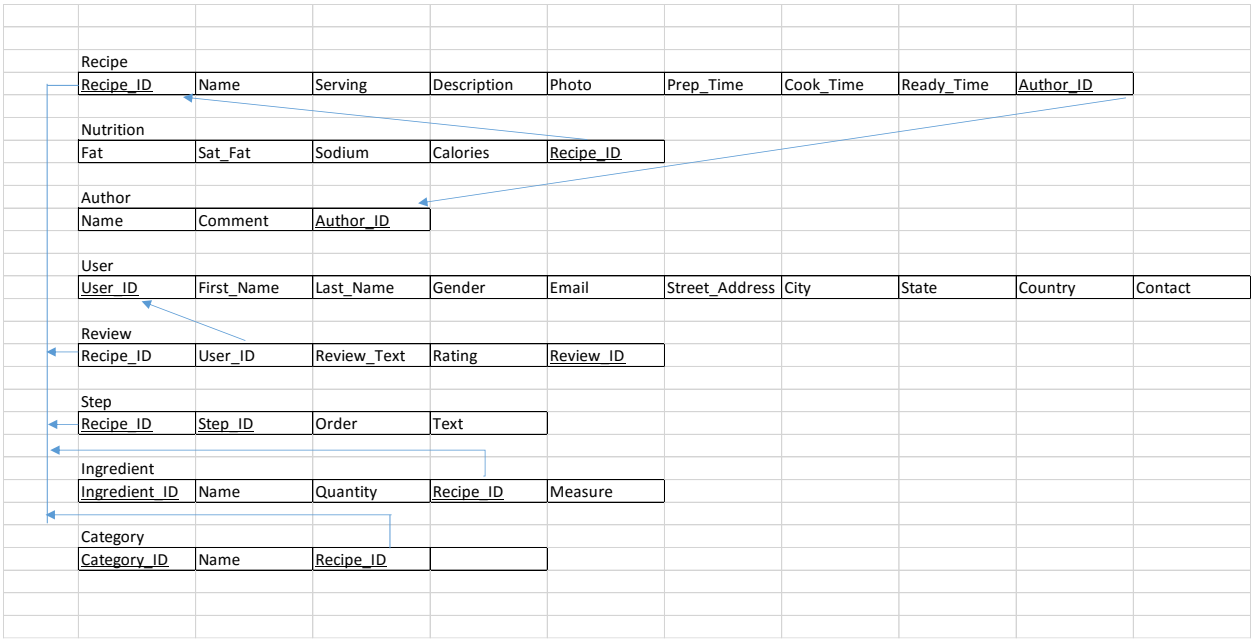
Another interesting component is the varying types of participation constraints throughout the model. Nutritional fact is an excellent example of this. Not every recipe will have nutritional information (especially if it is a new recipe), but in order for nutritional facts to exist a recipe must already be in the system. Another interesting relationship is author and step. In order for that information to exist there must be a recipe associated with it and

vice versa. In short it is impossible for there to a recipe without an author or steps and a user only becomes an author if they publish a recipe.

When we were building out the user table we elected to keep the contact phone to just a single number. We had gone through many examples in class where we discussed the benefit of having a scalable contact directory, however, when we were examining the business objectives of Allrecipes we determined that there would never be a circumstance where the organization would need to immediately contact a user. Now if we were mapping out an internal employee table that would be a different case, but for external users we could not think of a case where that would be necessary.

