

DB Team Project with Line Numbers For ERD Modeling

Version 2.0

Approvals Signature Block

	Name	Signature	Date
DBA	XXX XXXX		
DBA	YYY YYYY		
TL	TTT TTTT		
SQA	AAA AAAA		
SQA	BBB BBBB		

of **Es**: **9**

Table of **Es**:

E 1	E Customers
E 2	E Orders
E 3	E Books
E 4	E Publisher
E 5	E Author
E 6	E Employee
E 7	E Testimonial
E 8	E ZipCode
E 9	E LogIn

of Attributes: **44**

Table of Attributes:

E Customers	A1-Customer# A2-LastName A3-FirstName A4-B&SAddress A5-Zip A6-Username A7-Password A8-Email
E Orders	A1-Order# A2-OrderDate A3-ShipDate A4-ShipStreet
E Books	A1-ISBN A2-Title A3-PubDate A4-Cost A5-Retail A6-Category A7-QOH
E Publisher	A1-PubID A2-Name A3-Contact A4-Email
E Author	A1-AuthorID A2-LName A3-FName

E Employee	A1-Employee# A2-FName A3-LName A4-Role A5-StartDate A6-EndDate A7-Commission A8-Region
E Testimonial	A1-TestimonialID A2-Content A3-TDate
E ZipCodes	A1-Zip A2-City A3-State A4-Region
E LogIn	A1-Username A2-Password A3-Email

of **Rs** : **5**

Table of **Rs**:

R 1	R Place
R 2	R Fill
R 3	R Has
R 4	R Provide
R 5	R Assigned

of **Attributes**: **2**

Table of **Descriptive Attributes**:

R Fill	A1-ITEM# A2-Quantity
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of **Views** : **5**

Table of **Vs**:

V 1	V Book
V 2	V Order
V 3	V Items
V 4	V Categories
V 5	V Profit

of *Triggers* : 7

Table of <i>Ts</i> :	<i>T</i> 1	<i>T</i> ReOrderItem
	<i>T</i> 2	<i>T</i> ShipItem
	<i>T</i> 3	<i>T</i> TransferOrder
	<i>T</i> 4	<i>T</i> DistributeGift
	<i>T</i> 5	<i>T</i> TrackCustomers
	<i>T</i> 6	<i>T</i> DiscountItem
	<i>T</i> 7	<i>T</i> DetermineProfitPercentage

Team Project: **TEAM1OBPS** (OnLine Books Purchase System) Web Site

The **TEAM1OBPS** web site should be designed using these principles:

- Text must be grammatically sound and spelled correctly. Poor spelling loses credibility points straight away. Ensure that there is plenty of well laid out textual content on the site to attract search engines as well as to inform prospective clients.
- Use keyword and key phrase rich text; that is, utilize copy that includes common phrases that people would enter into search engines when performing a query.
- **TEAM1OBPS** needs to be viewable from at least Chrome and Firefox browsers.
- Images are a wonderful medium to assist in the online application, especially useful to those clients with poor literacy levels or who are in a rush, as we all seem to be these days. But remember, while a picture may be worth a thousand words in the offline world, its worth next to nothing when it comes to search engines as spiders do not 'see' pictures. Image HTML coding should also contain 'alt' tags. This is a textual representation of the image which is useful for the situations where the image doesn't load for some reason. Search engines spiders also latch on to this content, especially if the image is linked to another page. 'alt' text will also pop up when a visitor moves their mouse over the image. Client requires that pictures and (not required) videos be used in **TEAM1OBPS**.

- **TEAM1OBPS** site navigation should be simple and all the questions a consumer may ask should be answered along the way. Where possible, adhere to the "three click rule" - that is, a visitor should be able to access any information regarding your service within 3 clicks of any other area of your web site.
- **TEAM1OBPS** should take advantage of the Javascript and Ajax technologies.
- **TEAM1OBPS** implements a live online support chat allowing communication of visitors and customers with **TEAM1OBPS** Customer Service over the Internet in real time directly from **TEAM1OBPS** web site. No chat information will be stored in the database.
- **TEAM1OBPS** web site will have at least the following pages “**TEAM1OBPS**” home page, “About Us” page, “Contact Us” page, “Testimonials” page with a search function.

