

# **Software Requirements**

## **Specification**

**for**

**Shopping Planner**

**Version 1.0 approved**

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# Table of Contents

<b>Table of Contents.....</b>	<b>2</b>
<b>Revision History.....</b>	<b>3</b>
<b>1. Introduction.....</b>	<b>4</b>
<b>1.1 Purpose.....</b>	<b>4</b>
<b>1.2 Document Convention.....</b>	<b>4</b>
<b>1.3 Product Scope.....</b>	<b>4</b>
<b>1.4 References.....</b>	<b>4</b>
<b>1.5 Overview of the Remainder of the Document.....</b>	<b>5</b>
<b>2. Overall Description.....</b>	<b>5</b>
<b>2.1 Product Perspective .....</b>	<b>5</b>
<b>2.2 Product Functions .....</b>	<b>5</b>
<b>2.3 User and Client Characteristics.....</b>	<b>6</b>
<b>2.4 General Constraints. ....</b>	<b>6</b>
<b>3. Requirements.....</b>	<b>6</b>
<b>3.1 Requirements Overview.....</b>	<b>6</b>
<b>3.2 General Requirements.....</b>	<b>7</b>
<b>3.3 Capacity Requirements.....</b>	<b>7</b>
<b>3.4 User Interface Requirements.....</b>	<b>7</b>
<b>3.5 Network Requirements.....</b>	<b>8</b>
<b>3.6 Error Handling Requirements.....</b>	<b>8</b>
<b>3.7 Input Requirements.....</b>	<b>9</b>
<b>3.8 Processing Requirements.....</b>	<b>10</b>

<b>3.9 Output Requirements.....</b>	<b>11</b>
<b>4. Non-Requirements.....</b>	<b>14</b>
<b>5. Assumptions.....</b>	<b>15</b>
<b>6. Appendices.....</b>	<b>16</b>
<b>    6.1 Glossary.....</b>	<b>16</b>
<b>    6.2 Example of eMeals Meal Plan.....</b>	<b>17</b>
<b>    6.3 Team Member Contributions.....</b>	<b>18</b>

## **Revision History**

<b>Name</b>	<b>Date</b>	<b>Reason For Changes</b>	<b>Version</b>

# 1. Introduction

## 1.1 Purpose

The purpose of this document is to explain the software requirements specifications for the Shopping Planner web-based application, intended for both the client and developers. It will explain the objective and functionality of the system, define system requirements, define intended users and identify system constraints, along with user characteristics. This system will work offline and online from a Windows and iOS environment, while allowing the user to plan, manage and create their own weekly meal plan.

## 1.2 Document Conventions

This document is a basic outline of system requirements gathered from the client for the Shopping Planner system. Requirements outlined in this document are subject to change and do not appear in order of priority.

## 1.3 Scope

The Shopping Planner web-based application is intended for sole use by the client and will be used to plan weekly meals. This system will be designed to upload, store, delete, modify and manage personal recipes chosen by the client. The system will generate a weekly meal plan chosen from previously uploaded recipes and generate a shopping list based on ingredients found within those recipes. The goal of the Shopping Planner is to simplify meal planning and grocery shopping for the client or any other individual with a busy schedule. The client, Jeanne Campbell, was the main source for requirement gathering.

## 1.4 References

The following websites ([www.emeals.com](http://www.emeals.com) and [www.ziplist.com](http://www.ziplist.com)) were referenced during the requirements gathering phase.

## 1.5 Overview of the Remainder of the Document

The remainder of the document is organized into five sections, beginning with Overall Description and followed by Requirements, Non-Requirements, Assumptions, and Appendices. The Overall Description section will focus on product perspective, product functions, user and client characteristics, and general constraints of the application. The Requirements section will group the requirements of the system into eight categories: general, capacity, user interface, network, error handling, input, processing, and output requirements.

# 2. Overall Description

## 2.1 Product Perspective

The Shopping Planner will be a free replacement to the client's current subscription to eMeals Meal Planning Service. Besides interfacing with a database that contains the client's personal recipes, the system will be a new, self-contained product.