Logical Model

Logical Model

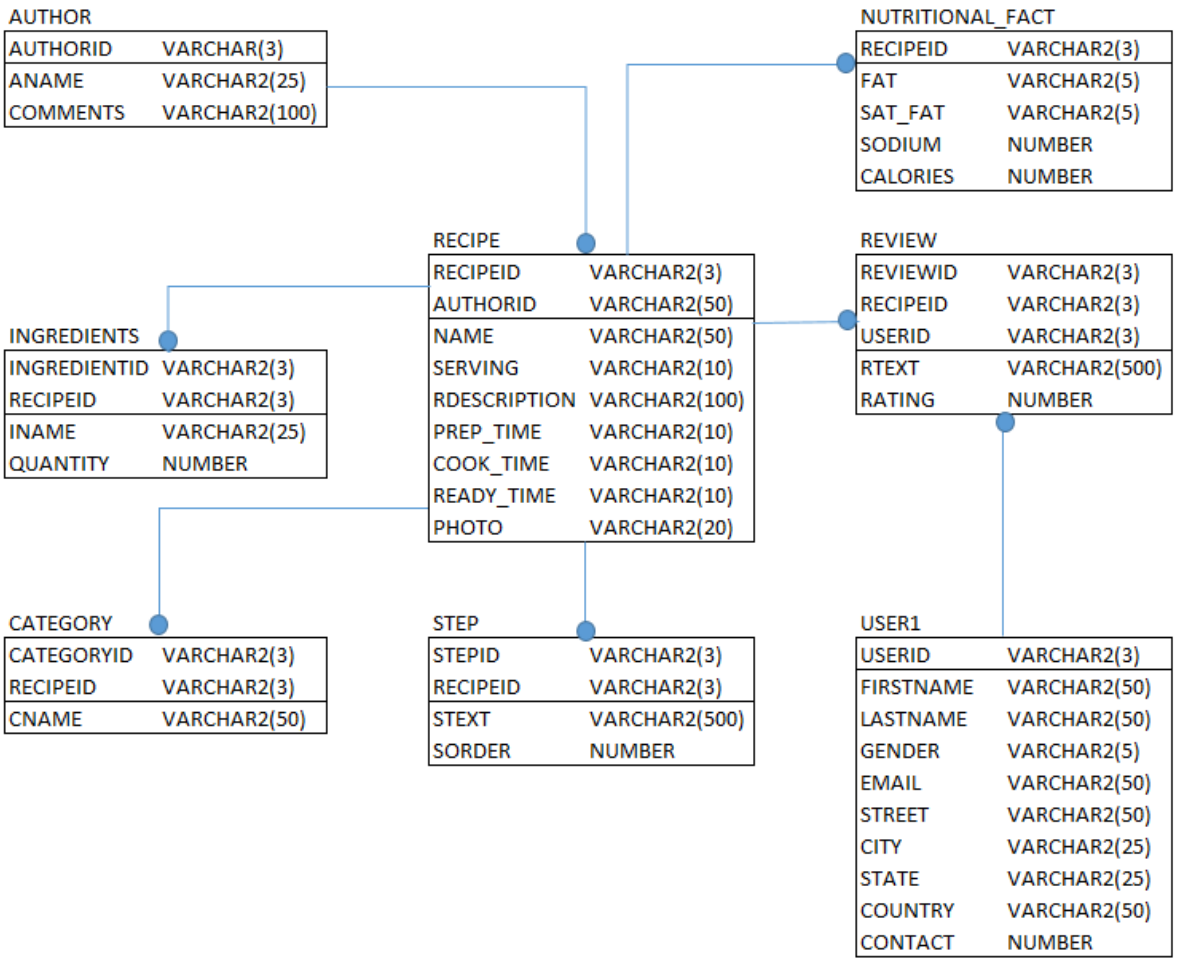


Logical Model Description

The above diagram is our logical model. This model does an excellent job showing how important the recipe table is to the stability of database. Five of our eight tables have foreign keys to the recipe page with the exception of the author, user and obviously the recipe table.

Our largest table that requires the most information is the User table. Due to the amount of information we are attempting to store for analytical purposes it is not a surprise it is the largest. In addition to being able to keep in touch with our users an organizational goal would to understand the demographic both socioeconomically and geographically.

Physical Model



Approach used to develop the solution

The way we went about determining how to solve this problem was spending some quality time with both the website and the app. We went through it as general users and tried to break down each section of the app to where we understood what it was doing. Recipe apps and websites are very nice, because when you view a recipe the page is already segmented out based on ingredients, instructions, descriptions cook time etc. Once we understood how the data was being presented, we just worked backwards from data to user submission to understand how the application would go about handling it.

Another useful exercise we did was we discussed what would create a catastrophic failure or disconnect between the app and site to the user. This is how we determined some additional issues that were overlooking in the initial thought process. For example, being able to add ingredient measures was not something we originally thought about. We knew

that we needed to add the ingredient and the quantity, but forgot about adding the measurement type. Additionally as we thought about it further we thought that having a drop down menu with a range picker for the measurements would be the correct way to do it. However, after some investigating we realized there were far to many measurement types to make that an effective solution. Additionally, since Allrecipes runs sites in 24 countries who all use the metric system (with the exclusion of the United States) we realized that trying to include all the imperial and metric measurement types was illogical and we needed to of ways to combat user input errors.

Description of the sample data

Our sample data was generated by us. We went out and created some example recipes and then inserted them. For the most part the information is accurate, with the exception of the nutritional table, since we did not know the exact nutritional information for the recipes.

To see what the tables look like with data, please refer to our graphics in the appendix.

Current and future features:

Currently functional

At the end of the project we feel that all three of our prioritized requirements are users must be able to author recipes, users must be able to view recipes and users must be able to leave reviews and rate recipes would be supported by our work and would be categorized as currently functional.

Additionally, users could also query different types of food based of nutritional information (if the recipe had it), what category it belong to, what

Could be supported by the current DB design, but have yet to be developed

We currently do not have any additional features that could be supported by our database design that are not developed by Allrecipes yet.

Future Features

We identified many future features that Allrecipes.com currently utilizes, but due to scope limitations we were unable to address. They are as follows:

- Advertisements
- Banners
- Ingredient Sales
- Newsletters

- Articles
- Analytics on recipes
- Video tutorials
- Sponsored recipes
- Store
- Online magazine

Advertisements

Allrecipes currently uses two forms of advertisements on both their app and website. They are in the form of banners and ingredient sales.

Banners

Allrecipes utilizes banners as their primary form of advertising. They appear on the sides, top and bottom of articles, tutorial pages, and the storefront and user pages. Sponsored messaging is the primary monetizing function Allrecipes uses.

Ingredient Sales

The second way Allrecipes uses advertising is through sponsored ingredient sales. When a user views a recipe Allrecipes provides sale information on the ingredients required for that recipe. This is a sponsored thing so an owner of a Harmon's or a Smiths grocery story could contact Allrecipes and pay for them to inform users that the store was having a sale on flour, sugar, milk and eggs as part of a promotion to drive additional customers to thier store.

Newsletters

Allrecipes also has a monthly newsletter that users can subscribe to in order to receive monthly updates. This would be a fairly easy feature to add on. Our recommendation would be to add a column in the user table called subscribed that would allow users to opt-in or out to receive the monthly newsletter. Since it is free, there would be no need to add a payment table for this to become functional.

Articles

There is an article section on Allrecipes as well that we did not create a database infrastructure for. However, we believe that adding this function would be fairly easy to do. We could use the author table that is currently used for recipes and join it with a newly created table called article which would store the information related to the article, much like how the recipe table stores information about the recipe.

Analytics on recipes

As big data continues to grow being able to successful run and use analytics is becoming essential. Allrecipes uses analytics to produce sections on their site and app like the top trending recipes of the week and seasonal favorites. Currently we do not have a spot in the

database to track the number of views of a particular recipe within a certain range which would make that very difficult. Moving forward this would be one of the most critical pieces to implement as it would provide insight into the organization that the business leaders would want to see.

Video tutorials

Video tutorials are something fairly new to Allrecipes. Historically the size and space required for videos to be hosted was simply too high making it a very expensive feature. However, due to the recent diminishing costs of hard drive space, the possibility of hosting video has increased dramatically. This was something we did not put in our database because we did not understand the full technical requirements. For example, can a recipe have more than one video? Is there a time length? File size maximum and minimum Due to our uncertainty in these areas we decided to stick with just allowing users to submit photos.

Professional

Allrecipes has professional chefs who create both tutorial and product sponsored videos to help users learn new things about cooking.

Amateurs

Allrecipes is now allowing users to post videos that help other users go through their recipe. Instead of just having pictures, users can now watch short videos about the recipe and little tips on how to ensure they come out successfully.

Sponsored recipes

Sponsored recipes have also gained in popularity. Recipes named "Pillsbury flakey crust pot pie" have become more popular as food producers are now willing to pay to have their ingredients spotlighted. This is something that would have to be added later on down the road. The primary reason is that sponsored recipes would have to be paid for and would therefore require a payment table that would allow companies to pay for the right to sponsor the recipe.

Store

Allrecipes also has a store where people can buy pots, pans, cooking sheets and other kitchen essentials from a variety of manufactures. This again is something that would have to be added in later due to the complexity of the part of the site/app. We believe the storefront could be its own project due to the requirements that would have to be met. For example, there would need to be a payment table, a customer table, a product table, a

manufacturer table, order table, etc. Although interesting, we found that the overhead required to add this feature was beyond the scope of our project.

Online magazine

In addition to the newsletter, Allreicpes produces a monthly magazine. However, unlike the newsletter this magazine is not free, therefor we would have to add a payment function to our database and for the sake of project scope we elected to pass on this feature.

Conclusion

Allrecipes.com is a very interesting and exciting organization that is working to analyze changes in media trends, operate in the ecommerce space, and continue to provide relevant and high quality to content to millions of users all over the world! After completing this project we, the members of group 11 are very proud of what we accomplished. Based off our analysis, we believe that Allrecipes has a lot of promise as an organization as long as they continue to stay at the forefront of social trends. Despite the consistently evolving technological space, some things will forever stay constant. The need for good home cooked meals is something that can and will stand the tests of time. The members of group 11 wholeheartedly believe that Allrecipes will continue to bridge the gap between the technology and that need for years to come.

SQL Statements

Create Table User1

```
DROP TABLE user1;

CREATE TABLE user1(

userID VARCHAR2(3) not null,

firstname VARCHAR2(50),

lastname VARCHAR2(50),

gender VARCHAR2(5) not null,

email VARCHAR2(50),

street VARCHAR2(50),

city VARCHAR2(25),

state VARCHAR2(25),

country VARCHAR2(50),

contact number,

PRIMARY KEY (userID));
```

Create Table Author

```
CREATE TABLE author(
authorID VARCHAR2(3) not null,
aname VARCHAR(25),
comments VARCHAR2(100),
PRIMARY KEY(authorID));
```

Create Table Recipe

```
DROP TABLE recipe;
CREATE TABLE recipe(
recipeID VARCHAR2(3) not null,
name VARCHAR2(50) not null,
Serving VARCHAR2(10),
rdescription VARCHAR2(100),
prep_time VARCHAR2(10),
cook_time VARCHAR2(10),
ready_time VARCHAR2(10),
photo VARCHAR2(20),
authorID VARCHAR2(3) not null,
PRIMARY KEY (recipeID),
FOREIGN KEY (authorID) REFERENCES author(authorID));
```

Create Table Nutritional Fact

```
CREATE TABLE nutritional_fact(
recipeID VARCHAR2(3),
fat VARCHAR2(5),
sat_fat VARCHAR2(5),
sodium number,
calories number,
FOREIGN KEY (recipeID) REFERENCES recipe(recipeID));
```

Create Table Review

```
CREATE TABLE review(
reviewID VARCHAR2(3) not null,
recipeID VARCHAR2(3) not null,
userID VARCHAR2(3) not null,
rtext VARCHAR2(500),
rating NUMBER,
PRIMARY KEY(reviewID),
FOREIGN KEY (recipeID) REFERENCES recipe(recipeID),
FOREIGN KEY (userID) REFERENCES user1(userID));
```

Create Table Step

```
CREATE TABLE step(
stepID VARCHAR2(3) not null,
recipeID VARCHAR2(3) not null,
stext VARCHAR2(500),
sorder number,
PRIMARY KEY (stepID),
FOREIGN KEY (recipeID) REFERENCES recipe(recipeID));
```

Create Table Category

```
CREATE TABLE category(
categoryID VARCHAR2(3) not null,
cname VARCHAR2(50) not null,
cdescription VARCHAR2(100),
recipeID VARCHAR2(3),
PRIMARY KEY(categoryID),
FOREIGN KEY(recipeID) REFERENCES recipe(recipeID));
```

Create Table Ingredient

```
CREATE TABLE ingredients(
ingredientID VARCHAR2(3) not null,
iname VARCHAR2(25),
quantity number,
recipeID VARCHAR2(3) not null,
PRIMARY KEY(ingredientID),
FOREIGN KEY(recipeID) REFERENCES recipe(recipeID));
```

