

Small Business Expansion Project

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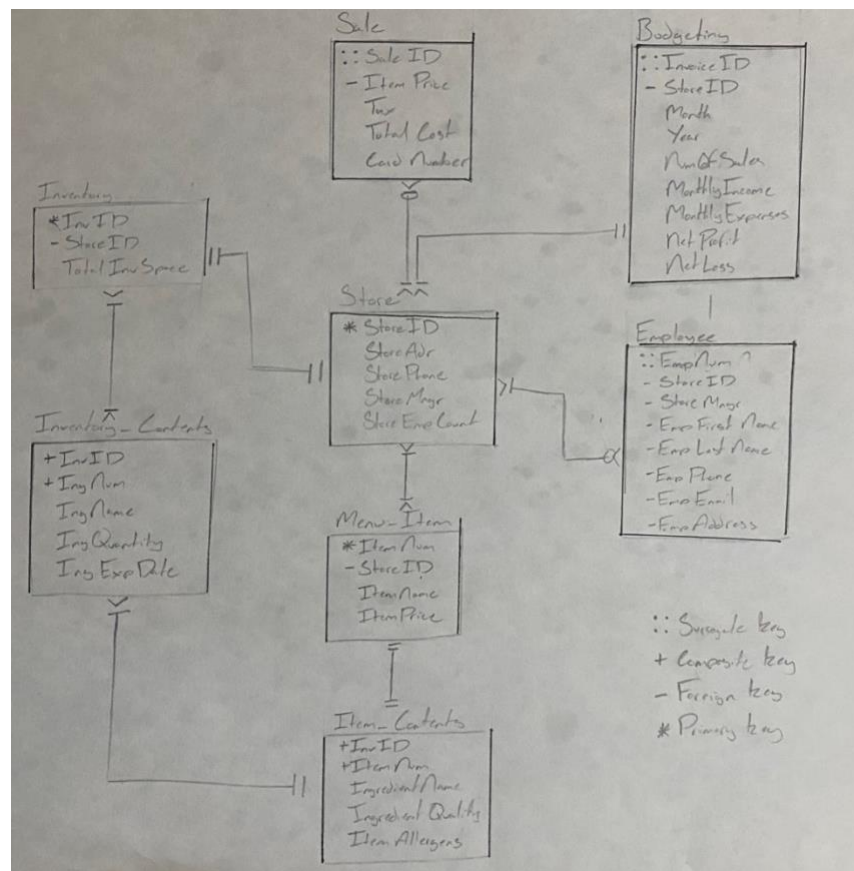
04/27/2023

Executive Summary:

Judy's Island Grill is a small, but very popular, Caribbean food restaurant. Due to an influx in social media popularity and profit, they feel the need to expand their operation. Specifically, they wish to open two new restaurants, both approximately ten miles away from the first store, and in opposite directions of each other. Up until this point, the business has used a paper-based POS system to track sales, inventory, menu items, profit, expenses, and various other important aspects of their business. They had also been using a decentralized paper based system to track employee hours, leading to an incident of fraud committed by an employee.

Judy, the CEO and Chef, wishes to create an all-in-one sales POS system with the capability of tracking menu and inventory items, as well as employee hours. This system will require several databases to store crucial data regarding the menu, inventory, employee hours, and sales information. Having a system like this will allow Judy to have an overarching view of all three of her stores at one time, on top of allowing her full admin freedoms regarding the storage, submission, and deletion of said data.

ER Diagram



Relational Schema

STORE (StoreID, StoreAdr, StorePhone, StoreMngr, StoreEmpCount)

> Primary Key: StoreID

> Foreign Key: --

SALE (SaleID, ItemPrice, Tax, TotalCost, CardNumber)

> Primary Key: SaleID

> Foreign Key: ItemPrice

INVENTORY (InvID, StoreID, TotalInvSpace)

> Primary Key: InvID

> Foreign Key: StoreID

INV_CONTENTS (InvID, IngNum, IngName, IngQuality, IngExpDate)

> Primary Key: InvID, IngName

> Foreign Key: InvID

MENU_ITEM (ItemNum, StoreID, ItemName, ItemPhone)