## 2.2 Product Functions

The Shopping Planner will allow the user to input their own recipes through the use of a web-based user interface and will save them in a database. Each week the system will generate a random dinner menu from the saved store of recipes that will include an entree and side dishes for each day of the next week. The user will have the option to substitute entire meals or specific dishes. The user will also have the option to select dishes from the database to create their own menu. The system will output a two-page PDF document. One page will list the

names of each day's entree and side dishes coupled with the list of ingredients and instructions for preparation of each. The second page will be a shopping list generated from the ingredients of the week's recipes. Section 3 outlines the system's requirements in greater detail.

## **2.3 User and Client Characteristics**

Our client, Jeanne Campbell, has asked us to build a meal planner that will generate a weekly menu and shopping list for her personal use. While we are building this system specifically for our client, in general anyone who has the responsibility of cooking dinner each night could benefit from the use of our Shopping Planner. A typical user of our Shopping Planner would be someone who wants to have a menu and shopping list generated each week from a compilation of their own recipes. This system is perfect for busy people who do not want to worry about what is for dinner every night and want to ensure they have all the ingredients needed to make dinner ahead of time.

## **2.4 General Constraints**

The main constraint of this application is that it must be designed in a way so that it does not require much maintenance. The system must also be able to interface with a database, such as Microsoft Access or SQL. The Shopping Planner, preferably web based, must work offline and online in order to send email and work on multiple operating systems. Compatibility with both Windows Operating System and iOS is strongly desired.

# **3. Requirements**

## **3.1 Requirements Overview**

The following sections describe requests made by the client with regards to how the application will work, followed as necessary by comments regarding the

successful implementation of these requirements. The following shall provide a bridge between client and designer expectations.

### **3.2 General Requirements**

This section describes the functionality that the application shall have on various devices.

- REQ-1: The application must work on a Windows operating system.
  - The user will primarily run the application on a computer running Windows.
- REQ-2: The application shall also work on an iOS.
  - The ability to use the application on the iPad is desirable, but not crucial.
- REQ-3: The application shall be web-based.
  - In order for the application to work on both the Windows Operating System and iOS, the application should be web-based. This will enable the application to have access to the same database.
- REQ-4: The application must interface with a database.
  - In order for the application to create a weekly meal plan and shopping list, it must have access to a web-based database.

### **3.3 Capacity Requirements**

This section describes the client's expectations regarding how many users the application can handle at a time.

- REQ-5: The application shall be available to one user, the client, at any time.

### **3.4 User Interface Requirements**

These requirements describe the client's expectations regarding the appearance and functionality of the application's interface. The client has requested

the user interface be simple to use and navigate. However, there are no specific requirements on appearance. The developers are to use their discretion to create a web-based interface that is aesthetically pleasing and simple to use. Details regarding the functionality of the application are given in 3.7 Input Requirements and 3.9 Output Requirements, below.

### **3.5 Network Requirements**

As the database containing recipes will be on a web server, it is expected that the user will be online to provide information regarding new recipes. However, the shopping lists the application creates should themselves be available regardless of whether the user is online.

- REQ-6: The application shall provide shopping lists in a downloadable format by request.
  - A PDF document is strongly preferred.

### **3.6 Error Handling Requirements**

The application shall be able to correct any predictable errors regarding user input. Of particular note is ensuring that the application collects all required data.

- REQ-7: The application will not allow the user to input recipe information that is incomplete.
  - The recipe entered must include a title, list of ingredients, and instructions for preparing the recipe. If the recipe entered is missing information that is necessary to create a shopping list, the application should resolve using an error message.
- REQ-8: The application will not allow the user to create a meal plan with less than seven recipes in the database.
  - If the user attempts to create a meal plan with less than seven recipes an error message will appear.

- REQ-9: The application will not allow the user to swap out selected recipes unless the database contains more than seven recipes.
- REQ-10: The user cannot upload recipes with the same name.
  - If a recipe already exists in the database an error message will appear, giving the user the option of editing the existing recipe, deleting the recipe or renaming the recipe.

### 3.7 Input Requirements

These requirements describe expected input from the user and how they will interact with the system.

