Solution Design Document Assignment 1: Review of Logical Designs

A proposal for an information system for an Oracle Users' Group

DOCUMENT NO: 1 VERSION: 1.1
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Revision History

Version	Date	Created By	Reviewed By
0.1	2017-01-24	Carlo Carandang	Olanrewaju Orija
Description:	Draft System High-Level Design Document		
1.0	2017-01-31	Carlo Carandang	<Please see Appendix C for response to peer review>
Description:	The following updates/additions were made in this version of the document: 1. Added the peer review document which as not in the earlier versions (pages 20 to 21)		
1.1	< 2017-02-08>	<Carlo Carandang>	<Michael Nisbet/Reviewer's Name>

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INTRODUCTION

1.1 Purpose

Asked to develop an information system for a regional Oracle Users' Group, to help them keep track of all their affairs. They are a volunteer organization, and their current records are disorganized. The group currently includes over 200 members. They want to automate their membership records.

1.2 Definitions, Acronyms, and Abbreviations

This subsection provides the definitions of all unclear terms, acronyms, and abbreviations required to properly interpret this Solution Design Document for NSCC.

Table 1: Definitions, Acronyms and Abbreviations

Term	Definition
ID	Identification, unique key of a table.
PK	Primary Key (PK) of a table- it is a unique key identifying the columns of a table
FK	Foreign Key (FK) is a unique key in a child table that references a parent table.
Entity	An Entity is part of the logical design, which translates into a table in the physical design.
Attribute	An Attribute is part of the logical design, which translates into a column in the table of the physical design.
Data Type	It denotes the different types of data, including integer (number), string (alphanumeric characters), and currency (money).

2. System High-Level Design Overview

2.1 Background Information

Developed an entity relationship diagram (Appendix A) and data dictionary (Appendix B) to help organize the records into an automated information system.

2.2 Business Context

This is for the regional Oracle Users' Group, an all-volunteer organization, and they want to keep track of their members in an organized, automated method.

2.3 System Evolution Description

Not applicable to this assignment.

2.4 Current State

There is no existing system, and not able to track the members. Currently, records kept on paper about the members.

2.5 Proposed State

They would like to have a database that organizes the data. They want to keep track of the events and the companies that they work for.

2.6 Constraints

Only keeping track of one current company a member is a part of. Members who become new members pay for the membership dues for the whole year.

2.7 Risks

There is risk of data loss, with complete loss of information, tracking of events. There is also the risk of miscalculated costs and revenue generated. There is risk of compromise of personal private information and security problems. There is also risk of classification errors and formatting errors (inconsistencies).

Risk	Low	Medium	High	Contingency
Data loss	X			Provide backup of data

Miscalculations	X			Provide accurate logical model
Compromise of personal information	X			Provide security measures
Classification and formatting errors	X			Careful design of logical and physical model

2.8 Assumptions/Issues

Membership dues are fixed regardless of when they joined. Membership dues are expected to be paid in full, with no installment payments. Only members can attend events.

Reference #	Assumption/Issue	Action
1	Membership dues fixed	No separate dues table
2	Only members attend events	No separate non-members table