> Primary Key: ItemNum

> Foreign Key: StoreID

ITEM_CONTENTS (InvID, ItemNum, IngName, IngQuality, ItemAllergens)

> Primary Key: InvID, ItemNum

> Foreign Key: IngName

BUDGETING (InvoiceID, StoreID, Month, Year, NumOfSales, MonthlyIncome, MonthlyExpenses, NetProfit, NetLoss)

> Primary Key: InvoiceID

> Foreign Key: StoreID

EMPLOYEE (EmpNum, StoreID, StoreMngr, FirstName, LastName, Phone, Email, Address)

> Primary Key: EmpNum, StoreID

> Foreign Key: StoreMngr

Data Dictionary

Attribute	Table	Null	Unique	Foreign Key	Primary Key	Referenced Table	Domain
StoreID	STORE	No	Yes	--	Yes	--	Integer
StoreAdr	STORE	No	No	--	--	--	String
StorePhone	STORE	No	No	--	--	--	String
StoreMngr	STORE	No	No	EMPLOYEE(EmpNum, StoreID)	--	EMPLOYEE	Integer
StoreEmp Count	STORE	Yes	No	--	--	--	Integer
SaleID	SALE	No	Yes	--	Yes	--	Integer
ItemPrice	SALE	No	No	--	--	--	Int
Tax	SALE	No	No	--	--	--	Decimal
TotalCost	SALE	No	No	--	--	--	Decimal
CardNumber	SALE	No	No	--	--	--	Integer
InvID	INVENTORY	No	Yes	--	Yes	--	Integer
TotalInvSpace	INVENTORY	No	No	--	--	--	Integer
IngNum	INV_CONTENTS	No	No	--	--	--	Integer
IngName	INV_CONTENTS, ITEM_CONTENTS	No	No	INV_CONTENTS(InvID), ITEM_CONTENTS(InvID)	Composite (InvID, IngName)	INVENTORY	String
IngQuality	INV_CONTENTS, ITEM_CONTENTS	No	No	--	--	--	String
IngExpDate	INV_CONTENTS	Yes	No	--	--	--	Date
ItemNum	MENU_ITEM, ITEM_CONTENTS	No	Yes	--	Yes	--	Integer
ItemName	MENU_ITEM	No	No	--	--	--	String
ItemPhone	MENU_ITEM	No	No	--	--	--	String

ItemAllergens	ITEM_CONTENTS	Yes	No	--	--	--	String
InvoiceID	BUDGETING	No	Yes	--	Yes	--	Integer
Month	BUDGETING	No	No	--	--	--	Integer
Year	BUDGETING	No	No	--	--	--	Integer
NumOfSales	BUDGETING	No	No	--	--	--	Integer
MonthlyIncome	BUDGETING	No	No	--	--	--	