Testimonials are stored in the database. The search is done by a stored procedure.

- **TEAM1OBPS** is a **secure web application** with a relational database backend (**TEAM1OBPS**).

E1: Customers

TEAM1OBPS is an online book retail web application. **Customer** orders should be stored in a database backend. Customers should be able to search for products by name and keywords.

TEAM1OBPS should be able to analyze sales information to track profits, determine product

E2: Orders

success, and target marketing efforts to customers. Analyzing thousands of **order** could take days

without using a database. A database simplifies these tasks because it's a storage structure that

provides mechanisms for recording, manipulating, and retrieving data.

E1: Customers – A1: Customer#

E2: Orders – A1: Order#

TEAM1OBPS sells books via the Internet to customers throughout the United States. When a (1 E1: Customers “Place” M E2: Orders)

R1: Place

E1: Customer – A3: FirstName

new customer places an order through an online form, he or she provides data such as first name,

E1: Customers – A2: LastName

E1: Customers – A11: Email

E1: Customers – A4: B&SAddress

last name email, billing (Street Address, City, State, Zip Code) and shipping addresses (Street

E1: Customers – A6: B&SSState

(M E3: Books “Fill” 1 E2: Orders)

E1: Customers – A5: B&SCity

E1: Customers – A7: B&SZip

R2: Fill

Address (City State Zip Code), and items ordered. The company also uses the database for all

E3: Books

R2: Fill – A1: ITEM#

R2: Fill – A2: Quantity

books in inventory. For each book you need to store its International Standard Book Number (

E3: Books – A2: Title E3: Books – A4: Cost

E3: Books – A6: Category E3: Books – A7: QOH

E3: Books – A1: ISBN E3: Books – A3: PubDate E3: Books – A5: Retail

(ISBN) title publication date, wholesale cost, retail price, category (literature, self- help, and so

E4: Publisher

E4: Publisher – A2: Name

E4: Publisher – A3: Contact

E4: Publisher – A4: Email

forth) publisher name, contact person at the publisher for reordering the book (and telephone

E5: Author

E5: Author – A3: FName

E4: Publisher – A1: PubID

number), and author or authors' First and Last names.

E5: Author – A1: AuthorID

E5: Author – A2: Lname

(M E3: Books “Has” 1 E4: Publisher & 1 E5: Author)

E6: Employee

R3: Has

Customers and TEAM1 employees can identify a book by its ISBN, title, or author name.

E2: Orders – A2: OrderDate Inputs: 1. E3: Books – A1 – ISBN or A2 – Title or A2 – Authors

E2: Orders – A3: ShipDate Outputs: 1. E3: Books – * All Attributes

V2: View Order [Order Items REPORT] –

Employees can also determine when an order was placed and when, or if, the order was shipped.

Inputs: 1. E2: Orders – A1: Order#
Outputs: 1. E2: Orders – A2: OrderDate A3: ShipDate

E2: Orders – A5: Zip

E8: ZipCodes – A1: Zip

The database also stores the publisher contact information so that the TEAM1OBPS can reorder

E6: Employee – A2: FName
E6: Employee – A1: Employee#

E6: Employee – A3: LName

a book.

T1: ReOrderItem – Event: E3: Books – A7: QOH on UPDATE

Condition: QOH <= 3

Action: Email to E6: Employee – A4: Role= ‘MANAGER’

E8: ZipCodes – A2: City

E8: ZipCodes – A3: State

E8: ZipCodes – A4: Region

The following are requirements for TEAM1OBPS:

1. An order isn't shipped until all items for the order are available. (In other words, there are

T2: ShipItem – Event: E2: Orders – A3: ShipDate on UPDATE

Condition: QOH = TRUE

Action: Ship to E1: Customers – A4: B&SAddress

no back orders or partial order shipments.)

2. All addresses are in the United States; otherwise, the structure of the Address/ Zip Code

fields would need to be altered because many countries use different address information,

such as province names.

3. Only orders placed in the current month or orders placed in previous months that didn't

ship are stored in the ORDERS table. At the end of each month, all completed orders are

transferred to an annual SALES table. This transfer allows faster processing of data in the

T3: TransferOrder – Event: E2: Orders – A3: ShipDate on End of Month

Condition: ShipDate = NOT NULL

Action: Transfer to Sales Table – All A's from E2: Orders

ORDERS table; when necessary, users can still access information pertaining to previous

orders through the annual SALES table.

