

PROJECT: Create and maintain a back- and front-end distributed application to execute business logic based on data from Sales, Contracts and Nutrition teams.

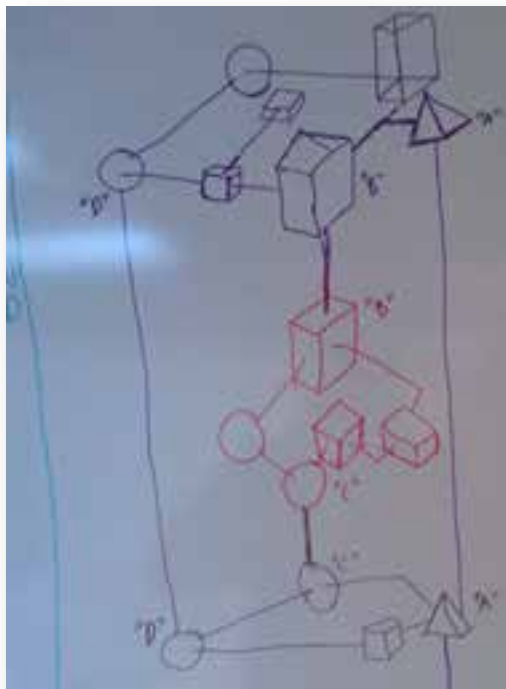
CLIENT:



TOOLS: SQL Server
VB.NET
XML

DESCRIPTION: Tie the USDS nutritional database to specific products that generate rebates from purchasing contracts with product distributors.
User-designed front ends build menus, analyzes menu nutrition, and maximizes rebates.

SLIDES: 6



The SQL Server backend of this project consisted of 100+ tables. Data was strongly typed and branched to specific-needs queries that embraced one-to-one primary indices and joined varied many-to-one relationships, specific to the business line accessing the data.

Data was unified in query-driven User Interfaces that met specific requirements over different parts of the lifespan of the project.

Chili con Carne

Select only Primary Recipes ☒ Clones ☒ Descriptions ☒

Refresh Go to Core Menus Recipe Categories Add Nutritional Item View Recipe Copy Recipes Match Ingredients

Maximize Form Close Database HAACP Add Index To Ingredients Add Index To Products

View Individual Extension View Core Extensions Create Ingredient

Makes: 50 Update

Ingredients

Ingredient	Quantity	Unit
Beef, stew meat, 1/2 inch dice	8	lbs.
Water	1	gallon(s)
Base, beef	1	cup(s)
Peppers, green, fresh, diced	2	quart(s)
Onions, fresh, diced	1	quart(s)
Tomatoes, canned, diced	2	quart(s)
Chilis, green, canned, chopped	2	cup(s)
Beans, kidney, canned, drained	2	quart(s)
Garlic, fresh, minced	2	Tbsp.
Cumin	2	Tbsp.
Oregano	1	Tbsp.

Refresh

STDPORTION 1 serving

"Chili with meat"
Tender beef cubes, beans, green chilies, onions and tomatoes slowly simmered into a tasty stew.

Clones

648 Southwest Chili
1230 Chili

10 In heavy soup pot, tilting skillet or steam jacket kettle cook beef with onions for 15-20 m
20 Add water and base. Mix well to dissolve.
30 Cover and simmer 1 hour until tender.
40 Add vegetables and seasonings. Cover and simmer an additional 30-40 minutes until ve
50 Transfer to 4-inch hotel pan for service.

Add to Primary Recipe list Add to Clone Recipe list

Delete from Primary Recipe List Delete from Clone Recipe list

User Interfaces were directed and largely designed by the specific end-users, and were not project requirement.

Project requirements specified compliance with many legal oversight entities. One such entity was the HAACP, pictured right. This interface is drawing generic strings that hold a many-to-one relationship with actual products, and attaches logical relationships that determine health warnings.