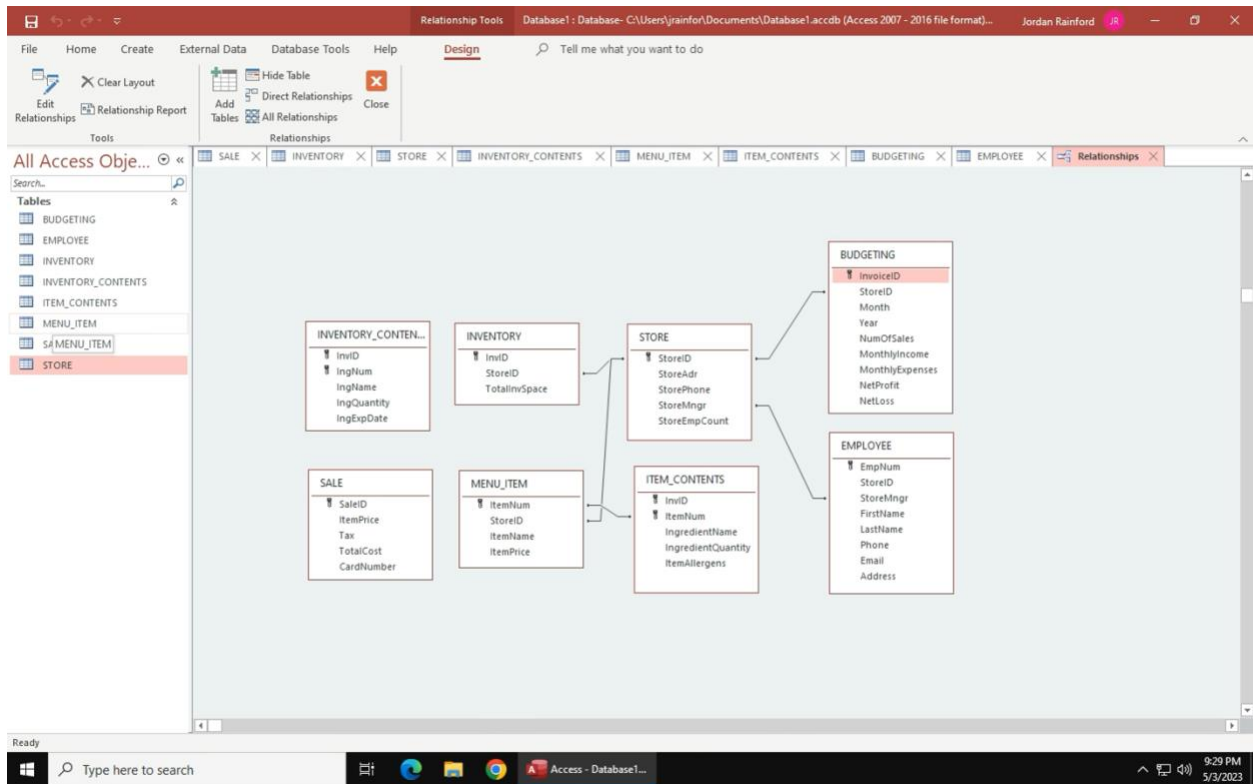
Table Descriptions

Table	Description
STORE	This table stores information about the store, including its ID, address, phone number, manager, and employee count.
SALE	This table stores information about each sale, including its ID, item price, tax, total cost, and the card number used for payment.
INVENTORY	This table stores information about each store's inventory, including its ID, the store it belongs to, and the total inventory space.
INV_CONTENTS	This table stores information about the contents of each inventory, including its ID, ingredient number, name, quality, and expiration date.
MENU_ITEM	This table stores information about each menu item, including its ID, the store it belongs to, its name, and phone number.
ITEM_CONTENTS	This table stores information about the contents of each menu item, including the inventory ID, item number, ingredient name, quality, and allergens.
BUDGETING	This table stores information about the store's budget, including its ID, store ID, month, year, number of sales, monthly income, monthly expenses, net profit, and net loss.
EMPLOYEE	This table stores information about each employee, including their ID, the store they work at, their manager, first name, last name, phone number, email, and address. The store manager's ID is a foreign key referencing the StoreMngr attribute in the STORE table.

CRUD Matrix

	Create	Read	Update	Delete
STORE	Yes	Yes	Yes	Yes
SALE	Yes	Yes	Yes	Yes
INVENTORY	Yes	Yes	Yes	Yes
INV_CONTENTS	Yes	Yes	Yes	Yes
MENU_ITEM	Yes	Yes	Yes	Yes
ITEM_CONTENTS	Yes	Yes	Yes	Yes
BUDGETING	Yes	Yes	Yes	Yes
EMPLOYEE	Yes	Yes	Yes	Yes

Access Screenshots



The Datasheet View of the BUDGETING table shows the following data:

InvoiceID	StoreID	Month	Year	NumOfSales	MonthlyIncc	MonthlyExp	NetProfit	NetLoss
1001	1	04	2003	67	3006	1456	1550	0
1002	2	04	2003	576	14567	2476	12091	0
*	0	0		0	0	0	0	0

Microsoft Access - Database1: Database - C:\Users\jrainfor\Documents\Database1.accdb (Access 2007 - 2016 file format)...

