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BATANG OBLE DAY CARE CENTER DATABASE MANAGEMENT SYSTEM DOCUMENTATION

A Software Project presented
by
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Introduction

Established in 2015, the Batang Oble Day Care Center of the University of the Philippines - Baguio has been providing wholistic child care, informal early childhood education that nurture physical, intellectual, social, and emotional development of every kid in a safe and child-friendly environment. The students enrolled in the day care are either children and dependents of UP Baguio Faculty, REPS, and Admin Staff regardless of employment status, UP Baguio Alumni and students, and Agency employees assigned at UP Baguio.

The current system that is used by the Batang Oble Day Care Center administrators who process collected data is pen-and-paper and a spreadsheet software, Microsoft Excel. With the growing data that the day care center has gathered in the past three years, data storage, management, and access using the existing system becomes a difficulty.

The main goal of this software project is to provide an easier and more convenient way of accessing and managing the data of the students and student assistants of Batang Oble Day Care Center by creating a database management system that can create and update collected records.

This Batang Oble Day Care Center Database System has the following features and services:

- Add, update, and view Student information.
- Add, update, and view Student Assistant information.
- Make categorized searches (i.e. Student Name, Student Assistant Name, Student Assistant Student Number, Application Year, Sex of Student, Sex of Student Assistant).
- Generate master lists of all data gathered (one for Students and one for Student Assistants), which can be converted to Adobe Portable Document Format (PDF) and Excel format.
- Pay and view the transaction history of every student.

The system was built to aid the teachers or administrators of Batang Oble Day Care Center who facilitates the data of the students and student assistants. With the use of this system, data is stored in a more efficient and reliable manner, and, therefore, data management and access is more systematic.

The remaining sections of this documentation contains the following: glossary, which comprises of the definition of the technical terms used in this documentation paper; database structure, which includes the ER Diagram, Data Dictionary, and description og the relationships of data among tables; User Interface Architecture, which is the description of front-end user interface and its data sources; and references, which contains the sources that was used in this documentation.

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Glossary

This chapter contains the list of technical terms, along with their definition, which are used in this documentation.

attribute – A characteristic of an entity or object

bootstrap – A free and open source front end development framework for the creation of websites and web apps.

business rule – Narrative descriptions of a policy, procedure, or principle within an organization.

cascading style sheet (CSS) – A Web page derived from multiple sources with a defined order of precedence where the definitions of any style element conflict.

data dictionary – A DBMS component that stores *metadata* – data about data. Thus, the data dictionary contains the data definition as well as its characteristics and relationships.

database – A shared integrated computer structure that houses a collection of related data.

database management system (DBMS) – Refers to the collection of programs that manages the database structure and controls access to the data stored in the database.

database structure – The collection of record type and field type definitions that comprise a database.

date – A date. Format: YYYY-MM-DD

entity – Anything (a person, a place, a thing, or an event) about which data are to be collected and stored.

entity-relationship diagram (ERD) – A diagram that depicts an entity relationship model's entities, attributes, and relations.

entity relationship (ER) model – It describes relationships among entities at the conceptual level with the help of ER diagrams.

field type – properties or attributes that describe the record types.

foreign key – See *key*.

hypertext markup language (HTML – The set of markup symbols or codes inserted in a file intended for display on a World Wide Web browser page.

key – An entity identifier based on the concept of functional dependence; may be classified as follows: *Superkey* – an attribute (or combination of attributes) that uniquely identifies each entity in a table. *Candidate key* – a minimal superkey, that is, one that does not contain a subset of attributes that it itself is a superkey. *Primary key (PK)* – a candidate key selected as a unique entity identifier. *Secondary key* – a key that is used strictly for data retrieval purposes. *Foreign key* – an attribute (or combination of attributes) in one table whose values must match the primary key in another value or whose values must be null.

