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Applied Database II

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Assignment 11

Introduction

The purpose of this report is to demonstrate the use of Full Text Indexing to perform a full text search within a database in SQL Server. This report is comprised of three parts. The first part lists the database and tables used for this demonstration, the second part lists the queries used to perform the operations, and the third part shows the results achieved using Full Text Indexing. The database used for this report is a menu database which contains menu's, menu groups, and menu items with text descriptions. There are two queries used to complete this demonstration, one query for the creation of a Full Text Catalog and Index, and a second query for the full text index search procedure. The search results consist of multiple snapshots, which display the results of the search query for all rows in the Menu Item Description field that contain both the words "spicy" and "delicious".

Part I: Menu Database & Tables Used

MenuID

	MenuID	MenuTitle	MenuDescriptionText
1	1	Chili's	Mexican Food
2	2	BurgerBlasters	Burgers All Day
3	3	RussianFood	Russian Food
4	4	LittleItaly	Italian Food
5	5	BigBreakfast	Giant Breakfast
6	6	Americana	American Food, including Italian-American, Chine...

Menugroup

	MenuGroupID	MenuID	MenuGroupText	MenuGroupDescriptionText
1	1002	1	Appetizers	NULL
2	1007	1	Sides	NULL
3	1008	2	Meals	NULL
4	1009	2	ValueMenu	NULL
5	1010	3	ColdFood	NULL
6	1011	3	HotFood	NULL
7	1012	4	Appetizer	NULL
8	1013	4	MainCourse	NULL
9	1014	4	Dessert	NULL
10	1015	5	Food	NULL
11	1016	5	Drinks	NULL
12	1017	6	FastFood	NULL
13	1018	6	ChineseAmeri...	NULL
14	1019	6	ItalianAmerican	NULL
15	1021	6	Dessert	NULL
16	1022	6	Drinks	NULL

MenuItem

	MenuItemID	MenuID	MenuGroupID	MenuItemCallNumber	MenuItemTitle	MenuItemDescriptionText
15	1017	3	1011	6	Perogies	Large dumplings filled with meat, potatoes, cheese, ...
16	1018	4	1012	1	Fried Calamari	Pieces of squid deep fried in oil
17	1019	4	1012	2	Caesar Salad	Salad of romaine lettuce, croutons, lemon juice, oliv...
18	1020	4	1013	3	Three-Cheese Lasagna	Lasagna with meat, sauce, and three cheeses
19	1021	4	1013	4	Eggplant Parmesan	Crispy coated eggplant slices smothered in cheese a...
20	1022	4	1014	5	Amaretto Biscotti	Almond Biscotti with Amaretto and Vanilla Extract
21	1023	4	1014	6	Gelato	Frozen dessert of custard, cream, and milk with fruit, ...
22	1024	5	1015	1	Big Pancakes	Giant pancakes topped with nuts, fruit, maple syrup, ...
23	1025	5	1015	2	Big Omelet	Giant omelet with sausage, bacon, vegetables, and ...
24	1026	5	1016	3	Big Coffee	Giant mug of coffee with a choice of milk, half&half, ...
25	1027	5	1016	4	Big OJ	Giant cup of orange juice
26	1028	6	1017	1	Cheeseburger	Cheeseburger with pickles, onions, lettuce, tomatoe...
27	1029	6	1017	2	Philly	Delicious philly Cheesesteak with mushrooms, pepp...
28	1030	6	1017	3	Chicken Strips	Delicious fried chicken strips with spicy sauce
29	1031	6	1017	4	Chicken Sandwich	Delicious chicken sandwich with lettuce and spicy b...
30	1032	6	1017	5	FrenchFries	French fried potatoes
31	1033	6	1018	1	Lo Mein	Noodles with vegetables and beef, chicken, pork, or...
32	1034	6	1018	2	General Tso's Chicken	Delicious chicken fried in a spicy sauce
33	1035	6	1018	3	Sesame Chicken	Chicken fried in a sweet sauce and covered in sesa...
34	1036	6	1018	4	Sweet and Sour Chicken	Breaded chicken with sweet and sour sauce on the ...
35	1037	6	1018	5	Fried Rice	Fried rice with vegetables and beef, chicken, pork, ...
36	1038	6	1019	1	Pizza	Delicious pizza with toppings of pepperoni, mushroo...
37	1039	6	1019	2	Spaghetti with Meatballs	Classic dish of spaghetti with meatballs in a rich sauce
38	1040	6	1019	3	Panini	Delicious panini sandwich with chicken, ham, salami...