2.9 Dependencies

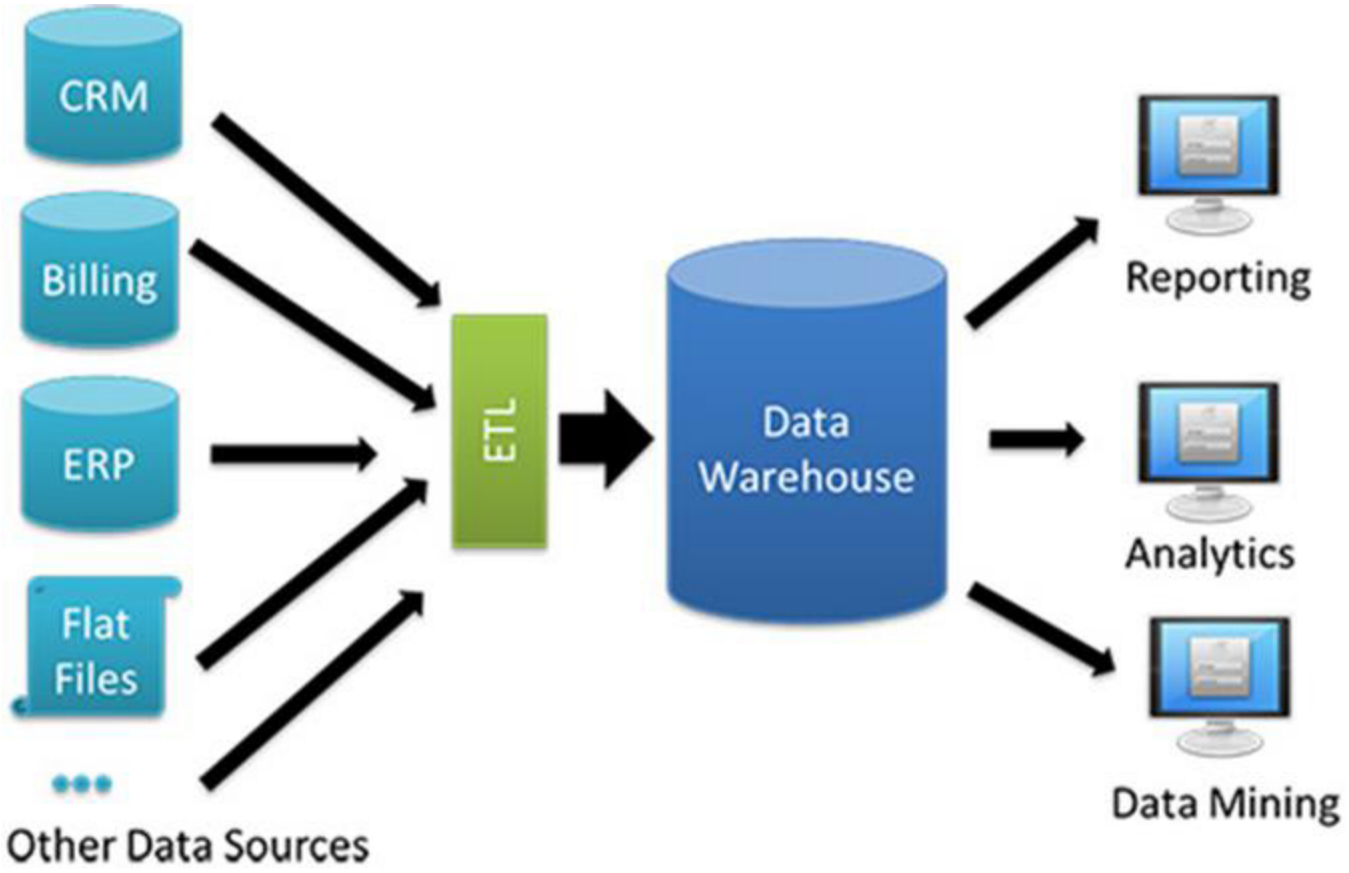
Please refer to Appendix A for the functional dependencies between entities in the ERD.

Reference #	Dependency	Action
	(See Appendix A)	

3. Detailed System Overview

3.1 System Design Components

The following flow chart outlines the system design components in this proposal (flow chart from http://fard-solutions.com/sql-server-data-warehouse-project/#imageclose-1696):



3.2 System Functions

Not applicable to this assignment.

3.3 Stakeholder's Objectives

The membership group wants to replace their paper-based system to an information technology-based system. They want to automate their record-keeping.

3.4 Performance Requirements

Not applicable to this assignment.

3.5 Security Requirements

Not applicable to this assignment.

3.6 Hardware Requirements/Interfaces

Not applicable to this assignment.

3.7 Communications Interfaces

Not applicable to this assignment.

3.8 Application Interface Requirements

Not applicable to this assignment.

3.9 Design Constraints

Running Oracle.

3.10 Database Server Requirements

This is a single user database. This is a Celeron CPU @ 2.16 GHz, 4 GB RAM, 500 GB hard drive space, running Windows 10 machine.