null – In SQL, refers to the absence of an attribute value. Note: A null is not a blank.
numeric(p,s) – A data type the has a fixed precision and scale numbers. The *p* parameter indicates the maximum total number of digits that can be stored (default is 18). The *s* parameter indicates the maximum number of digits stored to the right of the decimal point. *s* must be a value from 0 to *p*. Default value is 0.
portable document format (PDF) – A file format that has captured all the elements of a printed document as an electronic image that users can view, navigate, print, or forward to someone else.
primary key (PK) – See *key*
record type – Defines the type of entities or research objects desired to be captured.
user interface (UI) – Everything designed into an information device with which a person may interact. This can include display screens, keyboards, a mouse, and the appearance of a desktop. It is also a way through which a user interacts with an application or a website.
varchar(n) – A data type that holds a variable length string (can contain letters, numbers, and special characters). The maximum size is specified in parenthesis. It can store up to 255 characters.

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Database Structure

This chapter describes the structure of the database with the use of an Entity Relationship Diagram (ERD) and a Data Dictionary. The ERD represents the overall structure, and the relationships and communication within the database. The Data Dictionary, represented as tables, contains the data definition, including its characteristics and relationships.

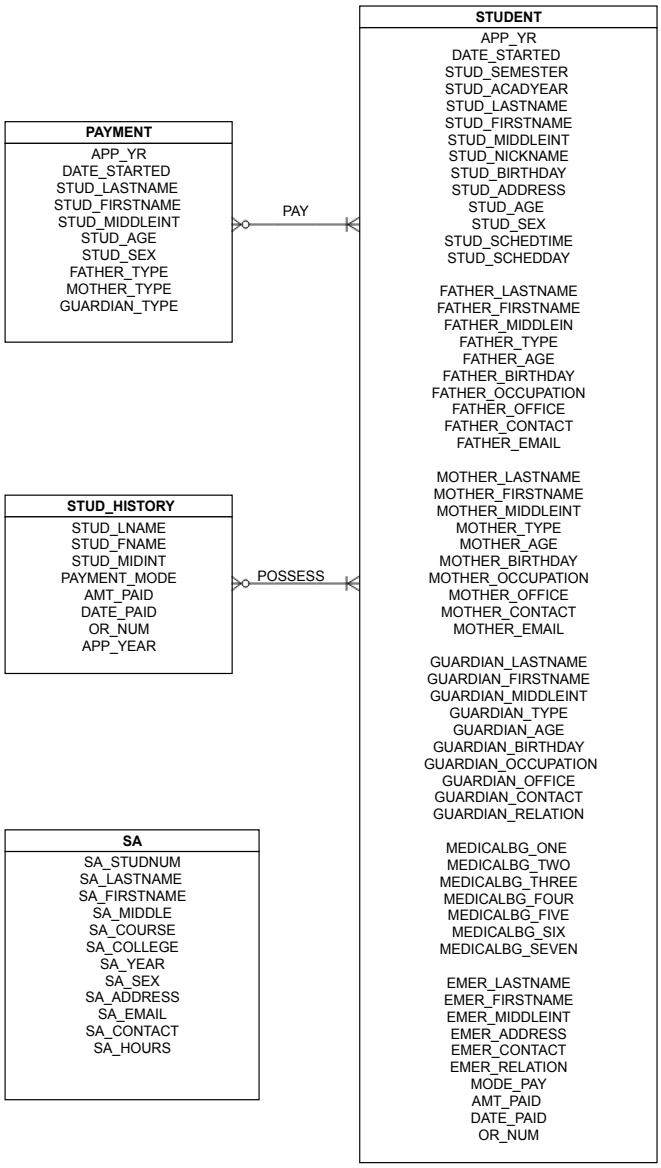

Figure 3.0.1: Entity Relationship Diagram

In the entity relationship diagram (Figure 3.0.1), the entities Student (STUDENT), Payment (PAYMENT), Student History (STUD_HISTORY), and Student Assistant (SA) was described. The attributes of each entity were presented, with the primary keys underlined. The relationships (i.e. has and receives), act as a connector for the entities.

