

# DBMS Project

## COP5725 - Spring 2011



Final Submission Report

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## LINK TO PROJECT

Project Website : [www.cise.ufl.edu/~mallela](http://www.cise.ufl.edu/~mallela)

Project Code : <http://code.google.com/p/cop5725-dbms-project/>

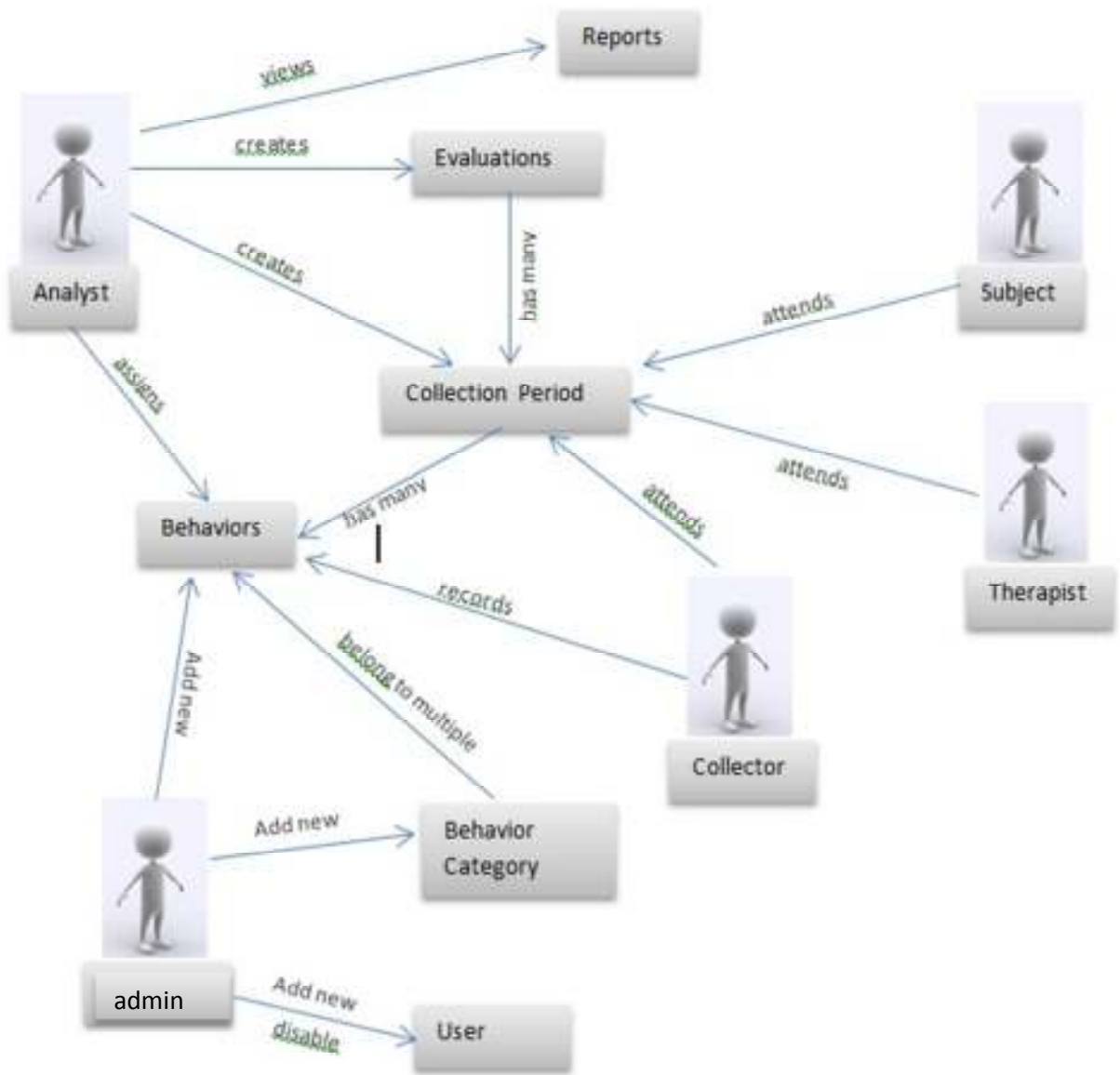
## INTRODUCTION

This project deals with designing and implementing a system for handling the information of behavioral evaluations. An Analyst schedules subject evaluations and then analyses the recorded behaviors that occur during specified collection periods. The evaluations provide data that can be analyzed in order to develop plans that will help treat the subject as needed.

