**Sky Sights Charter Company**

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**Abstract:**Sky Sights’ scope is high, set in the clouds of problems plaguing a modern, disconnected charter company. A company these days that doesn’t have a digital database can suffer greatly, and a charter company is no exception. Keeping up to date with employees, along with their licenses and certifications, was once possible through physical logs, but with this charter company needing to keep track of their employees’ tests, renewals, and the company itself having to keep track of the license/certification renewals it personally does, the use of a digital database saves time and money. Not to mention, employees could meet the requirements for other jobs on different flights, so the database helps keep a tighter log on which employee is for which job, and then checks if the employee meets those requirements. Other important aspects, like the # of the charter vehicle being used, along with all the factors in play, can be easily catalogued and monitored through the database! And of course, keeping an eye on customers, having a set account for them, along with setting a balance and any special requirements the customer may need the company to accommodate for. A charter company like this one needs a database system to keep everything in check, and allow them to grow into an amazing company, and that is exactly what Sky Sights aims to do!

**True Abstract:**

\* This report will outline the creation and implementation of a database that supports and holds the data of a Charter Company. This database will keep track of employee and customer information, it will also have a separate entity that holds that data of specific employee test results, and dates.

Creating a database to keep track of employees and their certifications / licenses as well as testing dates and codes. Quality control within a team of employees. Codes apply to the employee’s identity and tests.