Part II: Queries for Full Text Indexing

Query I: Create Full Text Catalog and Index

```
USE MenuDB
GO

SELECT MenuItemTitle, MenuItemDescriptionText
        FROM MenuItem
        WHERE MenuItemDescriptionText LIKE '%spicy%'
                AND MenuItemDescriptionText LIKE '%delicious%'

CREATE FULLTEXT CATALOG MenuFT

CREATE FULLTEXT INDEX ON dbo.MenuItem(MenuItemTitle, MenuItemDescriptionText)
        KEY INDEX PK__MenuItem__8943F702885A0BC7 ON MenuFT
        WITH CHANGE_TRACKING AUTO
GO
```

Query II: Full Text Index Search Using CONTAINS

```
USE MenuDB
GO

SELECT MenuItemID,
        MenuGroupText,
        MI.MenuGroupID,
        MI.MenuID,
        MenuItemCallNumber,
        MenuItemTitle,
        MenuItemDescriptionText
        FROM MenuItem AS MI, MenuGroup as MG
        WHERE MI.MenuGroupID = MG.MenuGroupID AND
        CONTAINS(MI.*, 'Spicy') AND
        CONTAINS (MI.*, 'Delicious')
        ORDER BY MG.MenuGroupID
```

Part III: Search Results

All entrées containing both the words 'delicious' and 'spicy' in their description are displayed when the query is run.

	MenuItemID	MenuGroupText	MenuGroupID	MenuID	MenuItemCallNumber	MenuItemTitle	MenuItemDescriptionText
1	1030	FastFood	1017	6	3	Chicken Strips	Delicious fried chicken strips with spicy sauce
2	1031	FastFood	1017	6	4	Chicken Sandwich	Delicious chicken sandwich with lettuce and spic...
3	1034	ChineseAmerican	1018	6	2	General Tso's Chicken	Delicious chicken fried in a spicy sauce
4	1038	ItalianAmerican	1019	6	1	Pizza	Delicious pizza with toppings of pepperoni, mushr...
5	1040	ItalianAmerican	1019	6	3	Panini	Delicious panini sandwich with chicken, ham, sala...
6	1041	ItalianAmerican	1019	6	4	Lasagna	Classic delicious lasagna with meat, cheese, sauc...

All records are ordered by MenuGroupID.

	MenuItemID	MenuGroupText	MenuGroupID	MenuID	MenuItemCallNumber
1	1030	FastFood	1017	6	3
2	1031	FastFood	1017	6	4
3	1034	ChineseAmerican	1018	6	2
4	1038	ItalianAmerican	1019	6	1
5	1040	ItalianAmerican	1019	6	3
6	1041	ItalianAmerican	1019	6	4

Only records with the words 'spicy' and 'delicious' appearing in the description are displayed.

MenuItemTitle	MenuItemDescriptionText
Chicken Strips	Delicious fried chicken strips with spicy sauce
Chicken Sandwich	Delicious chicken sandwich with lettuce and spicy buffalo sauce
General Tso's Chicken	Delicious chicken fried in a spicy sauce
Pizza	Delicious pizza with toppings of pepperoni, mushrooms, ham, onions, peppers, sausage, pineapple, tomatoes, or spicy jalapenos
Panini	Delicious panini sandwich with chicken, ham, salami, cheese, and/or our signature spicy sauce
Lasagna	Classic delicious lasagna with meat, cheese, sauce, and a spicy option

Conclusion

Full Text Indexing has been shown to be an effective method of searching for records in a SQL Server database based on the text contained in the specified field. The creation of a Full Text Catalog and Full Text Index allowed for the CONTAINS predicate to be utilized, which is used to search for keywords that are contained within a table. The CONTAINS predicate may be used in conjunction with the AND/OR operators to control the precision of a full text search. The above results demonstrate the efficacy of Full Text Indexing when searching for and locating any specific text within a database. Full text searches may be used in a variety of ways to list many records containing a common keyword, or to provide a more concentrated list of records across a shorter scope of uncommon keywords or multiple keywords. This allows for a broad range of search functionality, allowing for quick and easy retrieval of records in a database.