HAACP Warnings

Heat product to an internal temperature of 165 degrees for a minimum of 15 seconds. Hold product at or above 140 degrees. When cooling product, internal temperature needs to reach 70 degrees or lower within 2 hours, and 40 degrees or lower within 1 hour.

Assorted Muffins
Assorted Pastries
Assorted Relishes
Assorted Sorbet
Bagels
Banana Bread
Banana Cream pie
Banana Finger
Banana Split
Bananas Foster
Belgian Waffles
Berry Medley
Berry Pie
Berry Pie a la Mode
Black Bottom Pie
Black Forest Cake
Blueberry Crepes
Blueberry Crisp

Ingredient Type

Poultry/ Casserole

Apple Almond Chicken
Avgolemono Soup
Baked Chicken
Baked Chicken Breast
Baked Chicken Breast with Vegetable Sauce
Baked Chicken with Vegetable Sauce
Baked Potato Soup
BBQ Chicken
Beef Burrito
Beef Enchilada Bake
Beef Pot Pie
Beef Ravioli
Bessie's Famous
Black Bean Burger
Breaded Turkey Cutlet
Broccoli and Cheese Casserole
Butternut Squash Soup
Cabbage Rolls

BBQ Beef on an Onion Bun

Category

Sandwiches

Search

Search

Exit Recipe Categories

B.L.T.	▼	Sandwiches	▼	Cold	▼
▶ BBQ Beef on an Onion Bun	▼	Sandwiches	▼	Hot	▼
Black Bean Burger	▼	Sandwiches	▼	Hot	▼
California Hoagie	▼	Sandwiches	▼	Cold	▼
Cheeseburger on a Roll	▼	Sandwiches	▼	Hot	▼
Chicken Burger	▼	Sandwiches	▼	Hot	▼
Chicken Cheesesteak Sandwich	▼	Sandwiches	▼	Hot	▼
Chicken Salad on a Croissant	▼	Sandwiches	▼	Cold	▼
Chicken Salad Sandwich	▼	Sandwiches	▼	Cold	▼
Chicken Salad Sandwich on Raisin Bread	▼	Sandwiches	▼	Cold	▼
Club Sandwich	▼	Sandwiches	▼	Cold	▼
Cobb Sandwich	▼	Sandwiches	▼	Cold	▼
Crab Salad on Croissant	▼	Sandwiches	▼	Cold	▼
Deli Loaf Sandwich	▼	Sandwiches	▼	Cold	▼
Deli Sandwich	▼	Sandwiches	▼	Cold	▼
Deli Wrap	▼	Sandwiches	▼	Cold	▼
Dilled Salmon Salad Sandwich	▼	Sandwiches	▼	Cold	▼
Egg Salad Sandwich	▼	Sandwiches	▼	Cold	▼

One of the many product outputs of the project allowed generic categories to be used in early menu construction by chefs and dieticians. Lookups allowed menus to be built without specifying specific products.

The project allowed dieticians to make nutritionally-accurate portion and serving instructions in compliance with dietary requirements of a multitude of diets.

The form below, a representation of a menu query, could be exported to XML schema and compiled into a printable HTML menu page created dynamically using functions written in .NET.