There are extra aspects, loadmasters and flight attendants.  \*

**Attributes**

EMP\_CODE - Employee Code - INT

EMP\_FNAME - Employee First Name - STRING

EMP\_LNAME- Employee Last Name - STRING

INSTRU\_RATING - Instrument Rating - INT

MEL - Multi Engine Land Aircraft Rating - FLOAT

LM -Loadmaster - STRING   
FA - Flight Attendant - STRING

CERT - Certification Type - STRING

LIC - License Type - STRING

LIC\_DATE - License Earned - DATE

CERT\_DESC - STRING

CERT\_DATE - Certification Data Earned - DATE

TEST\_CODE - Test Code - INT

TEST\_DESC - STRING

TEST\_LAST\_TEST\_DONE - DATE

TEST\_NEXT\_TEST\_DUE - DATE

TEST\_RSLT - STRING

**Entities**

* **Employees**
  + EMP\_CODE
  + EMP\_FNAME
  + EMP\_LNAME  
    CERT or LIC

-  **Results**

- TEST\_CODE - Test Code - INT

- TEST\_DESC - STRING

- TEST\_LAST\_TEST\_DONE - DATE

- TEST\_NEXT\_TEST\_DUE - DATE

- TEST\_RSLT - STRING

* **CHARTER TRIP**
* CHARTER\_NUM
* PILOT\_CODE
* CHARTER\_TRIP\_LENGTH
* CHARTER\_COSTS
* CHARTER\_REVENUE

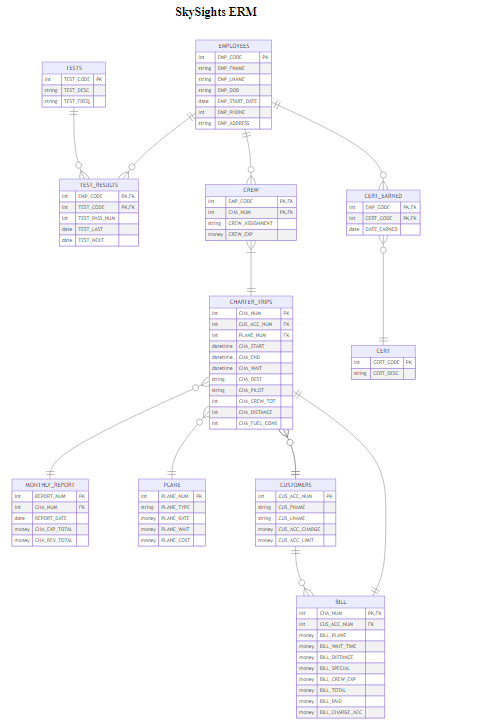
* **CUSTOMER**
* CUS\_ACCOUNT\_NUM
* CUS\_BALANCE\_DUE
* CUS\_REQ

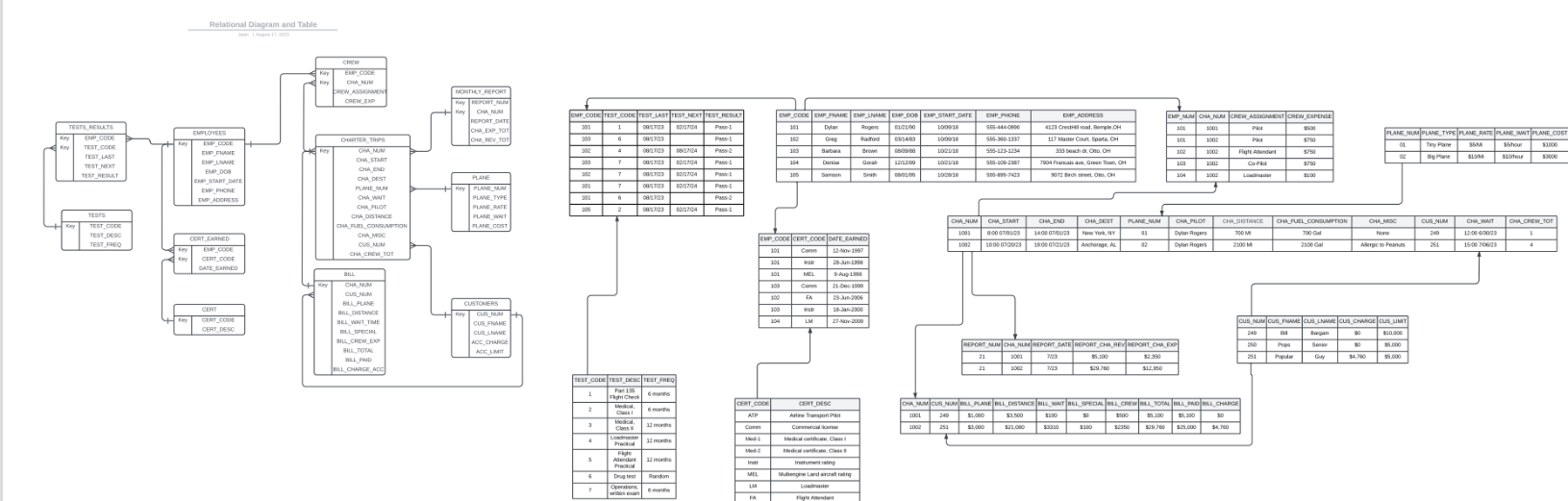
BUSINESS RULES:

* A customer may request many charter trips
* Each charter trip is request by only one customer
* Some customers have not yet requested a charter trip
* An employee may be assigned to serve as a crew member on many charter trips.
* Each charter trip trip may have many employees assigned as crew members
* Charter flights take place to only after a customer reserves the use of an aircraft at a designated date and time to fly to one or more designated areas
* Customers may pay the bills or charge it to their accounts
* Customers may not charge an amount that exceeds the available credit
* A crew may consist of one or more persons, and not all crew members are pilots
* Pilots are required to generate a record for each charter trip
* All employees are required to complete proper training, pass tests, and receive the correct licenses and certifications.
* Employees are not restricted to one crew member certification.
* A monthly summary of all charter trips, revenues, and expenses is generated from the charter records

Data Dictionary:

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Table Name | Attribute Name | Contents | Type | Format | Range | Required | PK or FK | FK Reinforced Table |
| **Employee** | EMP\_CODE | Employee’s account code | INT | 9999 | 1000-9999 | Y | PK |  |
|  | EMP\_FNAME | Employee’s first name | STRING | Xxxxx |  | Y |  |  |
|  | EMP\_LNAME | Employee’s last name | STRING | Xxxxx |  | Y |  |  |
|  | CERT | Employee’s license/ Certification | STRING | xxxxxx |  | Y |  |  |
| **Results** | TEST\_CODE | Test Employee Code | INT | 9999 | 1000-9999 | N | FK | Employee |
|  | TEST\_DESC | Test Description | STRING |  |  | N |  |  |
|  | TEST\_LAST\_TEST\_DONE | Test of last test finished by Employee | STRING | xxxxx |  | Y | FK | Employee |
|  | TEST\_NEXT\_TEST\_DATE | Date of next test to be finished by employee | STRING | xxxxxx |  | Y | FK | Employee |
|  | TEST\_RSLT | Test results of Employee | STRING | xxxxx |  | Y |  |  |
| **Charter Trip** | CHARTER\_NUM | Number code of Charter trip | INT | 9999 | 1000-9999 | Y |  |  |
|  | PILOT\_CODE | Pilot code | INT | 9999 | 1000-9999 | Y |  |  |
|  | CHARTER\_TRIP\_LENGTH | The length of the charter trip. | TIME | 9:99 | 0:00-999:999 | Y |  |  |
|  | CHARTER\_COSTS | The cost of a charter trip | MONEY | $9999.99 | $0.0 - 9999.99 | Y |  |  |
|  | CHARTER\_REVENUE | Revenue achieved by charters. | MONEY | $9999.99 | $0.0 - 9999.99 | Y |  |  |
| **Customer** | CUS\_ACCOUNT\_NUM | A customer’s account number/code | INT | 9999 | 1000-9999 | Y |  |  |
|  | CUS\_BALANCE\_DUE | A customer’s balance due | MONEY | $9999.99 | $0.0-9999.99 | Y |  |  |
|  | CUS\_REQ | A customer’s special requirement(s) | STRING | xxxxx |  | N |  |  |





A text view of our SQL code used for MySQL.