- REQ-11: The application will provide text entry forms for recipe title, list of ingredients, and preparation instructions.
- REQ-12: The user shall provide all of the information required for the planner to create recipes.
  - This will be managed by the aforementioned text-entry forms. When all required fields have been filled out, the application will save the recipe in the database.
- REQ-13: The user shall have the option when entering recipes to include a link or picture for future reference and identification.
- REQ-14: When entering a recipe, the user will specify if the recipe is an entree or a side dish.
- REQ-15: When the user enters an entree, they will be prompted to enter the number of side dishes they typically want to serve with that entree.
  - The default number of side dishes per entree will be two.
- REQ-16: The user will be able to enter keywords or recipe names to search for specific recipes.
- REQ-17: The user will be able to select a specific recipe to delete from the database.
- REQ-18: The user will be able to select a specific recipe to modify from the

database.

- REQ-19: The user shall be able to update the title, ingredients list, or instructions.

### **3.8 Processing Requirements**

This section describes the how the system will be expected to process recipes in the database system both automatically and handle user instructions for processing.

- REQ-20: The application shall select seven meals, made up of an entree and side dishes each, from the database.
  - This initial selection process shall be a random selection of seven entrees. The number of sides selected to go with each entree is dependent on the number of sides the user selected to go with each entree when first entering the recipe.
- REQ-21: The application shall not select an entree or side more than one time in a week.
- REQ-22: If the user does not want to keep one or more of the entrees or side dishes selected, they shall be able to substitute another entree or side dish.
  - The user will be able to substitute as many sides and entrees as they choose. Substituting an entree will also result in a substitution of accompanying side dishes, unless indicated otherwise by the user.
- REQ-23: The user shall have the option to either substitute dishes manually by searching the database or have the application randomly generate substitutions.
- REQ-24: If the user wants a different number of sides with an entree than is automatically selected, they will be able to add or delete sides.
- REQ-25: The user will have the option of selecting main ingredients to include or exclude in the generated weekly meal plan.

- REQ-26: The application will allow the user to create a favorites list.
  - The favorites list will give the user the ability to organize and access commonly used recipes.
- REQ-27: The application will allow the user to rate recipes.
  - A rating scale 1 to 10 will be applied to each recipe. This rating will allow the user to organize and manage recipes easily.
- REQ-28: Besides the option of random generation of the weekly menu, the user shall have the option to select the entire menu by searching recipes in the database.
  - The user will be able to select one entree for each night, in addition to as many sides as they choose.

### 3.9 Output Requirements

This section details the data provided to the user once processing has been completed.

- REQ-29: The application shall output a shopping list to a PDF document with an organized list of ingredients needed to make each meal that the user has planned for the week.
    - The client has requested that the output more resemble the shopping lists provided by ziplist than the lists provided by eMeals. The eMeals chart provides lots of information which the client is uninterested in and compresses everything into a tiny space. The ziplist format is minimalist and very easy to read. The Shopping Planner should also strive to present data in a minimalist and easily readable fashion.
- Figure 1 on the following page is a sample ziplist shopping list in email form. Figure 2 is a sample of the eMeals printed format for comparison.



The following items are on your Family shopping list from ZipList.