Facility or Core Number				Week	Day	Meal	Add to Permanent Record											
Core 2				One	One	Large	View the Permanent Record											
							Print											
Core 2, Week 1 - Day 1 - Meal 2																		
Serving Temps			Recipe			Mechanical Soft	Dysphagia Mechanical	Puree	Low Concentrat	Low Fat Low	1200 KCal	1500 KCal	1800 KCal	3-4g Sodium	2g Sodium	Renal	Finger	Vegetari
1	2	3																
			Cranberry Salad															
			Serve with: # 8 scoop			x	x	x	x	x	x	x	x	x	x	x	apple slices	apple sli
			<u>Normal Portion</u>															
			<u>Small Portion</u>															
			<u>Large Portion</u>															
			1/2 cup(s)															
			1/3 cup(s)															
			3/4 cup(s)															
			Sage Roasted Turkey															
			Serve with: spatula			ground	ground + 2 ounces gravy	puree + gravy	x	x	3 ounces	3 ounces	3 ounces	x	x	x	bsp	analog 3/4 c cottage cheese
			<u>Normal Portion</u>															
			<u>Small Portion</u>															
			<u>Large Portion</u>															
			3 ounce(s)															
			2 ounce(s)															
			5 ounce(s)															
			Cashew Stuffing															
			Serve with: 4 oz spoodle			with ground nuts	with ground nuts - f/c veg + 2 oz	puree	x	low fat- no nuts	1/3 cup	1/3 cup	1/3 cup	x	with LS base	w LS base - no nuts	bsp	x
			<u>Normal Portion</u>															
			<u>Small Portion</u>															
			<u>Large Portion</u>															
			1/2 cup(s)															
			1/3 cup(s)															
			¾ cup(s)															
			Candied Yams															
			Serve with: 4 oz spoodle			x	with no marshmallo ws	puree	plain sweet potatoes	plain sweet potatoes	1/3 c plain sweet potatoes	1/3 c plain sweet potatoes	1/3 c plain sweet potatoes	x	x	1/2 c rice	opt bsp or plain bsp	x
			<u>Normal Portion</u>															
			<u>Small Portion</u>															
			<u>Large Portion</u>															
			1/2 cup(s)															
			1/3 cup(s)															
			¾ cup(s)															
			Brussels Sprouts															
			Serve with: 4 oz spoodle			x	puree	puree	x	x	x	x	x	x	x	scandinavi an blend	x	x
			<u>Normal Portion</u>															

Apple Brie Omelet

Select only Primary Recipes ☐ Clones ☐ Descriptions ☐

Maximize Form Close Database

HAACP

Add Index To Ingredients Add Index To Products

Refresh Go to Core Menus Recipe Categories Add Nutritional Item Match Ingredients

View Individual Extension View Core Extensions Create Ingredient

Makes: 64 Update

Apple Brie Omelet

Extension is Approved: ☒ Extension is Approved by: mkr Find Unapproved

Portions:

Quantity Unit

Standard 1 serving(s)

Small 1/2 serving(s)

Large 1 1/2 serving(s)

Utensil:

spatula

Vegetarian

x

Mechanical Soft

x

Advanced Dysphagia

x

Dysphagia Mechanical

with finely chopped apples + 1 oz cheese sauce

Puree

puree

Finger

bsp

3-4 gram Sodium

x

2 gram Sodium

LS cheese

Renal

w no cheese

Low Fat and Low Cholesterol

with LF/LC eggs

Classic French breakfast of eggs over sautéed apples and melted brie.

As products vary by manufacturer, every recipe be approved by a licensed dietitian. Logic reversed approval status when a product was altered.

Specific product vendors change their product lists on a monthly basis, as distributors establish lowest-cost equivalencies. These changes are tied to specific nutritional entries.

Ingredients

Fruit, fresh fruit in season

Gravy, gingersnap, prepared

Juice, assorted

Peaches, juice pack, drained

Savory stuffing, prepared

Shrimp, p&d, 21-16, tail off

Index

Jelly, Currant

Jelly, Diet, PC

Jelly, Orange Marmalade, Regular, Bulk

Juice, Apple, Canned, PC

Juice, Apple, Honey Thick

Juice, Apple, Nectar Thick

Juice, Apple, Sparkling

Juice, Base, Apple 4/1

Juice, Base, Apple, BIB

Juice, Base, Apple, Frozen

juice, Base, Cranberry, 4/1

Juice, Base, Cranberry, BIB

Add Index Item

The SQL backend drew on hundreds of tables from many different sources. Queries were in place to relate varied data types into uniform, strongly-typed data that was processed by logic functions. Here, some data is obscured to protect client-vendor contracts.

Below is an example of the type of query result critical to the business logic of the project. The ultimate goal of the project was to marry real products with dietician-approved menus.