Insert Statements

Insert Into Author

```
Insert Into author (authorID,aname,comments) values ('7','Aman Kaushal','Doing the online turorials since last 5 years');
Insert Into author (authorID,aname,comments) values ('2','Austin Cunliffe','Have online classes for begineers as well as professionals since 8 years');
Insert Into author (authorID,aname,comments) values ('3','Shawn Barber','Famous online cook of Las Vegas');
select * from author
order by aname;
desc author;
```

Insert Into Review

```
insert into review values ('1','1','1','Amazingly good',5);
insert into review values('2','10','2','So tasty! Kind of hard to make though',4);
insert into review values('3','11','7','It was only ok!',2);
Insert Into review values('6','4','2','So good!',5);
Insert Into review values('7','11','15','Awesome!',4);
Insert Into review values('8','6','5','Super simple to make and excellent flavor',4);
Insert Into review values('9','6','2','Awesome and simple!',5);
Insert Into review values('10','7','1','Overall pretty dang good',4);
select * from review;
desc review;
```

Insert into User1

```
Insert Into user1 values ('1','Aman','Kaushal','M','AmanKaushal@gmail.com','800 South','Salt Lake City','UT','United States','8012569987');
Insert Into user1 values('2','Austin','Cunliffe','M','AustinCunliffe@gmail.com','6400 South','Salt Lake City','UT','United States','8015632122');
Insert Into user1 values('3','Shawn','Barber','M','ShawnBarber@gmail.com','4800 South,Murray','UT','United States','2083101099');
Insert Into user1 values('4','Frank','Murray','M','FrankMurray@gmail.com','287 Moser St,Moscow','ID','United States','3211132304');
Insert Into user1 values('5','Jonathan','Hughes','M','JonathanHughes@gmail.com','438 E. Milton Drive','Flagstaff','AZ','United States',2130374442);
Insert Into user1 values('6','Kevin','Slater','M','KevinSlater@gmail.com','1616 S. Main Street','San Francisco','CA','United States',1239846763782);
Insert Into user1 values('7','Anthony','Peake','M','AnthonyPeake@gmail.com','1246 W. D Street','Seattle','WA','United States',6545961625);
insert Into user1 values('8','Melanie','Dickens','F','MelanieDickens@gmail.com','Landing street','Pheonix','AZ','United States',4203340923);
Insert Into user1 values('9','Cameron','Langdon','M','CameronLangdon@gmail.com','100 east 2000 north temple','SLC','UT','United States',3221973374);
Insert Into user1 values('10','Owen','Smith','M','OwenSmith@gmail.com','Karokaon Street north Avenues','San Diego','California','United States',3930021891)
Insert Into user1 values('11','Diana','Alsop','F','DianaAlsop@gmail.com','100 East 200 South','SLC','UT','United States',8015962548);
Insert Into user1 values('12','Samanatha','Chapman','F','SamanathaChapman@gmail.com','5765 Sout Purple Road','Washing','DC','United States',2393210110);
Insert Into user1 values('13','Jonathan','Sharp','M','JonathanSharp@gmail.com','819 Yellow Stone Avenue','West Jordan','UT','Unoted States',9210083213);
Insert Into user1 values('14','Olivia','Walker','F','OliviaWalker@gmail.com','Parkway Street 100','Bozeman','MT','United States',3235458790);
Insert Into user1 values('15','Adam','Parr','M','AdamParr@gmail.com','South Buffalo Street','Phoenix','AZ','United States',6985231109);
select * from user1;
```

Insert into Recipe

```
Insert Into recipe values('1','Bacon Blue Cheese Burger','4','A beautifully crafted homemade burger patty topped with blue cheese crumbles and crispy bacon','30','10','40','NO',7);
Insert Into recipe values('2','Bacon Horseradish Grilled Cheese','0','A classic twist on an American favorite','0','5','5','NO',2);
Insert Into recipe values('3','Champagne Grilled Cheese','0','A classic twist on an American favorite! This time with champagne!','0','5','5','NO',3);
Insert Into recipe values('4','Cheddar Grilled Cheese','0','The classic grilled cheese!','0','5','5','NO',2)
Insert Into recipe values('5','Gouda Grilled Cheese','0','Straight out of Compton?','0','5','5','NO',7);
Insert Into recipe values('6','Mozzarella and Basil Grilled Cheese','0','Get ready to have your mouth water with mozzarella and basil grilled cheese!','0','5','5','NO',3);
Insert Into recipe values('7','The Ninja Turtle','0','A deliciously strange looking alcoholic beverage.','0','10','10','NO',2);
Insert Into recipe values('8','The fully loaded potato','0','This delicious recipe comes straight to you from the glorious state of Idaho!','0','40','40','NO',3);
Insert Into recipe values('9','Halloween Jungle Juice','0','Who do nott love a good old fashioned batch of jungle juice?','0','15','15','YES',7);
Insert Into recipe values('10','PPJ','0','A PP and J','0','5','5','YES',3);
Insert Into recipe values('11','PB and J','0','Peanut butter and jelly','0','5','5','YES',7);
select * from recipe;
```

Insert into Nutritional Fact

```
Insert Into nutritional_fact values('1','34g','8g',200,1200);
Insert Into nutritional_fact values('2','25g','6g',800,800);
Insert Into nutritional_fact values('3','10g','4g',1000,450);
Insert Into nutritional_fact values('11','17g','2g',500,600);
Insert Into nutritional_fact values('10','12g','1g',600,800);
Insert Into nutritional_fact values('6','18g','12g',200,500);
Insert Into nutritional_fact values('7','2g','0g',450,160);
Insert Into nutritional_fact values('8','16g','4g',350,430);
Insert Into nutritional_fact values('9','1g','0g',75,120);
Insert Into nutritional_fact values('10','8g','1g',90,260);
Insert Into nutritional_fact values('11','12g','6g',75,300);
select * from nutritional_fact;
```