**--- Produce ---**

Bananas

Broccoli

Lettuce

Tomatoes

**--- Drinks ---**

Coffee

**--- Dairy ---**

Eggs

mozzarella cheese

Soy Milk

**--- Breakfast ---**

Honey Nut Cheerios Cereal

**--- Cleaning Products ---**

Laundry Detergent

**--- Snacks ---**

Pretzels

---

**Figure 1. Sample ziplist shopping list**

**eemeals**

**TARGET CLASSIC FAMILY PLAN  
GROCERY LIST  
January 16-22, 2013**

MEAL #	X	GROCERY ITEM	® = Suggested Brands	PRICE:	OTHER GROCERIES I NEED:	X
<b>DELI &amp; BAKERY</b>						
2		1 pkg crusty rolls		2.49		
7		1 loaf white sandwich bread		2.49		
<b>PRODUCE</b>						
2		4 medium potatoes, for 4 c cubed		2.97		
2		1 medium onion, for ½ c diced		.50		
5		1 red onion		.75		
2		12 oz shredded broccoli salad mix		2.49		
3,5		1 to 2 bags salad greens		2.50		
4		1 bunch green onions, for ¼ c chopped		1.19		
5		1 head cauliflower		2.79		
7		4 Granny Smith apples		3.94		
<b>DAIRY</b>						
1		4 oz shredded Parmesan cheese, Market Pantry®		2.49		
3		10 oz can pizza crust dough, Market Pantry®		1.89		
3		8 oz shredded mozzarella cheese, Market Pantry®		2.49		
4,7		½ dozen eggs, for 5		.89		
7		8 oz shredded sharp cheddar, for 1 c, Market Pantry®		2.49		
7		1 can flaky biscuits, Market Pantry®		1.72		
<b>MEAT &amp; SEAFOOD</b>						
1,5		3 lbs boneless skinless chicken breasts		13.78		
2,3		2½ lbs ground beef		7.18		
4		24 oz pkg catfish fillets		9.89		
6		4-6 thick cut pork chops		7.98		
7		16 oz package sliced bacon, for 8 oz		2.48		
<b>FROZEN</b>						
1		6 count pkg corn on the cob, Market Pantry®		2.49		
6		16 oz bag whole kernel corn, for 3 c, Market Pantry®		.99		
6		16 oz whole green beans, Archer Farms®		2.29		
<b>CANNED &amp; PACKAGED</b>						
1		1 to 2 boxes macaroni & cheese, Market Pantry®		.74		
1		16 oz bottle Ranch salad dressing, for 8 oz, Kraft®		1.49		
2		24 oz tomato sauce, Market Pantry®		1.52		
3		14 oz jar pizza sauce, Ragu®		1.09		
4		15 oz can seasoned black beans, Market Pantry®		.74		
4		14 oz bag corn tortilla chips, for 1 c crushed, Archer Farms®		2.99		
4		1 to 2 boxes couscous, your favorite flavor, Near East®		2.39		
5		12 oz whole wheat penne pasta, Market Pantry®		1.09		
5,7		2 - 14 oz cans diced tomatoes, one Italian style & one plain, Market Pantry®		1.38		
6		1 lb pkg rice, Market Pantry®		.79		
6		11 oz can mandarin oranges, Del Monte®		1.39		
<b>APPROXIMATE TOTAL:</b>						\$96.77

Staples needed for each Meal #:

Meal 1	Meal 2	Meal 3	Meal 4	Meal 5	Meal 6	Meal 7
Seasoned salt	Cooking spray	Italian dressing	¼ c milk	Curry powder	¼ c brown sugar	1½ c milk
Garlic powder	Hot sauce		Cajun sng		¼ c ketchup	Hot sauce
1 c breadcrumbs	Coleslaw dressing		Cooking spray		Cinnamon	4 T sugar
Cooking spray			½ c salsa		Vinegar	Cinnamon
¼ c melted butter					Prepared mustard	
Milk					French salad dressing	
					Sesame seeds	

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**Figure 2. Sample eMeals shopping list**

- REQ-30: The application shall provide the above shopping list in email form.
  - This is another reason that it is important to strive for minimalism in the outputs. The user shall be able to read the shopping lists provided by the planner on a mobile device by accessing their email.
- REQ-31: The application will output weekly recipes in a PDF document.
  - Weekly meal plans will be output to a PDF document identifying meals, ingredients, and instructions similar to eMeals format. (An example is provided in the Appendix, Section 6.2.)

## 4. Non-Requirements

- Unlike the eMeals and Ziplist applications that this software is based on, the Shopping Planner software will not contain a set of default recipes. The client has requested that the program should only store information related to recipes that she adds.
- The software will not have any kind of premium membership. Again the client has stressed that the software is not intended for use by anyone else, so paid membership options are not desired at all.
- The shopping list produced will not be a crowded chart. The client has specified that the template used by the eMeals planner is not adequate. The software should organize shopping lists in an easier-to-read manner.
- Related to the previous non-requirement, the application will not provide the prices of ingredients. This is also a departure from the eMeals and Ziplist applications.
- The Shopping Planner will not use any external resources such as grocery store website for sales or pricing of ingredients.

- Weekly meal plans will not include breakfast, lunch or dessert items.

## 5. Assumptions

- The Shopping Planner application will run on both Windows Operating System and iOS.
- The database selected can be accessed from both Windows and iPad.
- The generation of weekly meal plans and shopping lists is dependent on a RDBMS.
- The client will use a current database system within their possession, or use free or open source third party software compatible with Windows and Apple operating systems.
- The database for the software should be based in mySQL, and should be stored on the web. Ideally, rosemary.umw.edu should be used to store web elements.
- As has been mentioned throughout this document, the client is the only intended user of the program. The application is web-based so that it is easy to use on multiple devices and is capable of emailing the client, but is not in any way intended to be used by anyone else.

## 6. Appendices

### 6.1 Glossary

- **RDBMS**
  - Short for relational database management system, a RDBMS is a database management system that lets a user create, update, and administer a relational database, which stores data in related tables.
- **mySQL**
  - An open source software database management system used to maintain, store and manage data.
- **Web-based**
  - Application that is able to access the World Wide Web.
- **eMeals**
  - eMeals is a web-based meal planning website that provides clean eating meal plans.
- **ZipList**
  - Ziplist is a website that allows the user to organize recipes, shopping lists and coupons.
- **iOS**
  - A mobile operating system developed and distributed by Apple.
- **PDF**
  - Portable Document Format, a standard file format for electronic document exchange.