3.11 Data Requirements/Validations

Not applicable to this assignment.

3.12 Data Migration and Transformations

Not applicable to this assignment.

3.13 Report Requirements

We will report which members attended the events. We can report on which members are active, and will track which type of computer platform they are using. We will also track which application areas members are interested in. We will report on the details of the events, and comments about the events to give feedback to the organizers and speakers.

4. Detailed Design

4.1 System Structure Changes

4.1.1 Software Interface Description

Not applicable to this assignment.

4.1.2 Database/Data Model Components

We will set up a database with multiple tables and corresponding entities. Relationship between tables are shown. For a physical data model, see Appendix A.

4.1.3 Application Server Components

Not applicable to this assignment.

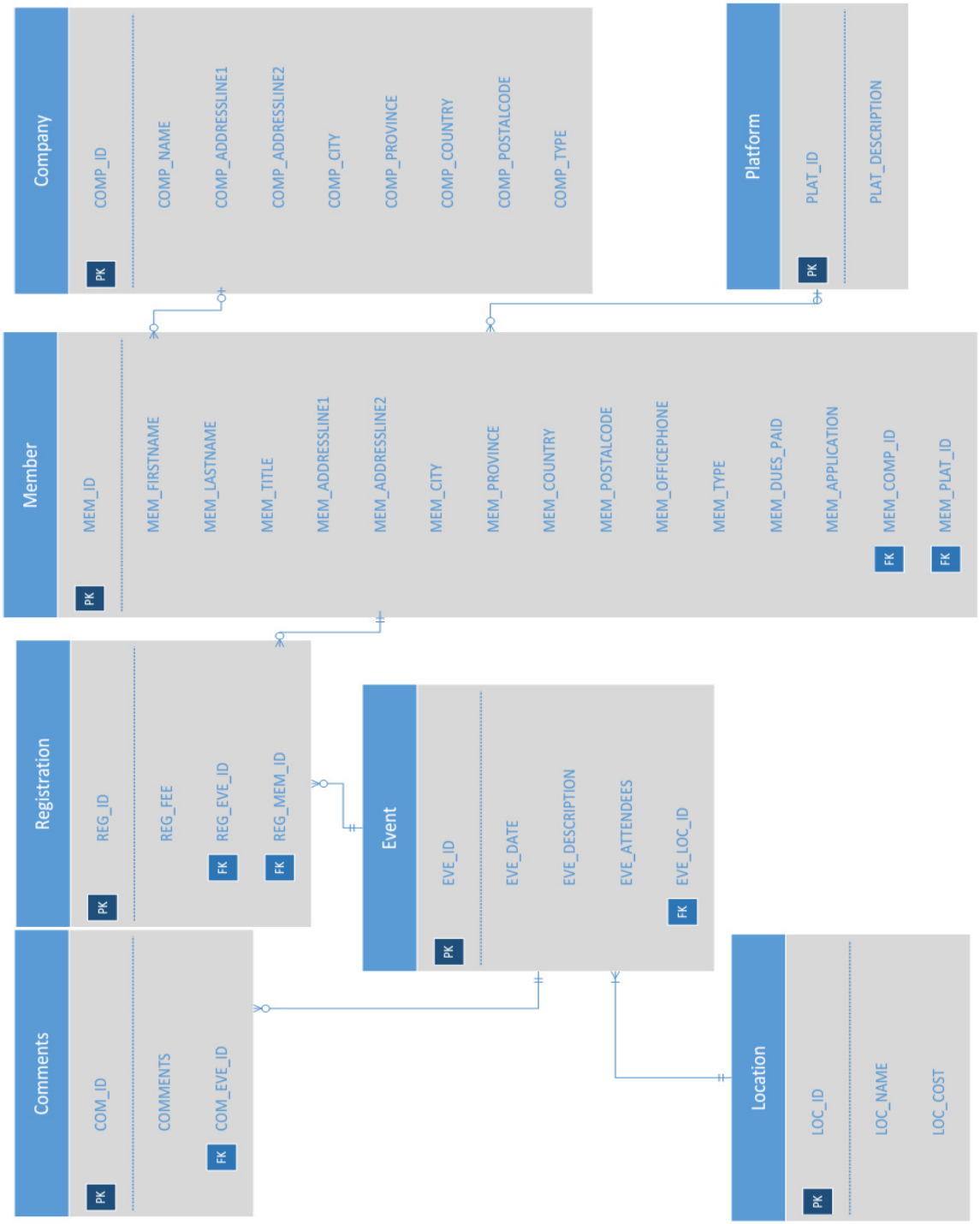
4.1.4 Operating System Components

Not applicable to this assignment.

4.1.5 Version Control Components

Not applicable to this assignment.

5. Appendix A – Entity Relationship Diagram (ERD)



6. Appendix B – Data Dictionary

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Member	A table of members in the Oracle Users' Group							
Column Name	**Attribute Name**	**Description**	**Data Type**	**Format**	**Range**	**Required?**	**PK or FK**	**Referenced Table**	**Constraints**
Member ID	MEM_ID	The unique identifier of the member in the table	Integer	##	00000000 to 99999999	Yes	PK		Always 8 digits including leading
First Name	MEM_FIRSTNAME	First name of the member	String	abcd	max 10	Yes			
Last Name	MEM_LASTNAME	Last name of the member	String	abcd	max 20	Yes			
Title	MEM_TITLE	Title of the member	String	abcd	max 40	Yes			
Address Line 1	MEM_ADDRESSLINE1	Line 1 of the address	String	alpha numeric	max 40	Yes			
Address Line 2	MEM_ADDRESSLINE2	Line 2 of the address	String	alpha numeric	max 40	No			
City	MEM_CITY	City of the address	String	abcd	max 20	Yes			