Insert into Step

Insert Into step values('1','1','To build the patty mixture combine the garlic, BBQ seasoning, shredded Mexican cheese, cayenne pepper, bread crumbs and ground hamburger in a large bowl. Mix by hand until fully blended.',1);
Insert Into step values('2','1','To build the patty mixture combine the garlic, BBQ seasoning, shredded Mexican cheese, cayenne pepper, bread crumbs and ground hamburger in a large bowl. Mix by hand until fully blended'.,2);
Insert Into step values('3','1','Take combined ingredients from bowl and create four evenly portioned patties (approximately 1/2 inch thick).',3);
Insert Into step values('4','1','Cook bacon in a skillet until brown and lightly crispy. Leave a small amount of bacon grease in the skillet to sauté the onions.',4);
Insert Into step values('5','1','Place chopped onions into skillet. Cook until onions become slightly see through.',5);
Insert Into step values('6','1','Place patties on grill or in skillet. Cook until desired doneness.',6);
Insert Into step values('7','1','Plate and top with bacon, blue cheese crumbles and sautéed onions.',7);
Insert Into step values('8','2','Butter both sides of the bread',1);
Insert Into step values('9','2','Add cheese to non-buttered side of bread',2);
Insert Into step values('10','2','Cook until golden brown',3);
Insert Into step values('11','2','Plate and serve',4);
Insert Into step values('12','3','Preheat skillet or pan with medium heat.',1);
Insert Into step values('13','3','Spread butter on the one side of both slices of bread.,'2);
Insert Into step values('14','3','Add roughly ½ a cup champagne cheddar cheese (or desired amount) in between the two slices of bread, with the buttered side on the outside.',3);
Insert Into step values('15','3','Place the sandwich, buttered-side-down, on the heated skillet or pan.',4);
Insert Into step values('16','3','Grill sandwich until the bread is golden brown, then flip the sandwich over and grill until the bread is golden brown, or until the cheese is melted.',5);
Insert Into step values('17','7','Preheat skillet or pan with medium heat.',1);
Insert Into step values('18','7','Spread butter on the one side of both slices of bread.,'2);
Insert Into step values('19','7','Add roughly ½ a cup cheddar cheese (or desired amount) in between the two slices of bread, with the buttered side on the outside.',3);
Insert Into step values('20','7','Place the sandwich, buttered-side-down, on the heated skillet or pan.',4);
Insert Into step values('21','7','Grill sandwich until the bread is golden brown, then flip the sandwich over and grill until the bread is golden brown, or until the cheese is melted.',5);
Insert Into step values('22','8','Preheat skillet or pan with medium heat.',1);
Insert Into step values('23','8','Spread butter on the one side of both slices of bread.',2);
Insert Into step values('24','8','Add roughly ½ a cup Gouda cheese (or desired amount) in between the two slices of bread, with the buttered side on the outside.',3);
Insert Into step values('25','8','Place the sandwich, buttered-side-down, on the heated skillet or pan.',4);

```
Insert Into step values('26','8','Grill sandwich until the bread is golden brown, then flip the sandwich over and grill until the bread is golden brown, or until the cheese is melted.',5);
Insert Into step values('27','9','Preheat skillet or pan with medium heat.',1);
Insert Into step values('28','9','Spread butter on the one side of both slices of bread.',2);
Insert Into step values('29','9','Mince the four basil leaves.',3);
Insert Into step values('30','9','Add roughly ½ a cup mozzarella cheese and minced basil leaves in between the two slices of bread, with the buttered side on the outside.',4);
select * from step;
```

Insert into Category

```
Insert Into category (categoryID,cname,recipeID) values ('1','Beef','1');
Insert Into category (categoryID,cname,recipeID) values('2','Bacon','1');
Insert Into category (categoryID,cname,recipeID) values('3','Burger','1');
Insert Into category (categoryID,cname,recipeID) values('4','Hamburger','1');
Insert Into category (categoryID,cname,recipeID) values('5','Lunch','2');
Insert Into category (categoryID,cname,recipeID) values('6','Dinner','2');
Insert Into category (categoryID,cname,recipeID) values('7','Late Night','2');
Insert Into category (categoryID,cname,recipeID) values('8','Sandwich','2');
Insert Into category (categoryID,cname,recipeID) values('9','Cheese','2');
Insert Into category (categoryID,cname,recipeID) values('10','Sandwich','3');
Insert Into category (categoryID,cname,recipeID) values('11','Lunch','3');
Insert Into category (categoryID,cname,recipeID) values('12','Dinner','3');
Insert Into category (categoryID,cname,recipeID) values('13','Late night','3');
Insert Into category (categoryID,cname,recipeID) values('14','Cheese','3');
Insert Into category (categoryID,cname,recipeID) values('15','Lunch','7');
Insert Into category (categoryID,cname,recipeID) values('16','Dinner','7');
Insert Into category (categoryID,cname,recipeID) values('17','Late night','7');
Insert Into category (categoryID,cname,recipeID) values('18','Cheese','7');
Insert Into category (categoryID,cname,recipeID) values('19','Sandwich','7');
Insert Into category (categoryID,cname,recipeID) values('20','Late night','8');
select * from category;
```