Table List				
Table Name	Type	Date Created	Date Modified	Keys
tblCoreMenus	TABLE			PrimaryKey
tblDayName	TABLE			PrimaryKey
tblDayNumber	TABLE			PrimaryKey
tblDescriptivePhrase	TABLE			
tblDistributorName	TABLE			PrimaryKey
tblExtension	TABLE			iRecipeNameID
tblFacilityCustomOption	TABLE			PrimaryKey
tblFacilityName	TABLE			PrimaryKey
tblFacilityRegionAndTier	TABLE			PrimaryKey
tblFinalReportOutput	TABLE			PrimaryKey
tblHAACPtoPrimary	TABLE			PrimaryKey
tblHAACPwarning	TABLE			PrimaryKey
tblIndex	TABLE			PrimaryKey
tblIndexCategory	TABLE			PrimaryKey
tblIndexCategoryName	TABLE			PrimaryKey
tblIndexPackSize	TABLE			PrimaryKey
tblIndexRefuse	TABLE			PrimaryKey
tblIndexStandardItem	TABLE			PrimaryKey
tblIndexToIngredient	TABLE			PrimaryKey
tblIndexToProduct	TABLE			PrimaryKey
tblIngredientName	TABLE			PrimaryKey
tblIngredientsToNutrition	TABLE			PrimaryKey
tblManufacturerName	TABLE			PrimaryKey
tblMealName	TABLE			PrimaryKey
tblMealNumber	TABLE			PrimaryKey
tblMenuExtension	TABLE			PrimaryKey
tblNDBVolumeMassAndSp...	TABLE			PrimaryKey
tblNumbersByName	TABLE			
tblNutritionIPS2	TABLE			
tblNutritionUnit	TABLE			PrimaryKey
tblPaperSize	TABLE			PrimaryKey

iIngre	strIngredientName	iIndexID	strIndex	iProduct	strProduct	iDistributor	strDistributorName	strBrandName	varPackSize
443	Margarine	458	Margarine, Cubes, Bulk	15556	MARGARINE SPRD POR	2	FSA Kent	PROMISE	600/5GM
443	Margarine	458	Margarine, Cubes, Bulk	15557	MARGARINE SPRD POR	3	FSA Portland	PROMISE	600/5GM
443	Margarine	458	Margarine, Cubes, Bulk	15558	MARGARINE SPRD POR	1	FSA Spokane	PROMISE	600/5GM
443	Margarine	458	Margarine, Cubes, Bulk	16089	MARGARINE SPREAD L	3	FSA Portland	PROMISE	6/3.5#
443	Margarine	458	Margarine, Cubes, Bulk	16928	Margarine Spread Cup	7	SYSCO Kent	PROMISE	600/5 GM
443	Margarine	458	Margarine, Cubes, Bulk	17102	Margarine Spread 610 Tub	7	SYSCO Kent	PROMISE	6/3.5 LB
443	Margarine	458	Margarine, Cubes, Bulk	17166	Margarine/Btr Whipped 60/40	7	SYSCO Kent	GLDNSWT	1/20 LB

Queries drew from the USDA nutrition database, vendor product data, menu and dietary data, and created nutrient data on a per-recipe basis that used best-quality-for-price logic.

The data is available to end clients, who are required to produce nutritional and dietary data specific to individuals on demand, and who must record tracking data per individual by law.

