

CS 631 – Morris Health Services Application

Project Deliverable 3

Requirements

Phase 3 Deliverable must contain the goal of this phase of the project, and a description of the creation of the database schema and instance and of the application programs. It must also provide any revisions made to the specifications described in the Phase 1 and Phase 2 Deliverables. It must further describe the problems encountered in Phase 3 and justify the solutions.

- The program must run.
 - Make sure you have ample sample data in your tables so that you can sufficiently perform and illustrate all required tasks.
 - You do not have to design a fancy interface.
 - Although most teams create web applications, your application does not have to run on a web server as long as it meets the other project requirements.
1. Run SQL commands for creating tables including primary keys, secondary keys, and foreign keys. Run SQL command files that populate each table. Each table is required to have a sufficient number of tuples. Keep in mind the relationships between tables and plan your data accordingly. You should be able to run these command files successfully with no errors and no integrity violations.
 2. You are to develop a menu driven application system for the MHS database as described in the functional requirements on the next page.

What is expected:

1. Description of implementation, problems faced.
2. Users guide (Less than 3 pages). Instructions to use your application.
3. The SQL commands that create your tables
4. The SQL commands that populate your tables
5. The source code.
6. A **printout** of the use of the program – a set of captioned screenshots illustrating the use of the program.

If you miss a task mention which one. In this case if you have implemented a task with a similar functionality it helps (mention it).

You should demonstrate your project. The demonstration has to be done on the

dates provided on a sign-up sheet provided in class. You will have to reserve a time slot for your demo.

Development environment

Your database should be built in either MySQL (or MariaDB) or Oracle. Other DBMS's can be used with the permission of the instructor.

Your application can be built using the following languages/frameworks:

- C, C++, Objective-C
 - C#, Visual Basic
 - PHP, Python
 - Java
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- *Any other languages/frameworks require the permission of the instructor.*
 - *You may not use javascript-based frameworks such as node.js, React or Angular.*
 - *You may not use any ObjectRelationalMapping (ORM) classes. All database operations should be done with raw SQL.*

FUNCTIONAL REQUIREMENTS

(Specifications for the development of the application programs)

MHS is interested in an online application program interface that is easy to use so that they do not have to spend time unnecessarily to train their employees. In particular, MHS is interested in three applications: *Employee and Facility Management*, *Patient Management (appointments, procedures and billing)*, and *Management Reporting*. The last application is crucial in decision making by management and the Accounting Department.

As database and application program designers you are expected to write a menu-based main program which consists of the following three application programs for the management of the company and is open to the inclusion of additional functionality in the future. Note that many functions are left out in order to reduce the size and the complexity of the project.

1. Employee and Facility Management

The Employee and Facility Management application provides insert / update / view utilities for:

- Employees
- Medical offices
- Out-patient surgery facilities
- Employee assignments
- Insurance companies
- Any additional necessary entities

2. Patient Management

The Patient Management application provides functions to allow for insert/entry/view of activities and revenue such as:

- Create new patient records
- Create appointments and update with charges when complete
- Generate daily insurance company invoices with patient subtotals

3. Management and Reporting

Management uses this application to review and/or change operations, manage its workforce and measure the business's financial performance. This program provides statistics used by management to analyze its income,

facilities, employees and patients. In particular, the program should be able to make the following computations:

1. For a given day, a report of the revenue (patient charges recorded) by facility, with subtotals and a total.
2. For a user-selected date and a user-selected physician, a list of appointments.
3. For a user-selected time period (begin date and end date) and a user-selected facility, a list of appointments with detail for date-time, physician, patient, and description.
4. For a user-selected month compute the 5 best days (in terms of total revenue) for MHS.
5. For a user-selected time period (begin date and end date) compute the average daily revenue for each insurance company.