Insert into Ingredients

```
Insert Into ingredients values('1','Bacon',12,'1');
Insert Into ingredients values('2','Ground beef',1,'1');
Insert Into ingredients values('3','Buns',6,'1');
Insert Into ingredients values('4','Garlic',2,'1');
Insert Into ingredients values('5','BBQ Seasoning',1,'1');
Insert Into ingredients values('6','Shredded Mexican Cheese',2,'1');
Insert Into ingredients values('7','Cayeene Pepper',1,'1');
Insert Into ingredients values('8','Bread crumbs',2,'1');
Insert Into ingredients values('9','Horseraddish Cheddar Cheese',.5,'2');
Insert Into ingredients values('10','Butter',1,'2');
Insert Into ingredients values('11','Bread',2,'2');
Insert Into ingredients values('12','Champagne Cheddar Cheese',.5,'3');
Insert Into ingredients values('13','Butter',1,'3');
Insert Into ingredients values('14','Bread',2,'3');
Insert Into ingredients values('15','Cheddar Cheese',.5,'7');
Insert Into ingredients values('16','Butter',1,'7');
Insert Into ingredients values('17','Bread',2,'7');
Insert Into ingredients values('18','Mango Vodka',1,'7');
Insert Into ingredients values('19','Blue Curacao',1,'7');
Insert Into ingredients values('20','Orange Soda',8,'7');
Insert Into ingredients values('21','Peanut Butter',2,'10');
Insert Into ingredients values('22','Jelly',2,'10');
Insert Into ingredients values('23','Bread',2,'10');
select * from ingredients;
```

References

All external information for this project was obtained from www.Allrecipes.com

Appendix

Example tables with Data

Figure 1: Recipe Table

RecipeID	Name	Serving	Description	PrepTime	Cook Time	Ready Time	Photo	Approved	SubmitBy	Submit Date	AuthorID
1	Bacon Blue Cheese Burger	4	A beautifully crafted homemade burger patty topped with blue cheese crumbles, sautéed onions and crispy bacon	30	10	40		NO	The Allrecipes Team	11/16/2015	1
2	Bacon Horseradish Grilled Cheese	2	A classic twist on an American favorite	0	5	5		NO	Allrecipes Team	12/4/2015	2
3	Champagne Grilled Cheese	1	A classic twist on an American favorite! This time with champagne!	0	5	5		NO	Allrecipes Team	12/4/2015	4
4	Cheddar Grilled Cheese	3	The classic grilled cheese!	0	5	5		NO	Allrecipes Team	12/4/2015	3
5	Gouda Grilled Cheese	2	Straight out of Compton? No. This delicious sandwich is made with the world famous Dutch cheese Gouda.	0	5	5		NO	Allrecipes Team	12/4/2015	2

Figure 2: Ingredient Table

IngredientID	Iname	Quantity	Measure	Recipe ID
1	Bacon	12	Strips	1
2	Ground beef	1	Lb	1
3	Buns	6	Buns	1
4	Garlic	2	Cloves	1
5	BBQ Seasoning	1	Teaspoon	1
6	Shredded Mexican Cheese	2	Cups	1
7	Cayeene Pepper	1	Tablespoon	1
8	Bread crumbs	2	Cup	1
9	Horseraddish Cheddar Cheese	.5	Cup	2
10	Butter	1	Tablespoon	2

Figure 3: Author Table

AID	AFirstName	ALastname	Comments
1	Aman	Kaushal	
2	Austin	Cunliffe	
3	Shawn	Barber	

Figure 4: Nutritional Fact Table

RecipeID	Fat	Sat Fat	Sodium	Calories
1	34g	8g	200mg	1200
2	25g	6g	800mg	800
3	10g	4g	1000mg	450
4	17g	2g	500mg	600
5	12g	1g	600mg	800
6	18g	12g	200mg	500
7	2g	0g	450mg	160
8	16g	4g	350mg	430
9	1g	0g	75mg	120
10	8g	1g	90mg	260
11	12g	6g	75mg	300

Figure 5: Users Table

userID	Firstname	Lastname	Gender	Email	Street	City	State	Country	Contact Number
1	Aman	Kaushal	M	AmanKaushal@gmail.com	800 South	Salt Lake City	UT	United States	8012569987
2	Austin	Cunliffe	M	AustinCunliffe@gmail.com	6400 South	Salt Lake City	UT	United States	8015632122
3	Shawn	Barber	M	ShawnBarber@gmail.com	4800 South	Murray	UT	United States	2083101099
4	Frank	Murray	M	FrankMurray@gmail.com	287 Moser St	Moscow	ID	United States	
5	Jonathan	Hughes	M	JonathanHughes@gmail.com	438 E. Milton Drive	Flagstaff	AZ	United States	
6	Kevin	Slater	M	KevinSlater@gmail.com	1616 S. Main Street	San Francisco	CA	United States	
7	Anthony	Peake	M	AnthonyPeake@gmail.com	1246 W. D Street	Seattle	WA	United States	6545961625
8	Melanie	Dickens	F	MelanieDickens@gmail.com					
9	Cameron	Langdon	M	CameronLangdon@gmail.com					
10	Owen	Smith	M	OwenSmith@gmail.com					
11	Diana	Alsop	F	DianaAlsop@gmail.com					8015962548
12	Samanatha	Chapman	F	SamanathaChapman@gmail.com	5765 Sout Purple Road	Washing	DC	United States	
13	Jonathan	Sharp	M	JonathanSharp@gmail.com					
14	Olivia	Walker	F	OliviaWalker@gmail.com		Bozeman	MT	United States	
15	Adam	Parr	M	AdamParr@gmail.com		Phoenix	AZ	United States	6985231109
16	Emily	Glover	F	EmilyGlover@gmail.com					