Province	MEM_PROVINCE	Province of the address	String	abcd	max 20	Yes			
Country	MEM_COUNTRY	Country of the address	String	abcd	maz 20	Yes			
Postal Code	MEM_POSTALCODE	Postal Code of the address	String	alpha numeric	max 7	Yes			
Office Phone	MEM_OFFICEPHONE	Office phone	Integer	(###) ### ####		Yes			
Member Type	MEM_TYPE	Individual or corporate membership	String	abcd	drop down list	Yes			Pick either individual or corporate
Dues Paid	MEM_DUES_PAID	Are the membership dues paid?	String	abcd	drop down list	Yes			Pick either yes or no
Application	MEM_APPLICATION	Application area for a member	String	abcd	max 40	Yes			accounting, HR, Oil&Gas
Member/Computer ID	MEM_COMP_ID	The unique identifier of the member/computer in the table	Integer	##	00000000 to 99999999	Yes	FK	Computer	Always 8 digits including leading zeroes
Member/Platform ID	MEM_PLAT_ID	The unique identifier of the member/platform in the table	Integer	###	001, 002, 030	Yes	FK	Platform	001 is for IBM/MVS, 002 is for IBM/VM, and 030 is for PC/DOS

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Company	A table of the company where members work							
Column Name	**Attribute Name**	**Description**	**Data Type**	**Format**	**Range**	**Required?**	**PK or FK**	**Referenced Table**	**Constraints**
Company ID	COMP_ID	The unique identifier of the company in the table	Integer	##	00000000 to 99999999	Yes	PK		Always 8 digits including leading zeroes
Company	COMP_NAME	Company name	String	abcd	max 20	Yes			
Address Line 1	COMP_ADDRESSLINE1	Line 1 of the address	String	alpha numeric	max 40	Yes			
Address Line 2	COMP_ADDRESSLINE2	Line 2 of the address	String	alpha numeric	max 40	No			
City	COMP_CITY	City of the address	String	abcd	max 20	Yes			
Province	COMP_PROVINCE	Province of the address	String	abcd	max 20	Yes			
Country	COMP_COUNTRY	Country of the address	String	abcd	maz 20	Yes			
Postal Code	COMP_POSTALCODE	Postal Code of the address	String	alpha numeric	max 7	Yes			
Company Type	COMP_TYPE	Type of business	String	alpha numeric	drop down list	Yes			drop down list of standard business codes