To elaborate more the entity relationship diagram (Figure 3.0.1), presented are the following business rules:

- A student can pay for one or more payment transactions.
- A payment can be paid by zero or more students.
- A student can be possess one or more student history.
- A student history can be possessed by zero or more students

Data Dictionary

The **STUDENT** table stores the general information of the student, including the information of the student's father, mother, guardian, and emergency contact. This table is linked to the **PAYMENT** table and the **STUD_HIST**.

The **PAYMENT** table contains the payment information of the student's transactions and the dependency type of the student's father/mother/guardian. It is linked to the **STUDENT** table.

The **STUD_HIST** table keeps the history of the student's payment transactions. This table is also linked to the **STUDENT** table.

The **BAL_HIST** table contains the balance history of a student. Every transaction and payment is recorded in this table. Just like all other tables, it is linked to the **student** table on *stud_num* attribute.

ATTRIBUTE NAME	CONTENTS	TYPE	FORMAT	REQUIRED
APP_YR	Student's Application Year	VARCHAR(4)	XXXX	Y
DATE_STARTED	Date Started	DATE	99-99-999	
STUD_SEMESTER	Semester	VARCHAR(20)	XXXXXXXXXX	
STUD_ACADYEAR	Academic Year	VARCHAR(20)	XXXXXXXXXX	
STUD_LASTNAME	Student's Last Name	VARCHAR(100)	XXXXXXXXXX	Y
STUD_FIRSTNAME	Student's First Name	VARCHAR(100)	XXXXXXXXXX	Y
STUD_MIDDLEINT	Student's Middle Initial	VARCHAR(5)	XXXXXXXXXX	
STUD_NICKNAME	Student's Nickname	VARCHAR(100)	XXXXXXXXXX	
STUD_BIRTHDAY	Student's Birthday	DATE	99-99-999	
STUD_ADDRESS	Student's Address	VARCHAR(150)	XXXXXXXXXX	
STUD_AGE	Student's Age	VARCHAR(20)	XXXXXXXXXX	Y
STUD_SEX	Student's Sex	VARCHAR(10)	XXXXXXXXXX	Y
STUD_SCHEDTIME	Student's Schedule Time	VARCHAR(50)	XXXXXXXXXX	
STUD_SCHEDDAY	Student's Schedule Day	VARCHAR(50)	XXXXXXXXXX	
FATHER_LASTNAME	Last Name of Student's Father	VARCHAR(100)	XXXXXXXXXX	
FATHER_FIRSTNAME	First Name of Student's Father	VARCHAR(100)	XXXXXXXXXX	
FATHER_MIDDLEIN	Middle Initial of Student's Father	VARCHAR(5)	XXXXX	
FATHER_TYPE	Dependency Type of Student's Father	VARCHAR(20)	XXXXXXXXXX	
FATHER_AGE	Age of Student's Father	VARCHAR(20)	XXXXXXXXXX	
FATHER_BIRTHDAY	Birthday of Student's Father	DATE	99-99-999	
FATHER_OCCUPATION	Occupation of Student's Father	VARCHAR(50)	XXXXXXXXXX	
FATHER_OFFICE	Office/Department of Student's Father	VARCHAR(200)	XXXXXXXXXX	
FATHER_CONTACT	Contact Number of Student's Father	VARCHAR(11)	XXXXXXXXXX	
FATHER_EMAIL	Email Address of Student's Father	VARCHAR(50)	XXXXXXXXXX	