Figure 6: Review Table

Review ID	Recipe ID	UserID	Rtext	Rating
1	1	1	Amazingly good	5
2	1	2	So tasty! Kind of hard to make though	4
3	1	3	Perfect! Wouldn't change a thing	5
4	2	1	It was only ok	3
5	3	1	Super simple to make!	5
6	4	2	So good!	5
7	5	3	Awesome!	4
8	6	3	Super simple to make and excellent flavor	4
9	6	2	Awesome and simple!	5
10	7	1	Overall pretty dang good	4

Figure 7: Step Table

Step ID	R_ID	Stext	Sorder
1	1	To build the patty mixture combine the garlic, BBQ seasoning, shredded Mexican cheese, cayenne pepper, bread crumbs and ground hamburger in a large bowl. Mix by hand until fully blended.	1
2	1	To build the patty mixture combine the garlic, BBQ seasoning, shredded Mexican cheese, cayenne pepper, bread crumbs and ground hamburger in a large bowl. Mix by hand until fully blended.	2
3	1	Take combined ingredients from bowl and create four evenly portioned patties (approximately 1/2 inch thick).	3
4	1	Cook bacon in a skillet until brown and lightly crispy. Leave a small amount of bacon grease in the skillet to sauté the onions.	4
5	1	Place chopped onions into skillet. Cook until onions become slightly see through.	5
6	1	Place patties on grill or in skillet. Cook until desired doneness.	6

Figure 8: Category Table

CategoryID	Cname	Recipe ID
1	Beef	1
2	Bacon	1
3	Burger	1
4	Hamburger	1
5	Lunch	2
6	Dinner	2
7	Late Night	2
8	Sandwich	2
9	Cheese	2
10	Sandwich	3

Figure 9: Recipe Table – SQL

	RECIPEID	NAME	SERVING	RDESCRIPTION
1	2	Bacon Horseradish Grilled Cheese	0	A classic twist on an American favorite
2	1	Bacon Blue Cheese Burger	4	A beautifully crafted homemade burger patty topped with blue cheese crumbles and crispy bacon
3	3	Champagne Grilled Cheese	0	A classic twist on an American favorite! This time with champagne!
4	11	PB and J	0	Peanut butter and jelly
5	10	PPJ	0	A PP and J
6	9	Halloween Jungle Juice	0	Who do nott love a good old fashioned batch of jungle juice?
7	8	The fully loaded potato	0	This delicious recipe comes straight to you from the glorious state of Idaho!
8	7	The Ninja Turtle	0	A deliciously strange looking alcoholic beverage.
9	6	Mozzarella and Basil Grilled Cheese	0	Get ready to have your mouth water with mozzarella and basil grilled cheese!

Figure 10: Ingredient Table – SQL

	INGREDIENTID	INAME	QUANTITY	RECIPEID
1	1	Bacon	12	1
2	2	Ground beef	1	1
3	3	Buns	6	1
4	4	Garlic	2	1
5	5	BBQ Seasoning	1	1
6	6	Shredded Mexican Cheese	2	1
7	7	Cayeene Pepper	1	1
8	8	Bread crumbs	2	1
9	10	Butter	1	2
10	11	Bread	2	2
11	12	Champagne Cheddar Cheese	0.5	3
12	13	Butter	1	3
13	14	Bread	2	3
14	16	Butter	1	7
15	15	Cheddar Cheese	0.5	7
16	17	Bread	2	7
17	21	Peanut Butter	2	10
18	22	Jelly	2	10
19	18	Mango Vodka	1	7
20	19	Blue Curacao	1	7
21	20	Orange Soda	8	7

Figure 11: Author Table – SQL

	AUTHORID	ANAME	COMMENTS	RECIPEID
1	7	[redacted]	The meals are healthy and delicious	(null)
2	2		The steak can be made more awesome	(null)
3	3		The Tuna is toothsome	(null)
4	1	harry	(null)	(null)

Figure 12: Nutritional Fact Table – SQL

	RECIPEID	FAT	SAT_FAT	SODIUM	CALORIES
1	1	34g	8g	200	1200
2	2	25g	6g	800	800
3	3	10g	4g	1000	450
4	6	18g	12g	200	500
5	7	2g	0g	450	160
6	8	16g	4g	350	430
7	9	1g	0g	75	120
8	10	8g	1g	90	260
9	11	12g	6g	75	300
10	1	34g	8g	200	1200
11	2	25g	6g	800	800
12	3	10g	4g	1000	450
13	11	17g	2g	500	600
14	10	12g	1g	600	800
15	6	18g	12g	200	500
16	7	2g	0g	450	160
17	8	16g	4g	350	430
18	9	1g	0g	75	120
19	10	8g	1g	90	260