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Platform	A table of the platform the member is using							
Column Name	Attribute Name	Description	Data Type	Format	Range	Required?	PK or FK	Referenced Table	Constraints
Platform ID	PLAT_ID	The unique identifier of the platform in the table	Integer	###	001, 002, 030	Yes	PK		001 is for IBM/MVS, 002 is for IBM/VM, and 030 is for PC/DOS
Description	PLAT_DESCRIPTION	Type of computer platform member is using	String	abcd	drop down list	Yes			001 is for IBM/MVS, 002 is for IBM/VM, and 030 is for PC/DOS

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Registration	A table regarding registration for the events							
Column Name	Attribute Name	Description	Data Type	Format	Range	Required?	PK or FK	Referenced Table	Constraints
Registration ID	REG_ID	The unique identifier of registration in the table	Integer	###	00000000 to 99999999	Yes	PK		Always 8 digits including leading zeroes
Registration fee	REG_FEE	The fee paid for registration	Currency	CAD	min $0.00 max $1000000.00	Yes			
Registration/Member ID	REG_MEM_ID	The unique identifier of registration/member in the table	Integer	###	00000000 to 99999999	Yes	FK	Member	Always 8 digits including leading zeroes

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Event	A table about the event								
Column Name	**Attribute Name**	**Description**	**Data Type**	**Format**	**Range**	**Required?**	**PK or FK**	**Referenced Table**	**Constraints**
Event ID	EVE_ID	The unique identifier of the event in the table	Integer	###	00000000 to 99999999	Yes	PK		Always 8 digits including leading zeroes
Date of the event	EVE_DATE	Date of the event	Integer	DDMMYYYY		Yes			
Event description	EVE_DESCRIPTION	description of the event	String	abcd	max 30	Yes			
Number of attendees	EVE_ATTENDEES	Event attendees	Integer	##	max 1000000	Yes			
Event/Location ID	EVE_LOC_ID	The unique identifier of the event/location in the table	Integer	###	00000000 to 99999999	Yes	FK	Location	Always 8 digits including leading zeroes

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Comments	A table about the comments about the event							
Column Name	**Attribute Name**	**Description**	**Data Type**	**Format**	**Range**	**Required?**	**PK or FK**	**Referenced Table**	**Constraints**
Comments ID	COM_ID	The unique identifier of the comments in the table	Integer	###	000000000 to 999999999	Yes	PK		Always 8 digits including leading zeroes
Comments	COM_DATE	Comments about the event	String	abcd	max 100	No			
Comment/Event ID	COM_EVE_ID	The unique identifier of the comment/event in the table	Integer	###	000000000 to 999999999	Yes	FK	Event	Always 8 digits including leading zeroes

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Location — A table about the location of the event

Column Name	Attribute Name	Description	Data Type	Format	Range	Required?	PK or FK	Referenced Table	Constraints
Location ID	LOC_ID	The unique identifier of the location in the table	Integer	###	00000000 to 99999999	Yes	PK		Always 8 digits including leading zeroes
Name of the location	LOC_NAME	Name of the location	String	abcd	max 30	Yes			
Cost of the location	LOC_COST	Cost of the location	Currency	CAD	min $0.00 max $1000000.00	Yes			

7. Appendix C – Response to Peer Review

Peer Review Comments	Response to Peer Review
There were no citations made.	A citation was noted in section 3.1, to denote the source of the flow chart.
There were certain requirements of the system not stated.	3.9, 3.10, and 3.13 were filled out for the requirements of this work. The other requirements were not applicable to this work, given this is the first assignment.
ERD not easily seen in the document.	Expanded the ERD in Appendix A from portrait to landscape view, to enlarge the image.
On the entity ‘Platform,’ the attribute ‘areas of interest’ not present.	In the data dictionary under ‘Platform’ table, the column ‘Description’ is a drop-down list, with 001 is for IBM/MVS, 002 is for IBM/VM, and 030 is for PC/DOS
I feel the total cost for setting up an event isn’t reflecting on event table.	The total cost in an event is reflected in the ‘Location’ table, in the ‘Cost of the location’ column. The Location entity is related to the Event entity in a one-to-many relationship.
The Platform entity did not reflect application area members may be interested in.	In the data dictionary under ‘Platform’ table, the column ‘Description’ is a drop-down list, with 001 is for IBM/MVS, 002 is for IBM/VM, and 030 is for PC/DOS
The data dictionary existed in isolation from the solution document.	Pasted the data dictionary onto Appendix B

