GCS DATABASE

CEIS236 Final Project

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1 Introduction

Global Computer Solutions (GCS) is an information technology consulting company with many offices throughout the United States. They need a database designed to better manage their projects. The database needs to allow GCS managers to keep track of their customers, employees, projects, project schedules, assignments, and invoices.

2 Database Design

- 2.1 The business rules for the database are as follows:
 - A customer is assigned to one region. One region can have several customers.
 - An employee can have several skills. One skill can be learned by several employees.
 - An employee works for one region. A region can have many employees.
- 2.2 Based on these business rules, the following Entity Relationship Diagram was created.





3 Table Creation and Data Population

3.1 Region Table:

CREATE TABLE REGION(

REGION_ID INTEGER PRIMARY KEY, REGION_NAME VARCHAR(35) NOT NULL); INSERT INTO REGION VALUES(1001,'Northwest'); INSERT INTO REGION VALUES(1002,'Southwest'); INSERT INTO REGION VALUES(1003,'Northeast'); INSERT INTO REGION VALUES(1004,'Southeast');

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•	1001	Northwest	
	1002	Southwest	
	1003	Northeast	
	1004	Southeast	
	1005	Central	
*	NULL	NULL	

3.2 Customer Table:

CREATE TABLE CUSTOMER(

CUS_ID INT PRIMARY KEY,

CUS_NAME VARCHAR(35),

CUS_PHONE VARCHAR(35),

REGION_ID int,

foreign key (REGION_ID) REFERENCES REGION(REGION_ID)

);

INSERT INTO CUSTOMER VALUES('1','Bellsouth','222-333-4571',1003); INSERT INTO CUSTOMER VALUES('2','Comcast','615-725-7896',1003); INSERT INTO CUSTOMER VALUES('3','Enron','423-596-6241',1005); INSERT INTO CUSTOMER VALUES('4','Exxon','901-895-5547',1004);



3.3 Employee Table:

CREATE TABLE EMPLOYEE(

EMP_ID char(2) PRIMARY KEY,

EMP_LNAME VARCHAR(35),

EMP_FNAME VARCHAR(35),

EMP_HIREDATE DATETIME,

REGION_ID int,

foreign key (REGION_ID) REFERENCES REGION(REGION_ID)); INSERT INTO EMPLOYEE VALUES('E1','EPPS','MARICIA','2019-2-7',1004); INSERT INTO EMPLOYEE VALUES('E2','CRAIG','BRETT','2019-3-30',1004); INSERT INTO EMPLOYEE VALUES('E3','WILLIAMS','JOSH','1999-3-17',1005); INSERT INTO EMPLOYEE VALUES('E4','COPE','LESLIE','2017-4-21',1002); INSERT INTO EMPLOYEE VALUES('E5','MUDD','ROGER','2007-10-18',1001);



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	E2	CRAIG	BRETT	2019-03-30 00:00:00	1004
	E3	WILLIAMS	JOSH	1999-03-17 00:00:00	1005
	E4	COPE	LESLIE	2017-04-21 00:00:00	1002
	E5	MUDD	ROGER	2007-10-18 00:00:00	1001
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3.4 Skill Table:

CREATE TABLE SKILL(

SKILL_ID char(2) PRIMARY KEY,

SKILL_DESCRIPTION VARCHAR(50),

SKILL_RATE DECIMAL(8,2)

);

INSERT INTO SKILL VALUES('S1', 'Data Entry I', 12);

INSERT INTO SKILL VALUES('S2','Java I',25);

INSERT INTO SKILL VALUES('S3','Python I',25);

INSERT INTO SKILL VALUES('S4','Python II',35);

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3.5 Employee Skill Table:

CREATE TABLE EMPSKILL(EMP_ID CHAR(2), SKILL_ID CHAR(2), primary key(EMP_ID,SKILL_ID), foreign key(EMP_ID) REFERENCES EMPLOYEE(EMP_ID), foreign key(SKILL_ID) REFERENCES SKILL(SKILL_ID)); INSERT INTO EMPSKILL VALUES('E1','S1'); INSERT INTO EMPSKILL VALUES('E2','S1'); INSERT INTO EMPSKILL VALUES('E3','S2'); INSERT INTO EMPSKILL VALUES('E3','S4'); INSERT INTO EMPSKILL VALUES('E4','S3');

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4 Queries

- Queries ask questions of a database.
- Several queries were executed with this data.
- These questions gave insight to the data.

4.1 The Average, Maximum, and Minimum Skill Rate.

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2 FROM SKILL;
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4.2 Customers in the Northeast Region.



4.3 Employees with skills paying more than \$15 per hour.



5 Conclusion

In this course project I successfully developed an entity relationship diagram (ERD), created a physical database from the logical model, designed queries to retrieve requested data using SQL, modified the database structure using SQL statements, and produced a database including simple and complex reports based on queries.