File Home Create External Data Database Tools Help

Fields Table Tell me what you want to do

Filter Ascending Descending Selection Advanced Refresh Save Spelling Find Replace Go To Select

Calibri (Detail) 11

Views Clipboard Sort & Filter Records Find Text Formatting

All Access Objects

Tables

- BUDGETING
- EMPLOYEE
- INVENTORY
- INVENTORY_CONTENTS
- ITEM_CONTENTS
- MENU_ITEM
- SALE
- STORE

Record: 14 of 2

EmpNum	StoreID	StoreMngr	FirstName	LastName	Phone	Email	Address
23	1	J. Barnes	Steve	Rodgers	(567)-000-7648	srodgers@shield.gov	123 Cave Rd, W
0	0						

Microsoft Access - Database1: Database - C:\Users\jrainfor\Documents\Database1.accdb (Access 2007 - 2016 file format)...

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All Access Objects

Tables

- BUDGETING
- EMPLOYEE
- INVENTORY
- INVENTORY_CONTENTS
- ITEM_CONTENTS
- MENU_ITEM
- SALE
- STORE

Record: 14 of 3

Invid	StoreID	TotalInvSpa
117	1	456
118	2	365
119	3	46
0	0	0

Microsoft Access 2016 interface showing the 'INVENTORY_CONTENTS' table in Datasheet View. The table has the following data:

Invid	IngNum	IngName	IngQuantity	IngExpDate
117	86	Butter	40	05/16/2003
118	87	Eggs	577	05/14/2003
119	88	Cheese	56	06/04/2003
0	0		0	

The 'All Access Objects' pane on the left lists the following tables: BUDGETING, EMPLOYEE, INVENTORY, INVENTORY_CONTENTS (selected), ITEM_CONTENTS, MENU_ITEM, SALE, and STORE. The status bar at the bottom indicates 'Record: 14 of 2 of 3'.

Microsoft Access 2016 interface showing the 'ITEM_CONTENTS' table in Datasheet View. The table has the following data:

Invid	ItemNum	IngredientN	IngredientQ	ItemAllerge
10	0			
0	0			

The 'All Access Objects' pane on the left lists the following tables: BUDGETING, EMPLOYEE, INVENTORY, INVENTORY_CONTENTS, ITEM_CONTENTS (selected), MENU_ITEM, SALE, and STORE. The status bar at the bottom indicates 'Record: 14 of 1 of 1'.

Microsoft Access - Table Tools - Database1: Database - C:\Users\jrainfor\Documents\Database1.accdb (Access 2007 - 2016 file format)...

File Home Create External Data Database Tools Help Fields Table Tell me what you want to do

Views Clipboard Filter Sort & Filter Records Find Text Formatting

All Access Objects

Tables: BUDGETING, EMPLOYEE, INVENTORY, INVENTORY_CONTENTS, ITEM_CONTENTS, MENU_ITEM, SALE, STORE

Table: SALE

SaleID	ItemPrice	Tax	TotalCost	CardNumber
234	\$46.00	\$4.56	\$50.56	8576-398-6967
236	\$55.00	\$5.01	\$60.01	6574-830-4589
0	\$0.00	\$0.00	\$0.00	

Record: 14 of 2

Windows taskbar: Type here to search, Access - Database1..., 9:44 PM 5/3/2023

Microsoft Access - Table Tools - Database1: Database - C:\Users\jrainfor\Documents\Database1.accdb (Access 2007 - 2016 file format) - Access

File Home Create External Data Database Tools Help Design Tell me what you want to do

Views Clipboard Filter Sort & Filter Records Find Text Formatting

All Access Objects

Tables: BUDGETING, EMPLOYEE, INVENTORY, INVENTORY_CONTENTS, ITEM_CONTENTS, MENU_ITEM, SALE, STORE

Table: STORE

Field Name	Data Type
StoreID	Number
StoreAdr	Short Text
StorePhone	Number
StoreMngr	Short Text
StoreEmpCount	Number

Field Properties

General

Field Size	Long Integer
Format	
Decimal Places	Auto
Input Mask	
Caption	
Default Value	0
Validation Rule	
Validation Text	
Required	Yes
Indexed	Yes (No Duplicates)
Text Align	General

The data type determines the kind of values that users can store in the field. Press F1 for help on data types.

Design view. F6 = Switch panes. F1 = Help.

Windows taskbar: Type here to search, Access - Database1..., 9:45 PM 5/3/2023