ItemID	iNDBid	strNutritionItemName	dblGramWeight	iNu	dblKCAL	dblFAT	dblPRO	dblSFA	dblCHO	dblDFIB	dblCHOL	dblA	dblC	dblB1	dblB2	dblB12	dblE	dblNa	dblK	dblCa	dblP
5901	23510	Pesto Sauce prepared	57	0	157		7.4	0	2.2	0	14	627		0.03	0.17	0	0	245	131	165	0
5902	23511	Pork sausage link	13	0	48		2.6	1.4	0.1	0	11	0		0.1	0.03	0.22	0	168	47	4	24
5903	23512	Sweet Potato, baked w skin	114	0	117		2	0	27.7	3.4	0	24877		0.08	0.14	0	0	11	397	32	63
5904	23541	Clam Juice liquid	240	0	5		1	0	0.2	0	7	72		0.02	0.05	12	0	516	358	31	274
5905	23542	Corn dog cooked oven ready	175	0	460		16.8	5.2	55.8	0	79	207		0.28	0.7	0.44	0	973	263	102	166
5906	25343	Cornish Game Hen - Half - with skin	114	0	296		25.4	5.8	0	0	149	121		0.08	0.23	0.32	0	73	179	15	166
5907	25344	Cornish Game Hen -HALF - without skin	110	0	147		25.6	1.1	0	0	117	72		0.08	0.25	0.33	0	69	275	14	164
5908	25345	cranberries	95	0	47		0.4	0	12	4	0	44		0.03	0.02	0	0	1	67	7	9
5909	25346	Cream of Tartar	3	0	8		0	0	1.8	0	0	0		0	0	0	0	2	495	0	0
5910	25347	Salad Dressing Caesar	29	0	140		1	2.5	1	0	10	0		0	0	0	0	300	10	20	0
5911	25355	Guacamole,STDPORTION PER PKG	21	0	36		0.4	0.7	2	1.4	0	0		0.01	0.02	0.18	0	144	94	4	8
5912	25356	Corned Beef Hash canned	252	0	470		21	16	25	8	90	0		0	0	0	0	1200	0	20	0
5913	25357	Meatloaf beef prepared	85	0	155		14.5	0	6.5	0	44	68		0.09	0.17	0	0	578	204	20	0
5914	25358	Vegetable oil Canola	14	0	122		0	1	0	0	0	0		0	0	0	0	0	0	0	0
5915	25359	Veal Parmigiana with 4 oz tomato sce,l	113	0	230		9	4	19	2	20	200		0	0	0	0	740	0	40	0
5916	25360	Garbonzo beans - chickpeas	164	0	269		14.5	4	45	12.5	0	44		0.19	0.1	0	0	11	477	80	276
5917	25361	Chop Suey vegetables - canned	63	0	10		8	0	2.3	1	0	0		0	0	0	0	241	0	37	0
5918	23513	Tater Tots potatoes	85	0	146		1.8	1.2	19.8	0	0	0		0.06	0.01	0	0	401	258	0	0
5919	23514	Ravioli Beef - Windsor	172	0	280		14	4	38	1	75	200		0	0	0	0	480	350	100	0
5920	23515	Caramel Sauce prepared	41	0	120		0	0	28	0	0	0		0	0	0	0	90	90	60	0
5921	23516	Seasoning Salt	1.2	0	0		0	0	0	0	0	0		0	0	0	0	380	0	0	0
5922	23517	Taco Seasoning	5	0	15		0	0	3	0	0	0		0	0	0	0	300	0	0	0
5923	23518	Tortellini cheese	140	0	250		12	1.5	36	1	30	200		0	0	0	0	290	175	200	0
5924	23519	Tartar sauce	30	0	100		0	4	4	0	10	0		0	0	0	0	180	10	0	0
5925	23527	Blintz	50	0	110		5	2	10	0	40	100		0	0	0	0	150	0	20	0
5926	23528	Breadsticks Parmesan herb	28	0	100		3	3	11	0	10	200		0	0	0	0	100	0	40	0
5927	23529	Chicken Cordon Bleu	180	0	350		37	5	20	0	95	200		0	0	0	0	1510	0	150	0
5928	23530	Crepes, 6 INCH	14	0	30		1	0	5	0	5	0		0	0	0	0	35	0	0	0
5929	23531	Cabbage rolls	218	0	218		11.3	0	19.8	0	26	0		0.13	0.15	0	0	1170	371	120	0
5930	23532	Italian Blend Vegetables	84	0	30		1	0	5	2	0	1250		0	0	0	0	30	0	20	0
5931	23533	Yam Patties,PIECE	113	0	150		1	0	33	3	0	4000		0	0	0	0	200	0	40	0