MOTHER_LASTNAME	Last Name of Student's Mother	VARCHAR(100)	XXXXXXXXXX	
MOTHER_FIRSTNAME	First Name of Student's Mother	VARCHAR(100)	XXXXXXXXXX	
MOTHER_MIDDLEINT	Middle Initial of Student's Mother	VARCHAR(5)	XXXXX	
MOTHER_TYPE	Dependency Type of Student's Mother	VARCHAR(20)	XXXXXXXXXX	
MOTHER_AGE	Age of Student's Mother	VARCHAR(20)	XXXXXXXXXX	
MOTHER_BIRTHDAY	Birthday of Student's Mother	DATE	99-99-999	
MOTHER_OCCUPATION	Occupation of Student's Mother	VARCHAR(50)	XXXXXXXXXX	
MOTHER_OFFICE	Office/Department of Student's Mother	VARCHAR(200)	XXXXXXXXXX	
MOTHER_CONTACT	Contact Number of Student's Mother	VARCHAR(11)	XXXXXXXXXX	
MOTHER_EMAIL	Email Address of Student's Mother	VARCHAR(50)	XXXXXXXXXX	
GUARDIAN_LASTNAME	Last Name of Student's Guardian	VARCHAR(100)	XXXXXXXXXX	
GUARDIAN_FIRSTNAME	First Name of Student's Guardian	VARCHAR(100)	XXXXXXXXXX	
GUARDIAN_MIDDLEINT	Middle Initial of Student's Guardian	VARCHAR(5)	XXXXX	
GUARDIAN_TYPE	Dependency Type of Student's Guardian	VARCHAR(20)	XXXXXXXXXX	
GUARDIAN_AGE	Age of Student's Guardian	VARCHAR(20)	XXXXXXXXXX	
GUARDIAN_BIRTHDAY	Birthday of Student's Guardian	DATE	99-99-999	
GUARDIAN_OCCUPATION	Occupation of Student's Guardian	VARCHAR(50)	XXXXXXXXXX	
GUARDIAN_OFFICE	Office/Department of Student's Guardian	VARCHAR(200)	XXXXXXXXXX	
GUARDIAN_CONTACT	Contact Number of Student's Guardian	VARCHAR(11)	XXXXXXXXXX	
GUARDIAN_RELATION	Guardian's Relationship to the Child	VARCHAR(50)	XXXXXXXXXX	
MEDICALBG_ONE	Medical Background Question 1	VARCHAR(1000)	XXXXXXXXXX	
MEDICALBG_TWO	Medical Background Question 2	VARCHAR(1000)	XXXXXXXXXX	
MEDICALBG_THREE	Medical Background Question 3	VARCHAR(1000)	XXXXXXXXXX	
MEDICALBG_FOUR	Medical Background Question 4	VARCHAR(1000)	XXXXXXXXXX	
MEDICALBG_FIVE	Medical Background Question 5	VARCHAR(1000)	XXXXXXXXXX	
MEDICALBG_SIX	Medical Background Question 6	VARCHAR(1000)	XXXXXXXXXX	
MEDICALBG_SEVEN	Medical Background Question 7	VARCHAR(1000)	XXXXXXXXXX	
EMER_LASTNAME	Last Name of Student's Emergency Contact	VARCHAR(100)	XXXXXXXXXX	Y
EMER_FIRSTNAME	First Name of Student's Emergency Contact	VARCHAR(100)	XXXXXXXXXX	Y
EMER_MIDDLEINT	Middle Initial of Student's Emergency Contact	VARCHAR(5)	XXXXX	
EMER_ADDRESS	Address of Student's Emergency Contact	VARCHAR(100)	XXXXXXXXXX	Y
EMER_CONTACT	Contact Number of Student's Emergency Contact	VARCHAR(11)	XXXXXXXXXX	Y
EMER_RELATION	Emergency Contact's Relationship to the Child	VARCHAR(50)	XXXXXXXXXX	Y
MODE_PAY	Payment Mode	VARCHAR(20)	XXXXXXXXXX	Y
AMT_PAID	Amount Paid	NUMERIC(8)	99999999	
DATE_PAID	Date Paid	DATE	99-99-999	
OR_NUM	Official Receipt Number	NUMERIC(20)	9999999999	