Figure 13: Users Table SQL

	USERID	FIRSTNAME	LASTNAME	GENDER	EMAIL	STREET	CITY	STATE	COUNTRY	CONTACT
1	1	[redacted]		M	AmanKaushal@gmail.com	800 South	Salt Lake City	UT	United States	8012569987
2	2			M	AustinCunliffe@gmail.com	6400 South	Salt Lake City	UT	United States	8015632122
3	5			M	JonathanHughes@gmail.com	438 E. Milton Drive	Flagstaff	AZ	United States	2130374442
4	6			M	KevinSlater@gmail.com	1616 S. Main Street	San Francisco	CA	United States	1239846763782
5	7			M	AnthonyPeake@gmail.com	1246 W. D Street	Seattle	WA	United States	6545961625
6	13			M	JonathanSharp@gmail.com	819 Yellow Stone Avenue	West Jordan	UT	Unoted States	9210083213
7	15			M	AdamParr@gmail.com	South Buffalo Street	Phoenix	AZ	United States	6985231109
8	11			F	DianaAlsop@gmail.com	100 East 200 South	SLC	UT	United States	8015962548
9	12	Samanatha	Chapman	F	SamanathaChapman@gmail.com	5765 Sout Purple Road	Washing	DC	United States	2393210110
10	14	Olivia	Walker	F	OliviaWalker@gmail.com	Parkway Street 100	Bozeman	MT	United States	3235458790
11	8	Melanie	Dickens	F	MelanieDickens@gmail.com	Landing street	Pheonix	AZ	United States	4203340923
12	9	Cameron	Langdon	M	CameronLangdon@gmail.com	100 east 2000 north temple	SLC	UT	United States	3221973374

Figure 14: Review Table – SQL

	REVI...	RECIPEID	USERID	RTEXT	RATING
1	1	1	1	Amazingly good	5
2	2	1	2	So tasty! Kind of hard to make though	4
3	3	11	7	It was only ok!	2
4	9	6	2	Awesome and simple!	5
5	10	7	1	Overall pretty dang good	4
6	8	6	5	Super simple to make and excellent flavor	4
7	7	11	15	Awesome!	4

Figure 15: Step Table – SQL

	STEPID	REC...	STEXT
1	1	1	To build the patty mixture combine the garlic, BBQ seasoning, shredded Mexican cheese, cayenne pepper, bread crumbs and ground ham
2	28	6	Spread butter on the one side of both slices of bread.
3	3	1	Take combined ingredients from bowl and create four evenly portioned patties (approximately 1/2 inch thick).
4	4	1	Cook bacon in a skillet until brown and lightly crispy. Leave a small amount of bacon grease in the skillet to sauté the onions.
5	5	1	Place chopped onions into skillet. Cook until onions become slightly see through.
6	6	1	Place patties on grill or in skillet. Cook until desired doneness.
7	7	1	Plate and top with bacon, blue cheese crumbles and sautéed onions.
8	8	2	Butter both sides of the bread
9	9	2	Add cheese to non-buttered side of bread
10	10	2	Cook until golden brown
11	11	2	Plate and serve
12	12	3	Preheat skillet or pan with medium heat.
13	14	3	Add roughly ⅓ a cup champagne cheddar cheese (or desired amount) in between the two slices of bread, with the buttered side on the
14	15	3	Place the sandwich, buttered-side-down, on the heated skillet or pan.
15	16	3	Grill sandwich until the bread is golden brown, then flip the sandwich over and grill until the bread is golden brown, or until th
16	27	6	Preheat skillet or pan with medium heat.
17	29	6	Mince the four basil leaves.
18	30	6	Add roughly ⅓ a cup mozzarella cheese and minced basil leaves in between the two slices of bread, with the buttered side on the ou
19	21	7	Grill sandwich until the bread is golden brown, then flip the sandwich over and grill until the bread is golden brown, or until th
20	22	8	Preheat skillet or pan with medium heat.

Figure 16: Category Table – SQL

	CATEG...	CNAME	RECIPEID
1	1	Beef	1
2	19	Sandwich	7
3	2	Bacon	1
4	3	Burger	1
5	4	Hamburger	1
6	5	Lunch	2
7	6	Dinner	2
8	7	Late Night	2
9	8	Sandwich	2
10	9	Cheese	2
11	10	Sandwich	3
12	11	Lunch	3
13	12	Dinner	3
14	14	Cheese	3
15	15	Lunch	7
16	16	Dinner	7
17	17	Late night	7
18	18	Cheese	7
19	20	Late night	8

Group Contribution Table

Figure 17: Group Contribution Table

Date	Team Member	Hours Spent	Description of Work	Additional Comments
2016/09/23	[redacted]	1.5	- Business idea gathering for database development	Brain storming various ideas for which a transactional database could be implemented
2016/10/08		2.0	- ER modeling for the chosen business database - DB technology	Constructing the ER diagram for the chosen database
2016/10/08		1.0	- Relational Model modeling	Preparing the Relational Model for the constructed ER diagram
2016/10/12		3.0	- Creating tables for different entity types in the SQL developer	Preparing the tables for each entity type and allocating various attributes, data type, Primary and Secondary Key to it
2016/10/14		2.5	-Creating the SQL queries for implementing the database	Writing the SQL queries for different operation in

	[redacted]			the transactional database
2016/10/18		2.0	- Inserting the values in the database for the implementation of the queries	Inserting the data in the database
2016/10/28		1.5	Preparation of the Group Project presentation	Preparing the Group Project Presentation
10/30/2016		2.5	Rehearsing presentation/ verifying PowerPoint and Filming Presentation	Group met to complete external videotaping of presentation
10/30/2016		2.5	Verifying SQL Insert Statements	Editing and verifying all SQL insert statements will work in the tables.
10/30/2016		2.5	Physical model	Building out physical model
10/30/2016		1.5	Edited raw footage of presentation. Uploaded to YouTube	Added slides with video and audio for final video presentation
10/30/2016		5	Rough draft of paper and formatting	Put together rough draft of paper and formatting
10/30/2016		1.5	Review paper	Editing and fine tuning paper

10/30/2016	[redacted]	1.5	Review paper	Editing and fine tuning paper