4. Customers ordering books that cost less than \$12 receive a certain gift, and customers

buying books costing between \$12.01 and \$25 receive a different gift. The PROMOTION
T4: DistributeGift – Event: E3: Books – A5: Retail on Purchase

Condition: Price amount between min and max

Action: Email to E1: Customers – A4: Email

table identifies the gift and the minimum and maximum retail values of the range.

There's no exact value that matches the Retail field in the BOOKS table; therefore, to

determine the correct gift, you need to determine whether a retail price falls within a

particular range.

T5: TrackCustomers – Event: E2: Orders – A6: Category on UPDATE

Condition: Category Type = MAX

Action: Email to E1: Customer

In addition to recording data, TEAM1OBPS management wants to be able to track the

type of books that customers purchase. Although databases were originally developed to

record an organization's data transactions, many have realized the importance of having

data to support other business functions. Data collected for a database can be used for

other purposes. For example, organizations that deal with thousands or millions of sales

transactions each month usually store copies of transactions in a separate database for

various types of research. Analyzing historical sales data and other information stored in

an organization's database is generally referred to as data mining.

For this reason, the bookseller's database also includes data the Marketing Department can use to determine which categories of books customers purchase most often. By knowing buyers' purchasing habits, **TEAM1OBPS** can promote new items in inventory to customers who purchase that type of book frequently. For example, if a customer has placed several orders for children's books, he or she might purchase similar books in the future. The Marketing Department can then target promotions for other children's books to that customer, knowing there's an increased likelihood of a purchase.

TEAM1OBPS management wants to be able:

V3: View Items [Inventory Items REPORT] –

1. Display a list of all data contained in the BOOKS table.

Inputs: 1. **E3: Books** – **SELECT All Attributes**

Outputs: 1. **E3: Books** – *** All Attributes**

V4: View Categories [Category Items REPORT] –

2. Determine which categories are represented in the current book inventory. List each

Inputs: 1. **E3: Books** – **A6: Category**

Outputs: 1. **E3: Books** – **All Contained Categories Once**
category only once.

3. Send a promotional email to all **TEAM1OBPS** customers that have ordered at least \$56.01 of books that their next order will be **shipped for free**.

Send a promotional email to all **TEAM1OBPS** customers that have ordered at least \$56.00 but more than \$25.01 of books that in their next order they will be receive a **free book cover**.

Send a promotional email to all **TEAM1OBPS** customers that have ordered at least \$25.00 but more than \$12.01 of books that in their next order they will be receive a **free book label**.

A trigger will let the Customer Service know that the customer is qualifies for a **discount at the time of his order**.

T6: DiscountItem – Event: E1: Customers E2: Orders – Gift on Purchase
Condition: Between Min & Max
Action: Prompt E5: Employee – A5: Class = 'CS'

4. **To determine the percentage of profit** for a particular item, subtract the item's

T7: DetermineProfitPercentage – Event: E3: Books - ProfitPercentage on Request
Condition: E5: Employee Input
Action: Display E3: Books – $(Retail - Cost) / Cost$
cost from the retail price to calculate the dollar amount of profit, and then
divide the profit by the item's cost. The solution is then multiplied by 100 to
determine the profit percentage for each book. Display each book's title and
percentage of profit. For the column displaying the percentage markup, use “

Profit %” as the column heading. DATABASE BACKEND REQUIREMENT:

V5: View Profit [Inventory Items REPORT] –

This should be implemented as a stored procedure.

Inputs: 1. E3: Books – A1: ISBN

Outputs: 1. E3: Books – A4: Cost

2. E3: Books – A5: Retail

3. (((retail – cost) /cost)/100)

5. Implement a sales commission program for all account managers who have been

E6: Employee – A6: StartDate E6: Employee – A7: EndDate

employed by the company for more than six months. Account managers will receive

E6: Employee – A8: Commission

E6: Employee – A9: Region

a commission for each order from customers in the geographical region they

supervise. Second, data extracts are needed to enable the Marketing Department to

perform customer analyses.