## 6.2 Example of eMeals Meal Plan



**TARGET CLASSIC FAMILY PLAN**  
January 16-22, 2013

MEAL #:	INGREDIENTS:	INSTRUCTIONS:
Meal 1  <b>Baked Ranch Chicken Tenders</b> <i>Corn on the Cob</i> <i>Macaroni &amp; Cheese</i>	<b>1½ lbs boneless chicken breasts</b> 8 oz Ranch salad dressing (1 t seasoning salt, ½ t pepper, ½ t garlic powder, (1 c breadcrumbs, nonstick spray, ¼ c melted butter) ½ c shredded Parmesan cheese <hr/> 6 ears corn on the cob 1 to 2 boxes macaroni & cheese (Milk, butter)	<b>Cut each chicken breast into 2-3 strips. Mix seasonings with breadcrumbs &amp; Parmesan cheese in flat dish. Coat each chicken strip with Ranch dressing then roll in breadcrumb mix. Place chicken on sprayed baking sheet. Brush melted butter lightly on chicken. Bake at 400° for 25 minutes or until cooked thoroughly.</b> <i>Heat corn by package directions. Prepare macaroni &amp; cheese, with milk &amp; butter, by package directions.</i>
Meal 2  <b>Spicy Beef &amp; Potato Soup</b> <i>Broccoli Slaw</i> <i>Crusty Rolls</i>	<b>1½ lbs ground beef</b> (Cooking spray) 4 c cubed & peeled potatoes ½ c diced onion 24 oz tomato sauce (4 c water, 2 t salt, 1 t pepper, ½ t hot sauce) (Coleslaw dressing) 12 oz bag shredded broccoli salad mix Crusty rolls	Brown beef in a large sprayed Dutch oven; drain any fat. Add potatoes, onion, & tomato sauce. Stir in water, salt, pepper, & hot sauce; bring to a boil. Reduce heat & simmer 1 hour or until potatoes are tender & soup has thickened. <i>Combine approximately ¼ c coleslaw dressing with broccoli salad mix. Heat rolls to serve.</i>
Meal 3  <b>Chicago Style Pizza</b> <i>Green Salad</i>	<b>1 can refrigerated pizza crust dough</b> 1 lb ground beef, <b>brown</b> & drained 14 oz jar pizza sauce 2 c shredded mozzarella cheese 1 bag salad greens (Italian dressing to taste)	Spray 9 x 13" baking dish with cooking spray. Press dough into bottom of dish and ½ the way up the sides. Mix beef and sauce together and spread onto dough. Top with cheese. Bake 20 minutes at 400°. <i>Toss salad and dressing together.</i>
Meal 4  <b>Tortilla Crusted Catfish</b> <i>Black Bean &amp; Corn Relish</i> <i>Couscous</i>	<b>(¼ c milk)</b> 2 eggs, beaten 1 c crushed tortilla chips (1 T Cajun sing, cooking spray) 1½ lbs catfish fillets 3 c yellow corn, thawed & <b>steamed</b> (½ c salsa) ¼ c chopped green onions 15 oz can seasoned black beans, rinsed & drained 1 to 2 boxes couscous	Mix milk & eggs together in a shallow pan. Combine tortilla crumbs & Cajun seasoning in a 2 <sup>nd</sup> dish. Dip fillets into milk/egg mix & place into tortilla crumbs; coat both sides. Place on sprayed baking pan; bake 15 minutes at 400°. <i>Combine corn, salsa, green onions, &amp; beans. Serve warm or at room temp. Prepare couscous according to package directions.</i>
Meal 5  <b>Chicken Curry with Wheat Pasta</b> <i>Steamed Cauliflower</i>	<b>12 oz whole wheat penne pasta, cooked &amp; drained</b> 1½ lbs boneless skinless chicken breasts, diced (½ t salt, ¼ t pepper, ½ t curry powder) 1 red onion, diced 14 oz can Italian style diced tomatoes 1 bunch cauliflower cut into florets	Season chicken with salt & pepper. Brown in a sprayed pan over med high heat. Remove chicken. Reduce heat & add onion & cook until lightly browned. Add curry powder; stir while cooking for 1 minute. Stir in chicken & tomatoes; return to boil. Reduce heat, cover & simmer 20 minutes. Add pasta & toss. <i>Steam cauliflower &amp; season to taste.</i>
Meal 6  <b>Pork Chops L'Orange</b> <i>Steamed Rice</i> <i>French Green Beans</i>	4-6 thick pork chops 1 can mandarin oranges (¼ c firmly packed brown sugar, ¼ t salt) (¼ c ketchup, ½ t cinnamon) (1 T vinegar, 1 t prepared mustard) <hr/> <i>Steamed rice</i> Frozen whole green beans (2 T French salad dressing, 2 t sesame seeds)	Brown pork chops on both sides in a skillet; drain. Drain oranges, reserving juice. Combine juice with brown sugar, salt, ketchup, cinnamon, vinegar, & mustard. Add oranges and juice mixture to pork chops. Cover and simmer 45 minutes. Serve over steamed rice. <i>Steam green beans until crisp-tender. Drain and toss with French dressing and toasted sesame seeds.</i>
Meal 7  <b>Bacon n' Cheese Strata</b> <i>Hot Cinnamon Apples</i> <i>Flaky Biscuits</i>	8 slices white bread 8 oz bacon, <b>cooked</b> & crumbled 1 c sharp shredded cheddar 14 oz can diced tomatoes, drained well 3 eggs (1½ c milk, dash of pepper, dash of hot sauce) 4 Granny Smith apples, peeled and diced (4 T sugar and cinnamon) 1 can refrigerated flaky biscuits	In greased 2 quart baking dish, arrange ½ of each: bread, bacon, cheese, and tomatoes. Repeat for a second layer. Combine eggs, milk, pepper, and hot sauce. Pour over casserole. Bake uncovered at 375° for 45 minutes. <i>Toss apples with 4 T sugar. Sprinkle with cinnamon and toss. Heat in microwave in a covered dish, 5 minutes. Bake biscuits as directed.</i>

(Staples in parenthesis)

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### 6.3 Team Member Contributions

- **Kelly Brown**
  - Kelly wrote section 2: Overall Description, some of the requirements, and worked on editing the document.
- **Brian Johnston**
  - Brian contributed to sections 4 and 5: Non-Requirements and Assumptions, some of the requirements, and worked on editing the document.
- **Marcey Dunlap**
  - Marcey wrote section 1: Introduction and contributed to some of the requirements, appendices, assumptions and editing.