8. Appendix D- Peer Review Document

Peer Review Checklist for Documentation
(Note: to be completed by Peer Not Document Owner)

Purpose: The purpose of this checklist is validate that your peer has completed the documentation successfully as outlined in the instructions for the assignment. To complete a successful review of a Peer's Document, the following items are needed: the requirements/instructions for the assignment. Being able to provide constructive feedback is an important skill to have in industry.

PEER's NAME: Carlo Carandang

DOCUMENT PEER REVIEWED: Assignment 1 DBAS 2010

PEER REVIEW QUESTIONAIRE:	YES	NO	N/A	Provide elaborate with specific details if NO or N/A was selected.
PROFESSIONAL DOCUMENTATION				
Does the file name meet naming standards (include full name, course name, date of file)?	Yes			
Was the document template used as outlined in instructions?	Yes			
Revision History included with detail related to instructions, date created and/or modified?	Yes			
The document is presentable including: - No Spelling/Grammatical/Punctuation Errors	Yes			
Work has been cited where required.			N/A	There were no citations made.
The approach is clear and concise. All points are backed up with facts and/or figures.	Yes			
Document is easy to follow through and read.	Yes			
Work Product is an acceptable Technical document to be shared with the client/instructor?	Yes			
Is there anything else that you would like to point out?	Yes			There were certain requirements required of the system not stated.
ENTITY RELATIONSHIP DIAGRAM SECTION				
An ERD exists in the solution document	Yes			ERD not easily seen in the document
Entities are clearly defined and exist as outlined in specifications/requirements	Yes			
Attributes exist as outlined in requirements	Yes			On the platform Entity attribute, areas of interest not presented
Unique Keys exist in all entities	Yes			
Primary Key(s) attributes exist in the Parent Table	Yes			
Foreign Key(s) attributes exist in the Child Table	Yes			
Relationships exist from PARENT TABLE to CHILD TABLE and are accurate as per the requirements (ie. Ask the question as you're reviewing, can one row from the parent table apply to the many rows in the child table?)	Yes			

Peer Review Checklist Last Modified: January 2017 1 of 2

Peer Review Checklist for Documentation

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Is there any components and/or rules missing as per the requirements?				I feel the total cost for setting up an event isn't reflecting an event. Maybe
Could you create a database design based on the entities, attributes, relationships (PK/FKs) in the ERD your peer has created?	Yes			
ERD Solution satisfies all stated requirements		No		The Platform Entity did not reflect application area members may be interested in.
DATA MATRIX/DICTIONARY FOR EACH ENTITY SECTION				
For each entity found in the ERD, there is a corresponding Data Dictionary Table provided (ie 5 entities exist in ERD, therefore 5 entities exist in Data Matrix)	Yes			
A data dictionary exists in the solution document		NO		The data dictionary existed in isolation from the Solution document
Table description has been completed for each Entity created in the Data Matrix and a purpose has been provided	Yes			
Each Column Name maps back to the Attribute in the corresponding Entity				
Column description has been provided for each column name	Yes			
Key Types have been provided for each column	Yes			
Data Types have been provided for each column and lengths are accurate as per the DBMS being used	Yes			
NULL has been identified for each column (ie. If a PK is identified then NOT NULL would be identified)	Yes			
Naming conventions and standards are being followed.	Yes			
I accept the details and solution provided in this document as outlined in the instructions of the Assignment.	✓			
REVIEWER'S NAME:	Olanrewaju Orija			
# of Minutes to Complete Peer Review:	50 minutes.			
Additional Comments:				