E6: Employee – A5: Role

6. There are three major classifications for employees of **TEAM1OBPS**: account

managers, who are responsible for the company’s marketing activities (for example,

promotions based on customers’ previous purchases or for specific books); data entry

clerks, who enter inventory updates (for example, add new books and publishers,

change prices, and so on); and customer service representatives, who are responsible

E1: Customers – A9: Username

for adding new customers and entering orders in the database. Customers’ **Username**

E1: Customers – A10: Password

and **Password** are to be stored together with the rest of the Customer’s information

in the database. Each employee group has different tasks to perform and, therefore,

E1: Customers – A8: Region



needs different privileges for various tables in the database. To simplify

administration of system and object privileges, a role should be created for each

E6: Employee – **A4: Username** **E9: LogIn** – **A1: Username** **E9: LogIn** – **A2: Password**
employee group. The Employee's Username and Passwords are to be stored together
E9: LogIn – **A3: Email**
with the rest of the Employee's Information in the database.

(1 **E6: Employee** “Assigned” 1 **E9: LogIn**)

R5: Assigned



7. Database Backend Requirement: To simplify administration of TEAM?OBPS

system and object privileges, a role should be created for each employee group.

Create a document that contains the following information:

- List the tables that each group of employees needs to access.
- Name the privileges each group of employees needs.
- For each group of employees, name a role containing the necessary privileges for that group.

- For all groups of employees, list the exact commands for creating and assigning specific privileges to their roles.
- Explain your rationale for the privileges granted to each role.

The contract states that, at the **Acceptance Test**, a scenario of usage of the **TEAM1OBPS** will be given to you. **Data about customers, books, employees, etc. will be given to the DBAs for your TEAM1OBPS.**

The client desires that **TEAM1OBPS** be designed and implemented using OO paradigm. Formal Analysis, SRS (Software Requirements Specification) document needs to be signed by the **TEAM1** and the client BEFORE any design is started. A SPMP (Software Project Management Plan) document needs to be delivered before the actual development is started.

A prototype is highly desirable. Graphical User Interfaces, Web Site Design, each Page Design can expedite the development process.

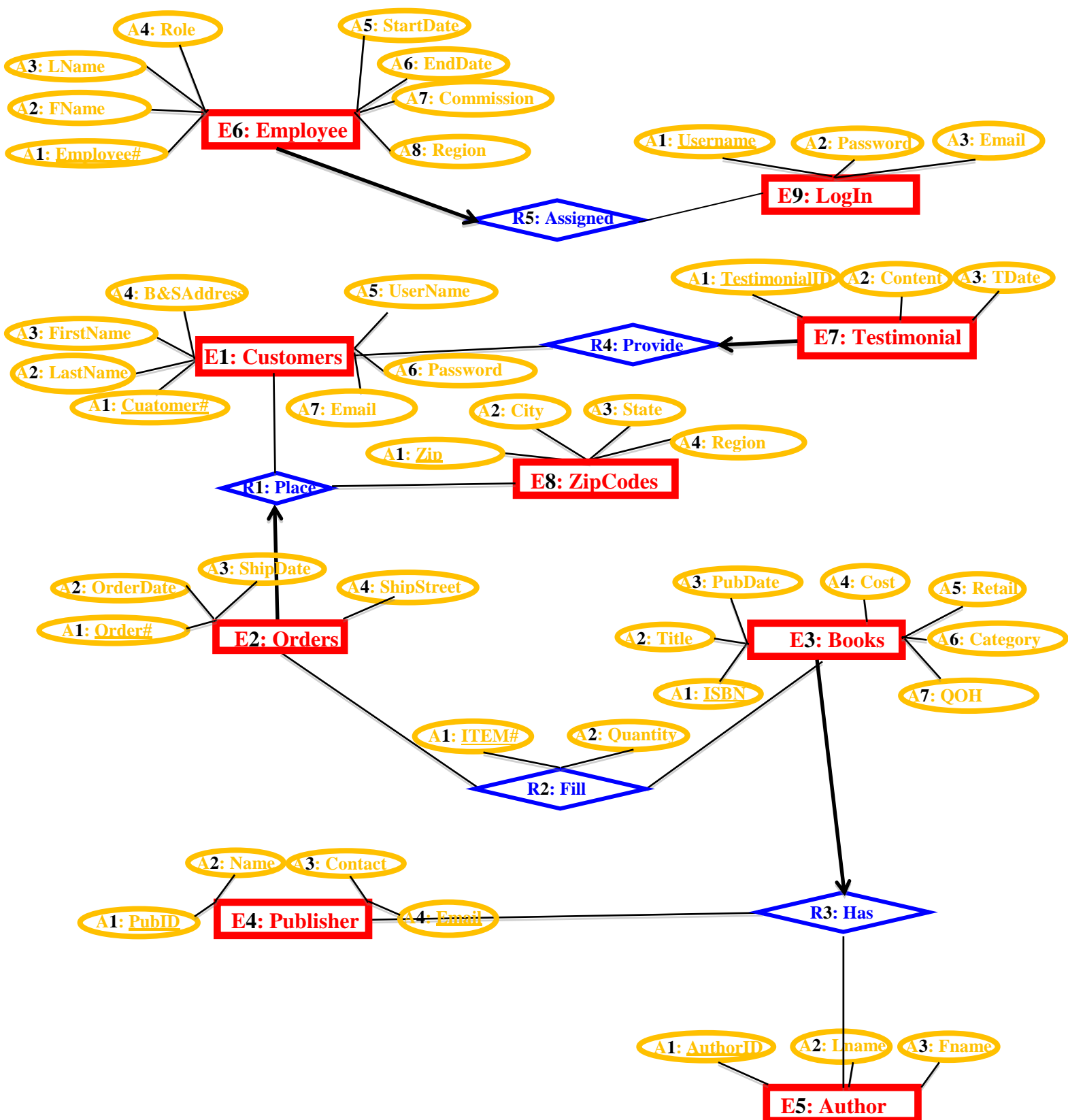
An MVC (3 tier architecture) is required.

NOTE: This requirements document “SE Team Project with Line Numbers.doc” might go through revisions based on your questions. There might be missing requirements; there might be unclear requirements, or conflicting requirements. I can take 5 minutes each class to answer possible questions.

Addendum:

(1 **E1: Customers** “**Provide**” M **E7: Testimonial**)
R4: Provide

1. Customers will provide testimonials relating to TEAM1OBPS website. The testimonial
E7: Testimonial – A1: TestimonialID E7: Testimonial – A2: Content
customer identification, testimonial number, content, and date will be stored in the TEAM1OBPS
database **E7: Testimonial – A3: TDate**



Document Control

CHANGE HISTORY

Revision	Name	Due Date	Description
1.A	DBA XXX XXXX	02/26/14	Complete Diagram
1.B	DBA YYY YYYY	02/26/14	Complete Diagram
1.X	SQA AAA AAAA	03/03/14	Review Document
1.Y	SQA BBB BBBB	03/03/14	Review Document

Revision	Name	Completed Date	Description
1.A	DBA XXX XXXX	03/03/14	I completed the Diagrams I certify that the TEAM has used “COMPILABLE” ERD LANGUAGE where EACH E, R, and A has a NUMBER and LABEL and they are marked on THIS DOCUMENT.
1.B	DBAs YYY YYYY	03/03/2014	2/26/14. ERD model posted. 2/26/14. Adjusted the ERD model. 2/25/14. I revised the textual analysis and ERD model. 2/24/14. I revised a couple of details. 2/23/14. Started the textual analysis and ERD Modeling I certify that the TEAM has used “COMPILABLE” ERD LANGUAGE where EACH E, R, and A has a NUMBER and LABEL and they are marked on THIS DOCUMENT.
1.X	SQA AAA AAAA	03/03/2014	I reviewed Document
1.Y	SQA BBB BBBB	03/03/2014	I reviewed Document

Revision	Name	Due Date	Description
2.0	TL TTT TTTT	03/03/2014	I changed Version to 2.0

DOCUMENT STORAGE

This file is stored in SVN at <https://svn.cs.uh.edu/svn/cosc4351/team1/> **DB TEAM PROJECT DELIVERABLES /DB Team Project with Line Numbers for ERD Modeling.doc**