Figure 3.0.2: STUDENT Table

ATTRIBUTE NAME	CONTENTS	TYPE	FORMAT	REQUIRED
APP_YR	Application Year	VARCHAR(4)	XXXX	Y
DATE_STARTED	Date Started	DATE	99-99-9999	
STUD_LASTNAME	Student's Last Name	VARCHAR(100)	XXXXXXXXXX	Y
STUD_FIRSTNAME	Student's First Name	VARCHAR(100)	XXXXXXXXXX	Y
STUD_MIDDLEINT	Student's Middle Initial	VARCHAR(5)	XXXXX	
STUD_AGE	Student's Age	VARCHAR(20)	XXXXXXXXXX	Y
STUD_SEX	Student's Sex	VARCHAR(10)	XXXXXXXXXX	Y
FATHER_TYPE	Dependency Type of Student's Father	VARCHAR(20)	XXXXXXXXXX	
MOTHER_TYPE	Dependency Type of Student's Mother	VARCHAR(20)	XXXXXXXXXX	
GUARDIAN_TYPE	Dependency Type of Student's Guardian	VARCHAR(20)	XXXXXXXXXX	

Figure 3.0.3: PAYMENT Table

ATTRIBUTE NAME	CONTENTS	TYPE	FORMAT	REQUIRED
STUD_LNAME	Student's Last Name	VARCHAR(100)	XXXXXXXXXX	Y
STUD_FNAME	Student's First Name	VARCHAR(100)	XXXXXXXXXX	Y
STUD_MIDINT	Student's Middle Initial	VARCHAR(100)	XXXXXXXXXX	Y
PAYMENT_MODE	Payment Mode	VARCHAR(50)	XXXXXXXXXX	Y
AMT_PAID	Amount Paid	NUMERIC(8)	99999999	
DATE_PAID	Date Paid	DATE	99-99-9999	
OR_NUM	Official Receipt Number	NUMERIC(20)	9999999999	
APP_YEAR	Application Year	VARCHAR(10)	XXXXXXXXXX	Y

Figure 3.0.4: STUD_HIST Table

ATTRIBUTE NAME	CONTENTS	TYPE	FORMAT	REQUIRED
SA_STUDNUM	Student Assistant's Student Number	VARCHAR(10)	XXXXXXXXXX	Y
SA_LASTNAME	Student Assistant's Last Name	VARCHAR(100)	XXXXXXXXXX	Y
SA_FIRSTNAME	Student Assistant's First Name	VARCHAR(100)	XXXXXXXXXX	Y
SA_MIDDLE	Student Assistant's Middle Initial	VARCHAR(10)	XXXXXXXXXX	
SA_COURSE	Student Assistant's Course	VARCHAR(35)	XXXXXXXXXX	Y
SA_COLLEGE	Student Assistant's College	VARCHAR(10)	XXXXXXXXXX	Y
SA_YEAR	Student Assistant's Year	VARCHAR(10)	XXXXXXXXXX	Y
SA_SEX	Student Assistant's Sex	VARCHAR(10)	XXXXXXXXXX	Y
SA_ADDRESS	Student Assistant's Address	VARCHAR(100)	XXXXXXXXXX	Y
SA_EMAIL	Student Assistant's Email Address	VARCHAR(50)	XXXXXXXXXX	Y
SA_CONTACT	Student Assistant's Contact Number	VARCHAR(11)	XXXXXXXXXX	Y
SA_HOURS	Student Assistant's Hours Worked	VARCHAR(10)	XXXXXXXXXX	Y

Figure 3.0.5: SA Table

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User Interface Architecture

Th only source that was used for the front-end framework of the site was Bootstrap version 3. It contains HTML and CSS-based design templates using ready-made classes. Apart from those, everything else is built by the developers.

All of the pages in the website contains the header and the navigation bar.

The **header** has a maroon color background and green accent which is the main colors of the University of the Philippines, the UP logo on the leftmost side, and the **navigation bar** on the other side.

The **navigation bar** consists of the following menu buttons:

1. Home
2. Add
3. Masterlist
4. Search

The following are the webpages in the Batang Oble Day Care Center database site:

1. Home page
2. Search page
3. Search result page
4. Add student page
5. Add student assistant page
6. Add payment page
7. Transaction History of student's payments page
8. Edit student information page
9. Edit student assistant information page

10. Master List page of students

11. Master List page of student assistants

5 References

This chapter contains the sources used for this documentation (i.e.books, websites).

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