The collection periods or appointments as they have been called in our project are scheduled by the analyst, conducted by the therapist and data during these appointments is collected by a collector present. Our system also implements an admin user who is required for user management and behavior data management.

The process flow implemented is as follows:

- > The admin created users and also defines behaviors and categories.
- > An analyst when he logs in can create evaluations and make appointments for subjects with specific therapists and collectors.
- > A therapist who logs in can then see his/her appointments.
- > Similarly a subject who logs in can see his/her appointments.
- > A collector will log in during the appointment and select the appointment in order to start collecting behavioral data.
- > After data has been collected during the appointment, an analyst can then create reports, see the behavioral trends using the reports, analyze them and then suggest treatment.
- > This treatment plan can also be saved as a treatment plan for future reference.



The image above shows the navigation and operations each entity can perform in the project. Navigation of the website can be seen as a video at <http://cise.ufl.edu/~mallela/documents.html>.

## **TECHNICAL ASPECTS**

The application was developed using the LAMP approach, i.e. Linux, Apache, MySQL and PHP.

### **LINUX**

The project was developed in a Windows environment using Dreamweaver and Netbeans but is now hosted in a Linux environment on the CISE servers. This was possible due to the high level of portability of php code.

### **PHP**

PHP is a widely-used general-purpose scripting language that is especially suited for Web development and can be embedded into HTML. All server side code was written in php. As mentioned the design was done in Windows in a WAMP environment and then the code was ported and hosted on Apache in Linux.

### **APACHE**

The web server used is Apache with the php plugin. Apache again is a very reliable web server on both Windows and Linux and also maintains a very similar interface in both.

### **MySQL**

The database system used is MySQL which is an open source RDBMS. It is very light and highly functional. Also with php and MySQL being used together very frequently a lot of online support was available.

## DATABASE ABSTRACTION

In order to provide database abstraction we used an optional module in php called PEAR. This module when loaded (which wasn't easy with the permissions on the CISE server) allowed us to define a layer of abstraction using a file DB.php which let us define some of the DB actions we wanted to perform in a DB independent manner. Then we defined a database connection file Connection.php which we included and used in all the pages which required DB connectivity.

These measures ensured that a DB switch became very lightweight. The use of PEAR and DB.php ensures that switching the DB does not require us to modify the php commands used to connect and query the database as the commands used were defined in DB.php and are defined to be independent of the database used. Since the connection data defined in Connection.php is used in all the pages by including the same file, a change in database or connection details requires a change in just one file and it is reflected in all the files. We then checked for DB dependency by switching the DB to the Oracle database provided by CISE, all we needed to do was change the connection data in Connection.php. Hence to switch the database in our project all that is required is that the connection data be changed in Connection.php.

Some other features implemented in our project are :

- Database optimized to reduce joins. evaluation id, subjectpersonid even in collected behaviors per Collection Period/Appointment.
- Constraints and validation of data managed in database as it is a DB project.
- Indexes created on frequently searched fields.
- SQL injection into the application dealt with.
- Minimal changes required in application for DB switch.
- PHP PEAR database abstraction along with separate layer for DB connection implemented in Connection.php and DB.php
  - Only change required in DB change would be to change DB connection string in Connection.php
  - For a DB change, (sequence/anything equivalent to sequence) needs to be migrated for specific DB
- Tried to create triggers, but CISE accounts do not have privileges on MySQL server. We thought of implementing triggers (after insert trigger) for activity logging.
- Views created for analyst reports.
- All major flows as proposed originally in the project implemented.
- Analyst Reports implemented.