/\* Database Systems, Coronel/Morris \*/

/\* Type of SQL : MySQL \*/

CREATE DATABASE IF NOT EXISTS final;

USE final;

CREATE TABLE EMPLOYEES (

EMP\_CODE INT PRIMARY KEY,

EMP\_FNAME TEXT,

EMP\_LNAME TEXT,

EMP\_DOB TEXT,

EMP\_START\_DATE DATE,

EMP\_PHONE INT,

EMP\_ADDRESS TEXT

)

ENGINE = INNODB;

CREATE TABLE CUSTOMERS (

CUS\_ACC\_NUM INT PRIMARY KEY,

CUS\_FNAME TEXT,

CUS\_LNAME TEXT,

CUS\_ACC\_CHARGE DECIMAL(10, 2),

CUS\_ACC\_LIMIT DECIMAL(10, 2)

)

ENGINE = INNODB;

CREATE TABLE PLANE (

PLANE\_NUM INT PRIMARY KEY,

PLANE\_TYPE TEXT,

PLANE\_RATE TEXT,

PLANE\_WAIT DECIMAL(10, 2),

PLANE\_COST DECIMAL(10, 2)

)

ENGINE = INNODB;

CREATE TABLE CHARTER\_TRIPS (

CHA\_NUM INT PRIMARY KEY,

EMP\_CODE INT,

CUS\_ACC\_NUM INT,

PLANE\_NUM INT,

CHA\_START TIME,

CHA\_END TIME,

CHA\_DEST TEXT,

CHA\_PILOT TEXT,

CHA\_CREW\_TOT INT,

CHA\_DISTANCE INT,

CHA\_FUEL\_CONS INT,

CHA\_WAIT DECIMAL(10, 2),

FOREIGN KEY (EMP\_CODE) REFERENCES EMPLOYEES(EMP\_CODE),

FOREIGN KEY (CUS\_ACC\_NUM) REFERENCES CUSTOMERS(CUS\_ACC\_NUM),

FOREIGN KEY (PLANE\_NUM) REFERENCES PLANE(PLANE\_NUM)

)

ENGINE = INNODB;

CREATE TABLE TESTS (

TEST\_CODE INT PRIMARY KEY,

TEST\_DESC TEXT,

TEST\_FREQ TEXT

)

ENGINE = INNODB;

CREATE TABLE TEST\_RESULTS (

EMP\_CODE INT,

TEST\_CODE INT,

TEST\_PASS\_NUM INT,

TEST\_LAST DATE,

TEST\_NEXT DATE,

PRIMARY KEY (EMP\_CODE, TEST\_CODE),

FOREIGN KEY (EMP\_CODE) REFERENCES EMPLOYEES(EMP\_CODE),

FOREIGN KEY (TEST\_CODE) REFERENCES TESTS(TEST\_CODE)

)

ENGINE = INNODB;

CREATE TABLE CERT (

CERT\_CODE INT PRIMARY KEY,

CERT\_DESC TEXT

)

ENGINE = INNODB;

CREATE TABLE CERT\_EARNED (

EMP\_CODE INT,

CERT\_CODE INT,

DATE\_EARNED DATE,

PRIMARY KEY (EMP\_CODE, CERT\_CODE),

FOREIGN KEY (EMP\_CODE) REFERENCES EMPLOYEES(EMP\_CODE),

FOREIGN KEY (CERT\_CODE) REFERENCES CERT(CERT\_CODE)

)

ENGINE = INNODB;

CREATE TABLE CREW (

EMP\_CODE INT,

CHA\_NUM INT,

CREW\_ASSIGNMENT TEXT,

CREW\_EXP DECIMAL(10, 2),

PRIMARY KEY (EMP\_CODE, CHA\_NUM),

FOREIGN KEY (EMP\_CODE) REFERENCES EMPLOYEES(EMP\_CODE),

FOREIGN KEY (CHA\_NUM) REFERENCES CHARTER\_TRIPS(CHA\_NUM)

)

ENGINE = INNODB;

CREATE TABLE MONTHLY\_REPORT (

REPORT\_NUM INT PRIMARY KEY,

CHA\_NUM INT,

REPORT\_DATE DATE,

CHA\_EXP\_TOTAL DECIMAL(10, 2),

CHA\_REV\_TOTAL DECIMAL(10, 2),

FOREIGN KEY (CHA\_NUM) REFERENCES CHARTER\_TRIPS(CHA\_NUM)

)

ENGINE = INNODB;

CREATE TABLE BILL (

CHA\_NUM INT PRIMARY KEY,

CUS\_ACC\_NUM INT,

BILL\_PLANE TEXT,

BILL\_WAIT\_TIME TIME,

BILL\_DISTANCE INT,

BILL\_SPECIAL TEXT,

BILL\_CREW\_EXP DECIMAL(10, 2),

BILL\_TOTAL DECIMAL(10, 2),

BILL\_PAID DECIMAL(10, 2),

BILL\_CHARGE\_ACC DECIMAL(10, 2),

FOREIGN KEY (CHA\_NUM) REFERENCES CHARTER\_TRIPS(CHA\_NUM),

FOREIGN KEY (CUS\_ACC\_NUM) REFERENCES CHARTER\_TRIPS(CUS\_ACC\_NUM)

)

ENGINE = INNODB;

Screenshot of our SQL/PHP tables during a search:

