OBED'S HOUSE MINISTRIES INFORMATION MANAGEMENT SYSTEM

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CHAPTER I

Background of the Study

An orphan as defined by UNICEF (2010) is a child under the age of 18 who has lost one or both parents. According to UNICEF there are roughly 153 million orphans worldwide and an estimated 5700 additional children become orphans every day. Children are frequently given up because of conflict, natural disasters, poverty, illness, stigma, and medical need. Organizations such as UNICEF and World Vision work to support low-income families and prevent children from becoming orphans through programs such as child protection services (World Vision, 2021), family preservation programs, and cash transfer programs (Okubo, 2017). Despite these efforts, the issue of orphanhood remains prevalent.

The high prevalence of children in abandonment is a public health issue across the globe. This means that if a child does not have any relatives who can support him, then orphanages are the only way to provide them shelter, health care, food, education and accommodation. Orphanages are institutions that house children whose parents have died or whose origins are unknown (O'Ayotunde, 2013). UNICEF collated data from 140 countries showed that at least 2.7 million children were living in orphanages, however they acknowledged this was only the 'tip of the iceberg' as large numbers of children in unregistered orphanages were not counted (Petrowski, Cappa, & Gross, 2017).

As the rate of orphanhood increases, the number of orphanages also increases correspondingly. Haiti, for instance, saw a 150 percent increase in the number of orphanages following the 2010 earthquake in response to the perceived orphan crisis (Thompson, 2017). Similarly, in Ghana, thousands of children have grown up in orphanages. According to a

March 2021 UNICEF report on “Children Living in Residential Care in Ghana”, 3,530 children were living in 139 residential homes across the country. Additionally, Ghana has seen a 1400 per cent increase in the number of orphanages over the past 13 years (Matthews, 2019). This trend is also evident in Cambodia, where research by Guiney & Mostafanezhad (2015) found that between 2005 and 2010, while the number of parentless children fell, the number of orphanages rose by over 75 percent, with the number of children living in these institutions increasing by 80 percent. It is evident that the problem of orphanhood is not restricted to a particular nation or area. Rather, it is a widespread problem that affects children of all ages, races, and cultures across the globe.

The Philippines is one of several countries that has a problem with orphaned children. The United Nations Children's Rights and Emergency Relief Organization claims that there are 1.8 million abandoned or neglected children in the country, many of whom are the victims of extreme poverty and come from families who were displaced due to armed conflicts and natural disasters (Kaiman & De Leon, 2016). The Philippines is facing a significant crisis when it comes to orphaned children, and it is a problem that is expected to continue growing. The Philippines Orphanage Foundation has identified several key factors that contribute to the country's growing orphan population. These include natural disasters, which can leave families homeless and unable to care for their children, teenage pregnancy, which can result in young mothers being unable to provide for their children, lack of education, which can limit economic opportunities, and poverty, which can make it difficult for families to afford basic necessities such as food and shelter. All of these factors contribute to the problem of orphanhood in the Philippines, and without viable alternatives, many of these children are left with no choice but to seek refuge in orphanages.

With the continuing increase of orphans, the need to create more facilities to help them grow physically and mentally increases as well. However, the lack of government support and

resources for orphaned children in the Philippines exacerbates the problem. Many of these children are left to grow up in overcrowded and underfunded orphanages, with limited access to education, healthcare, and other basic needs (Gaddam, 2022). Many orphanages in the Philippines also suffer from underfunding and poor staffing (Kaiman & De Leon, 2016). This lack of resources can lead to overcrowding and inadequate facilities, making it difficult for the children to receive the proper care and support that they need. Additionally, the shortage of funding also limits the ability of the orphanages to provide education and healthcare to the children, which is essential for their growth and development. Furthermore, the poor staffing in many of these orphanages can also affect the quality of care that the children receive.

In addition to the challenges orphanages face, the considerable amount of documentation and record-keeping requirements add an additional burden to the management of orphanages (Gaddam, 2022). This includes records of the number of children accommodated, schedules of events, lists of donors, and amounts of donations. While these documents are essential for planning the next financial year and adjusting budget allocation, they can also lead to delays, errors, and an excessive workload for managers and staff, making it difficult for them to focus on other important tasks and responsibilities. Furthermore, it can result in increased costs and inefficiency within the organization. Despite the challenge, keeping accurate records is important for orphanages to meet regulatory requirements and government standards.

In General Santos City, Philippines, there are several DSWD-accredited residential care facilities and orphanages (Dagulo, 2022). One of these orphanages is the Obed's House Ministries. Obed's is a residential care facility located in Lanton, Apopong, General Santos City. The organization's mission is to provide a safe and loving home for neglected children, where they can receive the care and support that they need to thrive. They accept children ages 5-12 that are

orphaned, coming off of the street, or from neglected homes. The organization's goal is to empower these children to reach their full potential and become leaders who can make a lasting difference in their community. To achieve this mission, Obed's House Ministries provides a wide range of services to the children in their care, thhey help the children to go to school, and provide for their basic needs such as food, clothing, and shelter.

Obed's house ministries, which provide care and support to orphaned and vulnerable children, currently face a significant challenge in managing their records. Similar to other typical orphanages, Obed's current system for managing their information is manual and involves the use of papers, word documents, and excel files stored in file cabinets. They do not yet have an information system in place that can help them keep track of and analyze data related to the children they serve. This includes important information such as the children's personal information, educational progress, and overall well-being. Without an efficient way to manage and analyze this data, it can be difficult for the organization to make informed decisions and provide the best possible care for the children in their care.

An orphanage like Obed's must have a reliable information system in place to function effectively. An information system (IS) is a coordinated group of computer programs, databases, personnel, and operational processes that generate information. ("Definition of Information System," n.d). With an information system, the orphanage can access real-time and relevant data that enables it to make informed decisions and address any issues that may arise. According to a study by Ewald, K.E, et al. (2020), an organization's information system must be a crucial component of its operations, since on almost every industry on the planet, information is the cornerstone of every establishment, especially where business, educational institutions, and industries have entered the age of computer technology. Without an information system, the

orphanage may struggle to meet its objectives, including its ability to continue operating. It is important to note that implementing an information system is not a luxury but a necessity for the better management and survival of the orphanage.

It is impossible to overstate the significance of an information system at an orphanage home. It provides management with real-time and accurate data, which is essential for making informed decisions and effectively addressing any issues that may arise within the orphanage. This is particularly important in an orphanage setting, as the well-being and future of the children in care depend on the ability of management to make sound decisions and take appropriate actions. Without an IS, the orphanage may struggle to access accurate and timely information, which can hinder their ability to make informed decisions and address issues that may arise. This can negatively impact the well-being and future of the children in care, as well as the overall success and sustainability of the orphanage. Hence, an information system is essential to achieving the objectives of an orphanage home, including its survival.

This proposal aims to address the current challenges faced by the management of orphanages in General Santos City by developing a tailored information system for Obed's House Ministries using Feature-Driven Design methodologies. The main objective of this study is to develop a records management system for Obed’s house ministries that shall keep, maintain, and organize their records related to their transactions. This system will be designed to address the specific needs of the organization and streamline their current manual processes. With this new system, the management of Obed's House Ministries will be able to access accurate and timely information, which will enable them to make informed decisions. This system will be a valuable tool for the management team to ensure the compliance with laws and regulations and also to

improve the overall quality of care provided to the orphans, by having all the necessary information at their disposal.

Statement of the Problem

Despite the essential role that orphanages play in providing care and support for children in need, many of these organizations face a number of challenges when it comes to managing information. Obed's house ministries is just one of the many orphanages that still endure the many problems brought by a manual paper-based data management system. A large number of their files are typically created when information is manually stored in the form of papers. Information about the orphanage is recorded on paper, which is then filed and kept in a safe or cabinet. This arrangement is not only time-consuming but also prone to errors, and it can make it difficult for the management to access accurate and timely information.

Furthermore, in an interview that the developers have conducted with one of Obed's social workers, it was found that the current manual paper-based system poses a security risk to the children's information. The social worker reported that the children have access to the files stored in the file cabinet, which could be easily accessed, read, and even modified by them. This lack of security in the current system raises concerns about confidentiality and privacy of the children's information, and can potentially lead to breaches of sensitive information. The social worker also reported that the lack of a secure system makes it difficult for the organization to ensure that the information is kept confidential and only accessible to authorized personnel. This highlights the importance of a secure information management system for Obed's House Ministries.

In today's digital age, technology plays a crucial role in the efficiency and effectiveness of managing information for organizations. Obed's House Ministries is currently facing difficulties

in managing information due to their manual process. Therefore, this proposal aims to address these challenges by introducing a web-based Orphanage Information Management System that is tailored to the specific requirements and needs of the orphanage. The system will allow users to store orphan profiles, orphan lists, activity schedules, financial information, and other important details. This will help Obed's House Ministries become more organized in managing their files. With the aid of this information system, it is hoped that Obed's House Ministries will become more organized in keeping track of their files.

General Objectives of the Study

The main objective of this study is to develop an information management system for Obed's house ministries that shall keep, maintain, and organize their records related to their transactions.

Specific Objectives of the Study

Specifically, the system aims to:

- Develop a platform for storing, updating and managing Obed's necessary information.
- Provide a calendar that allows for the organization and management of orphanage activities.
- Generate various types of administrative reports including monthly accomplishments, financial reports and donor information, with the option to export or print as needed.

Significance of the Study

The significance of the study lies in its ability to provide a platform for managing the records of an orphanage. The system will allow for the centralized storage and easy retrieval of

personal information for both orphans and employees. This will not only improve the security of the records but also streamline the process of accessing them. Additionally, the implementation of a note feature for tracking the conduct of orphans and the ability to generate various types of administrative reports, including financial reports and donor information, will allow for better decision making and better management of the orphanage's operations. This system will be a valuable tool for Obed’s to ensure the compliance with laws and regulations and also to improve the overall quality of care provided to the orphans, by having all the necessary information at their disposal.

Scope and Limitations

The system will cover the management of personal information and records of orphans and employees, including storage, updating, and retrieval of records. It will also include a feature for taking notes on the behavior and conduct of each orphan, and a calendar for scheduling and organizing activities. The system will also have the ability to generate financial reports.

The system will be designed to manage and organize the records and activities within the orphanage only. This includes maintaining records of the children and staff, as well as scheduling various activities within the orphanage. The system does not have external integration capabilities, this allows for the secure and private management of the orphanage's sensitive information. Data security and access (DSA) features have been implemented to protect the confidentiality of the records.

Definition of Terms:

- **Orphan:** A child who has lost one or both parents.
- **Orphanage:** A residential institution for the care of orphans.
- **Information System:** A set of interrelated components that collect, store, process, and disseminate information to support decision-making, coordination, and control in an organization.
- **Records Management:** The systematic control of the creation, maintenance, use, and disposition of records, including the processes for capturing and maintaining evidence of and information about business activities and transactions in the form of records.
- **Manual System:** A system that is operated or controlled by human effort, as opposed to being automatically controlled by a computer or other electronic device.

CHAPTER II

Review of Related Literature and Technologies

This chapter summarizes the series of literature and technologies found by the researchers. The proceeding sections will be discussing background knowledge that will be supporting the end-goal of the system. The review on existing technologies and applications will then proceed to establish distinctions between them and the system being proposed.

2.1 Review of Related Literature

2.1.1 Orphan

According to UNICEF (2010) an orphan is defined as a child under the age of 18 who has lost one or both parents. A child who has lost their mother is referred to as a maternal orphan, while a child who has lost their father is referred to as a paternal orphan. Besides the general definition for an orphan, there is also another type of orphanhood called “social orphanhood”. Social orphanhood, according to (Karayel, 2001), are children, who live just like orphans despite having both of their parents alive. A significant number of children do not have the guidance and care of their parents due to a variety of factors, including substance abuse, abuse or neglect, distance from parents, mental or physical issues among parents, poor treatment from parents, financial difficulties, parents working away from home, social and familial issues, and illegitimate birth (Karayel, 2001). Simply having living biological parents for a child is insufficient since if their social need for parents is not met, it will certainly have a negative impact on the child.

According to UNICEF, there are an estimated 153 million orphans worldwide, representing a significant global issue. These children have lost one or both parents and are often left

without adequate care and support. The countries with the highest orphan populations, as reported by Spiegel in 2004, are those with high HIV prevalence rates or those that have recently experienced armed conflict. The link between HIV/AIDS and orphanhood is a significant one, as the disease not only claims the lives of parents, but also leaves their children without care and support. Furthermore, the impact of HIV/AIDS on families and communities can be devastating, leaving many children vulnerable to poverty, discrimination, and other forms of marginalization.

Additionally, it is important to note that there are many various reasons why children lose their parents. War, natural disasters, poverty, disease, stigma and medical needs are just some of the factors that can lead to orphanhood. According to UNICEF, almost 5700 children become orphans every day due to these causes. This highlights the need for comprehensive and coordinated efforts to address the needs of orphans and vulnerable children, including access to education, healthcare, and other basic services.

2.1.2 Increase of Orphans in Orphanages

"In Eastern Europe and Central Asia, there are an estimated 2.6 million orphans, with a large proportion of these children being HIV-affected or having lost one or both parents due to other causes." (UNICEF, n.d.) The study by UNICEF provides a global estimate of the number of orphans and does not provide regional or country-specific data. However, the study notes that sub-Saharan Africa and Eastern Europe and Central Asia have a disproportionate number of orphans, with the main causes of orphanhood in these regions being HIV and AIDS and other causes, such as conflict and other crises. This study also states that the number of children living in institutional care (such as orphanages) has increased in recent years.

In the Philippines, the number of orphans has increased as well. "There are approximately 2.5 million orphans in the Philippines, with the majority of these children being orphaned due to poverty and the HIV and AIDS pandemic." (Save the Children, n.d.) The same study also stated the number of children in institutional care in the Philippines has increased in recent years, particularly in urban areas.

2.1.3 Problems Faced by Orphanages

"Orphanages in the Philippines often lack the resources and staff to provide adequate care for the children in their care, leading to poor health, education, and social outcomes for many orphans." (Save the Children, n.d.). Orphanages in the Philippines are often faced with significant challenges in providing adequate care for the children in their care. Many orphanages lack the resources and staff necessary to meet the needs of the children in their care, leading to poor health, education, and social outcomes for many orphans.

The challenges faced by orphanages in the Philippines highlight the importance of providing adequate resources and support to these institutions to ensure that orphans receive the care and opportunities they need to thrive. Without such support, many orphans will continue to face significant challenges and may not reach their full potential.

2.1.4 Records Management as a Problem in Organizations

One problem faced by organizations such as an orphanage is records management. "Effective records management is essential for organizations to meet legal, regulatory, and business requirements. However, organizations often face challenges in managing their records due to the increasing volume and complexity of information, as well as the need to store and access records in multiple formats." (Wang, et al., 2016) One of the major

challenges of records management is the increasing volume of information that organizations need to manage. With the proliferation of digital media and the proliferation of electronic documents, organizations are generating and storing more data than ever before. This can make it difficult to manage and organize records effectively, leading to lost or missing documents and difficulty in finding and accessing information.

"Poor records management can lead to a range of problems for organizations, including lost or missing documents, difficulty in finding and accessing information, and reduced productivity. In some cases, poor records management can also lead to legal and regulatory issues, such as non-compliance with data protection laws." (Wang, et al., 2016). Poor records management can have a range of negative consequences for organizations. One of the most common problems is the loss or misplacement of documents, which can lead to delays and inefficiencies in business processes. In some cases, poor records management can also lead to legal and regulatory issues. This can result in fines, penalties, and damage to the organization's reputation. Additionally, if an organization is unable to protect sensitive or confidential information, it may be in violation of data protection laws, which can result in legal and financial consequences.

Overall, effective records management is essential for organizations to meet legal, regulatory, and business requirements. However, organizations often face significant challenges in managing their records due to the increasing volume and complexity of information, as well as the need to store and access records in multiple formats. Poor records management can have serious consequences for organizations, including lost or missing documents, difficulty in finding and accessing information, reduced productivity, and legal and regulatory issues. To avoid these problems, organizations must implement

comprehensive and systematic records management practices to ensure that records are properly managed throughout their lifecycle.

2.1.5 The need for Information Systems in Orphanages

An information system (IS) is a set of interrelated components that collect, manipulate, store and disseminate information and provide a feedback mechanism to achieve a goal. The feedback mechanism helps organizations achieve their goals by increasing profits, and improving customer service (Stair & Reynolds, 2018). "Information systems are essential for the smooth functioning of modern organizations. They support a wide range of business activities, such as communication, decision making, and process automation, and help organizations to compete effectively in today's global marketplace" (Gao, et al., 2017). Accordingly, an information system is a crucial tool that enables and supports individuals, groups, organizations, and societal goals (Watson, 2008). Information systems play a critical role in decision making by providing access to relevant data and tools that enable organizations to analyze and interpret information. This can help organizations to make more informed and data-driven decisions, which can lead to improved outcomes.

Implementing an information system within an organization like Obed's can bring multiple benefits. According to Save the Children (n.d.), information systems can help manage resources more effectively by automating tasks such as payroll, budgeting, and purchasing. This can free up staff time and allow them to focus on more value-added activities, such as caring for the children. Furthermore, as stated by Gao, et al. (2017), information systems can support a wide range of activities in orphanages, including communication, record keeping, and resource management. By providing access to relevant data and tools, information systems can help orphanages to improve efficiency, increase productivity, and

reduce costs. This can ultimately lead to better overall management and a more positive outcome for the children in the orphanage. An information system can be a vital tool in ensuring that an organization like Obed's can operate at its maximum potential, effectively managing resources and providing the best possible care for the children it serves.

Overall, the need for information systems in orphanages is clear. By supporting communication, record keeping, and resource management, information systems can help orphanages to improve efficiency, increase productivity, and reduce costs, ultimately benefiting the children in their care. With access to the right tools and resources, orphanages can provide better care and support to children, helping them to grow and develop to their full potential.

2.2 Review on Related Technologies

Table 2.1 presents special features of Obed's Information Management System. It summarizes the features of existing applications which are also present in Orphanage Management Systems.

Table 2.1 Table of Overall Comparison on features of the Proposed System and selected Related Applications

	Add New Orphan	Records Orphan Personal Information	Records Employees Personal Information	Records Sponsor Information	Records Donation Information	Orphan Behavioral Manifestation Log	Add calendar of orphanage activities	Financial Transaction Records	Generate Financial Report
Obed's House Ministries Information Management System	✓	✓	✓	✓	✓	✓	✓	✓	✓
Orphan Adoption Management System using Machine Learning Approach	✓	✓			✓				

Orphanage Home Management System Using Cloud with Data Anonymization	✓	✓	✓						
Orphanage Information Management System (OIMS)	✓	✓	✓	✓	✓			✓	✓
Orphans Record System	✓	✓							
Orphanage Home Management System	✓	✓							
An Automated Orphanage Records Information System	✓	✓							

New innovations in the Orphanage Management Systems are presented in the table. It also lists the characteristics of other connected applications that allowed them to be included in the created system.

2.2.1 Orphan Adoption Management System using Machine Learning Approach

The mentioned web-based application is to assist the donors in helping a specific child or orphan, via choosing. Giving the donor's preferred age and gender and classifying the dataset with a support vector. Using the SVM method. A straightforward website tool that allows donors to look for a specific child and contribute to cover their costs.

Table 2.2 Orphan Adoption Management System using Machine Learning Approach Features

Application Name	Features
Orphan Adoption Management System using	In this system, the data of donors/volunteers, orphanages are stored and retrieved. A User who did not register will not be able to view any data of the system. The home page of the website

Machine Learning Approach	shows different types of login roles, such as orphan login, donor login and admin login. Each login page has a registration form along with it for ease. Once the orphanage owner registers and logins the website, he/she can add, delete, view the data of orphans he/she has enrolled on the website. The owner can add orphan details like name, age, educational qualification, estimated amount required and reason for it. Orphanage owners can post the events conducted in their orphanage to make people get more motivated towards donating. In the same way, the donor also must register for the first time and then login each time they enter the website. After a successful login, the donor can view the details of all the orphans and the help they need irrespective of the orphanage details. Donors can search for any category of orphan and then donate for their expenses. Once the orphan is selected, the other donors will not be able to select the same orphan.

2.2.2 Orphanage Home Management System Using Cloud with Data Anonymization

This web-based application is anticipated to solve common issues with data processing, including data redundancy, security, time consumption, and recovery methods. The system's primary goal is to offer highly secure internet storage. The implementation of this system makes use of cloud computing and anonymization.

Table 2.3 Orphanage Home Management System Using Cloud with Data Anonymization Features

Application Name	**Features**
Orphanage Home Management System Using Cloud with Data Anonymization	To increase space and security, this solution stores the data in the cloud rather than a database. It includes information about the sponsors of the orphans, including their name, address, and phone number. As a result, the data kept in the system is extremely sensitive. They protected our private information through anonymization.

	The concept of anonymization is utilized to improve security in public clouds. This is a developing technology that will lead to innovations in corporate strategies and use cases. Here, a technology that relies on anonymity anonymizes sensitive data before storing it in the cloud. This method offers secure and safe storage. To lower the overall execution time of the applications, we provide a unique methodology for scheduling data-oriented grid applications.

2.2.3 Orphanage Information Management System (OIMS)

OIMS is a web-based application that is created to be beneficial to orphanages as it is simple to use since it has a good graphical user interface. Easier to generate reports of records. It is also reliable to donors and sponsors, as it can help them know the transparency issues of the orphanages.

Table 2.4 Orphanage Information Management System (OIMS) Features

Application Name	Features
Orphanage Information Management System (OIMS)	● Add, update, or delete orphan records. ● Assign a child to a guardian. ● Request for adoption. ● Assign a child to adoption. ● Generate reports.

2.2.4 Orphans Record System – Orphans Record System is an automated, computer-based record-keeping system used to collect, handle, organize, and provide timely, accurate, and consistent information about orphans.

Table 2.5 Orphans Record System Features

Application Name	Features
Orphans Record System	The existing system in this example is a manual system in which records were maintained based on the usage of file cabinets. This analysis entails the breakdown of the system into its sequences. This will provide the charity some background information about the child, help them plan for their aid, and know where they live in case of any unanticipated circumstances.

2.2.5 Digitized Orphanage Home Management System

This system is developed to overcome the problems that are most likely to occur in orphanage homes. It is purposely to handle the registration, orphan records, as well as staff's records, and other important details that are necessary to keep.

Table 2.6 Orphanage Home Management System Features

Application Name	Features
Orphanage Home Management System	● Log In ● Registration ● View Records ● View Enrollment of Tuition ● Backup and Recovery ● Monthly Report

2.2.6 An Automated Orphanage Records Information System

The orphanage still uses a paper-based filing system to collect and store data, but this method has many drawbacks that make it difficult to use on a daily basis, including document loss, a lack of security, data duplication, and updating files. To address these issues, a computerized system should be implemented.

Table 2.7 An Automated Orphanage Records Information System Features

Application Name	**Features**
An Automated Orphanage Records Information System	● The user must enter the valid password in the login screen to access the system, in case of the invalid password the user cannot access the system. ● Enter Orphan/Employee details. ● Generate Orphan/Employee Information.

Table 2.8 Comparison Table with Identified Related System Vs Proposed System

Application Name	**Focus**	**Strength**	**Weakness**
Obed's Information Management System	Data Management and Data Keeping.	Keeps all the records needed and generates financial reports when needed.	It only allows the admin to use the system,
Orphan Adoption Management System using Machine Learning Approach	The system helps you find a child you want to help and guides you through the process.	Gives users access to information they need to learn about a child they want to help.	Does not have a feature to generate reports.
Orphanage Home Management System Using Cloud with Data Anonymization	Security of Data.	None, as the system is unfinished.	None, as the system is unfinished.
Orphanage Information Management System (OIMS)	Data Management, Data Keeping, and Adoption.	It offers adoption and it also allows any user to log in to the system and check information about any child they want to adopt.	The system does not protect the personal information of orphans as it allows users to view it at any time.

Orphans Record System	Keeps personal information of orphans.	Data Keeping.	Can only store orphan information.
Digitized Orphanage Home Management System	Data Keeping, Backup, and Generate Reports.	It generates reports monthly.	The system does not cover the financial records of the orphanage home.
An Automated Orphanage Records Information System	Data keeping.	The system keeps information safe and provides all necessary information about the orphan and the employee	It only stores the data of orphans and employees and offers no additional features.

The systems used web-based applications and databases in storing records. The only related application is the **Orphanage Information Management System (OIMS).** Each system has its focus as shown in the table above. Data Keeping, Generating Financial Reports, Add and Delete Orphans and Workers information, and account management. These features are all in the existing application. However, the proposed system has its unique features which are the Monitoring Behavioral Logs and records sponsors and financial transactions.

Furthermore, by offering a consolidated platform for storing and accessing all pertinent information, the Obed's Information Management System seeks to increase the effectiveness and transparency of the orphanage management process. Additionally, it helps to lessen the orphanage staff's workload and raises the organization's accountability. Only authorized individuals are able to access the system, which improves the security and privacy of the data.

A comprehensive system that may automate and streamline an orphanage's management and record-keeping is Obed's Information Management System, to sum up. It offers a wide range of

features and functionalities that can help the business become more effective, transparent, and accountable while also offering a safe platform for the storage and access of private data.

CHAPTER III

Methodology

Figure 3.1: Feature Driven Development Approach Model

The research methodology in this study adheres to the Feature-Driven Design approach, as illustrated in Figure 3.1. The Feature-Driven Design approach serves as the guiding framework for the study's methodology. This approach involves several distinct steps, starting with the development of an overall model. This model serves as a blueprint, outlining the key features and functionalities that the system will include. Once the model is in place, the next step is to build a list of specific features that will be implemented in the system. This list helps to guide the planning process, which involves breaking down the development process into smaller, more manageable chunks, with each chunk focused on a particular feature.

Following the planning stage, the study's methodology moves on to the design and construction of each individual feature. These two steps will be repeated in an iterative fashion until the desired system has been fully realized. Once the system has been built and thoroughly tested, it will be ready for deployment. Overall, the Feature-Driven Design approach allows for a systematic and structured approach to building complex systems, ensuring that all necessary features are accounted for, and that the final product is of the highest quality.

One of the main advantages of using FDD in the development of an IMS for an orphanage is that it allows for a more user-centered design. This allows for regular feedback and input from the users of the system, such as the staff of the orphanage, to be incorporated into the development process. This helps to ensure that the final system meets the needs of the users and is user-friendly. Finally, FDD methodology is well-suited for developing an IMS for Obed's because it promotes a flexible development process that can adapt to changes in requirements or technology. The FDD approach is iterative and incremental, which means that the development team can make changes or adjustments to the system as needed, without having to start the entire project over from scratch. This makes it much easier to incorporate new features or technologies as they become available, and to adapt to changes in the orphanage's needs. This methodology will help to ensure that the final product meets the needs of the orphanage and its staff, and promotes a sense of ownership and buy-in from everyone involved in the project.

Table 3.1 System's Methodology Objectives, Activities, and Results

Objectives	Activities	Expected Result
1. To provide a web system project that will aid the social workers in collecting and maintaining orphan/employee information. 2. To aid the social workers in documenting orphan conduct. 3. To aid the social workers in managing donors and donations. 4. To aid the social workers in creating financial reports.	1. Project Initiation 2. Requirements Gathering and Analysis 3. Build Prototype 4. Web System Development, Testing, and Evaluation	1. Obed's House Ministries Information Management System

3.1 Project Schedule

Figure 3.2 presents the overall tasks involved in creating the Obed's Information Management System. The Feature-Driven Design Approach, depicted in Figure 3.1, serves as the guiding principle for the study's methodology.

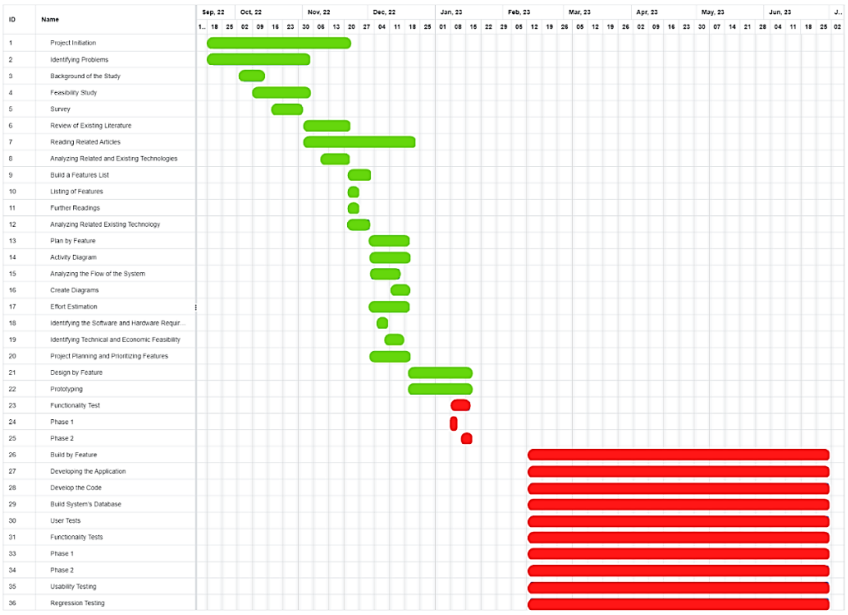

Figure 3.2: Project Schedule Gantt Chart

3.2 Project Method

The Feature-Driven Design (FDD) approach is a lightweight, incremental software development process that is an alternative to certain parts of the traditional Software Development Life Cycle (SDLC). While SDLC follows a systematic approach, FDD focuses on quality and regular tangible results, allowing for precise and efficient progress with minimal costs and disruption to developers. In the agile software development method, requirements and solutions are developed through collaboration among self-organizing, cross-functional teams. The design and build of features may involve iterative refinements until an acceptable result is achieved, and the complete system will be developed from these features.

3.2.1 Develop an Overall Model

The team conducted an interview with one of Obed's social workers using an open, unstructured format. This approach allowed for a more flexible and spontaneous conversation with the participant, allowing them to share their experiences and perspectives in their own words, rather than being constrained by predetermined questions. Existing applications related to the proposed system were also reviewed to prevent duplication and to provide reference material.

The first stage of the process involves developing a comprehensive model and completing the tasks outlined in Table 3.2. This is the stage where the problems are identified, the background of the study is formulated, project feasibility is determined, and the identification of existing applications are done.

Table 3.2 Tasks on developing an overall model.

Tasks	Carried out by:	Carried out to:	Deliverables
Background of the Study			
Formulating interesting ideas	Evan, Cherry, Louvilla		Possible Project Titles
Conduct Interview with target users	Cherry, Louvilla	Social Workers	
Feasibility Study			
Review of Related Technology	Cherry		Related Technology Readings
Interviews			
Create letter of Consent for Interview	Louvilla	Obed's House Ministries	Request Letter
Ask Capstone Adviser for Approval of Letter	Cherry	Dr. Laiza Limpin	Request Letter
Submission of Request Letter to the Executive Director of Obed's House Ministries	Cherry, Louvilla	Ms. Meredith Docena	Request Letter
Interview the Social Worker	Cherry, Louvilla	Ma'am Lydia Grace Solis	

Reading Related Literatures			
Further Readings	Louvilla	Mr/s. Lydia Grace Solis	
Analyzing Related Articles	Louvilla	Mr/s. Lydia Grace Solis	
Identifying Related Existing Applications			
Creating a review of Existing Application	Cherry		
Identifying the features			
Creating a list of features	Cherry, Louvilla, Evan		List of Features

3.2.1.1 Identifying Problems

The proponents of the OHMIM System are seeking to identify problems during the requirements gathering phase of the system's development. Initial interview questions were created to identify the problems that the system will aim to solve.

3.2.1.2 Analyzing Related Technologies and Literature

The proponents of the OHMIM System will review related technologies to identify which features of existing systems can be used and improved upon in the new system.

3.2.2 Build a Features List

Once the review of related technologies was completed, the team researched and identified features that were suitable for the proposed system. Each feature was carefully evaluated and narrowed down to align with the purpose of the study. The identified features were then grouped according to their relevance to the study's objectives and their ability to

deliver value to the system's users. The table below summarizes the features of the proposed system.

Table 3.3 Features List

No.	Features
1	Accounts Management
2	Records Orphan Personal Details, Orphan Files, and Orphan Behavioral Log
3	Records Employee Personal Details and Employee Files
4	Records Sponsor/Donor Details and Records Sponsorship/Donorship Details
5	Records Financial Transactions Details (Expenses, Cash Flow, Balance Sheet)
6	Manage Orphanage Activities through calendar
7	Generate Financial Reports

3.2.3 Plan by Feature

Plan by Feature is the stage wherein the developers will determine the order in which the features will be implemented, taking into consideration feature dependencies, the workload of the development team, and the complexity of the features.

Table 3.4 Tasks on Planning by Feature

Tasks	**To be Carried out by:**	**To be Carried out to:**
Analyzing Flow of the System		
Create Diagrams		
Context Level Diagram	Evan	
Level 0 Diagram	Evan	
Child Diagram	Evan	
Identifying Software and Hardware Requirements		
Review Software's of Existing Systems	Cherry	
Research for Tutorials and Documentations		

Watch online tutorial of development tools	TBA	
Identifying Technical, Operational, Cost, and Time Feasibility		
Identify the Technical Feasibility of the proposed System	TBA	
Measure the capacity of how well the proposed system solves the problem	TBA	
Estimate the cost and Estimate the Time Feasibility of the project	TBA	
Project Planning and Prioritizing Features		
Plan the order of the Features to be developed	TBA	

3.2.3.1 Context Level Diagram

The developers designed the system's boundaries, including its inputs, outputs, and interfaces with other systems, is the next step in the context level diagram process. Then, it concentrates on defining the system's primary components and the interactions after the inputs, outputs, and interfaces have been defined. For more information, refer to Appendix A.

3.2.3.2 Level 0 Diagram

The developers then created a high-level illustration of a system that displays the system's perimeters and interactions with outside entities. It is a helpful resource for comprehending a system's scope and overall structure. For more information, refer to Appendix B and C.

3.2.3.3 Child Diagram

The developers created child diagrams to effectively illustrate the specific methods employed in producing the output. These diagrams effectively demonstrate the flow of information between processes and provide a comprehensive understanding of

the system's interactions with external partners. For more information, refer to Appendix D.

3.2.3.4 Effort Estimation

The practice of calculating the time and resources required to create or construct a system. A realistic and workable timeframe for the project is developed thanks to this important step in the planning process.

3.2.3.5 Identifying Software and Hardware Requirements

The proponents of the OHMIM System will determine the technical requirements, including both software and hardware, that will be necessary for the creation of the OHMIM System.

3.2.3.5.1 Identifying Technical Feasibility

To ensure that the software meets the user's needs within the allotted time and budget, a technology feasibility study is conducted to assess the current resources, including hardware, software, technology, APIs, and libraries, that will be required to achieve the desired outcomes.

3.2.3.5.2 Identifying Economic Feasibility

The proponents of the OHMIM System aim to conduct a cost-benefit analysis to determine whether the system is economically viable or not. This analysis will involve evaluating the costs associated with developing and implementing the system, as well as the potential benefits that it could bring.

3.2.3.6 Project Planning and Prioritizing Features

The sequence in which features will be implemented will rely on feature dependencies, the workload of the development team, and the complexity of the features to be implemented after the software and hardware requirements have been determined.

3.2.4 Design by Feature

The development team will plan the order in which features will be implemented based on feature dependencies, workload among team members, and the complexity of the features. This process, known as design by feature, involves prototyping the user interface and functionality of the design to ensure that it is suitable for the proposed features.

The main goal of this process is to create a web system that is easy to understand and has a user-friendly interface. Specifically, the system aims to provide features such as the ability to view and update orphan/employee records, manage donors and list, record orphan behavior, and generate financial reports.

3.2.4.1 Prototyping

A prototype is a draft version of the application that allows the developer to test and explore ideas and present the overall design concept to users before investing significant time and resources into development. Prototyping can help the developers understand the intended functionality of the application and gather feedback from users before moving forward with the development process.

Table 3.5 Tasks for Prototyping on Design by Feature

Tasks	To be carried out by:	To be carried out to:
Design Front End of the System (Log In, Home Screen, Orphan List, Employee List, Transaction List, File Manager, Activity Calendar, Recently Deleted, Account Settings, About, Log Out)	Cherry	Obed's Information Management System

3.2.4.2 Functionality Test

Functionality tests help verify that a software application performs and functions correctly according to design specifications. This will be done simultaneously with the Build by Feature Functionality Test part to check core functions, text input consistency, menu functions, installation, and setup. The Orphanage Information System will undergo two phases under functionality testing. This will iterate together alongside the functionality test under Build by Feature.

3.2.5 Build by Feature

Working from the design package produced during the Design by Feature phase, the developers will implement the items necessary to support the design of the feature(s) in the work package. The code that would be developed will then be unit tested and inspected. After a successful code inspection, the code will be permitted to build.

Table 3.6 Tasks on Build by Feature

Tasks	To be carried out by:	To be carried out to:
Developing Web System		
• Obed's Information Management System Features Functionality.	TBA	Software's Functionality
Building System's Database		
• Normalize Systems Database	TBA	Software Database
Functionality Tests		
• Database Connection • Check Features Functionality	TBA	System's Database Functionality
Detect Bugs or Issues		
• Check Database Connection	TBA	OHMIMS
• Check Features Functionality	TBA	OHMIMS
• Check Over-all System Functionality	TBA	OHMIMS
• Assess Test Results	TBA	Software's Functionality
Usability Tests		
• Use the Developed System to check the Over-all Functionality of the System to the Target Users	TBA	Software Usability
Assess Test Results		
• Assess the results of Functionality and Usability Testing	TBA	Software Functionality and Usability
Regression Test		
• Ensuring that the System still performs the project Objectives after the consecutive testing.	TBA	Software

3.2.5.1 Developing the Web System

As for developing the overall application, the developers consider the following:

Front-end Development Tools. These development tools are focused on the User Interface and User Experience (UI/UX) and provide the following activities:

- CSS, JSS, BOOTSTRAP, HTML and PHP

Back-end Servers. These tools pick-up where the front-end tools leave off, and provide a set of reusable services that are centrally managed and controlled.

- MYSQL DATABASE and PHPMyAdmin

3.2.5.2 User Test

Often an afterthought, considered only after the design and development of an application. OHMIMS will undergo a series of user test including functionality, usability, and regression testing. This will be done to better understand and empathize with the end-users needs to further create an involvement in the decision-making process.

3.2.5.2.1 Functionality Test

Functionality Test will be done to verify that each feature of the overall application operates in conformance with the requirement specifications of the study. Obed's will be tested by providing appropriate input, output will be verified and actual results will be compared with the expected results. This test will iterate alongside the Functionality Test under the Design by Feature phase. The developers will conduct functionality testing by the steps below:

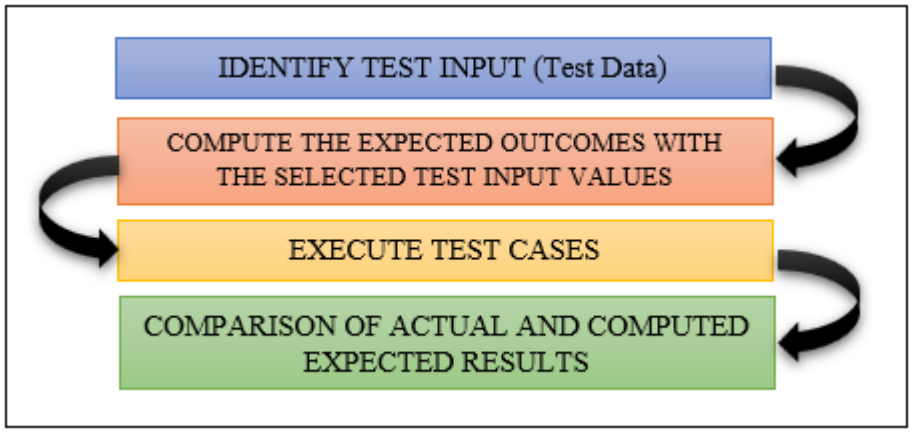

Figure 3.3 Functionality Testing Steps

3.2.5.2.2 Debugging

Debugging will be done to detect and remove existing and potential errors, known as bugs, in the software code of OHMIMS that might cause the application to behave unexpectedly or crash. Tracing the program execution step-by-step by evaluating the value of variables and stop the execution wherever required to get the value of variables are among the possible solutions in order to fix the bugs.

3.5.2.3 Usability Test

By conducting usability testing, a technique used in user-centered interaction design, OHMIMS can be tested on real users to determine whether it meets its intended goals and satisfies its capacity. This method provides immediate feedback on how the actual users interact with the system, making it a vital usability strategy. During the testing, the Obed's social workers will be asked to perform tasks, usually while being observed, to identify any issues or confusion they may encounter.

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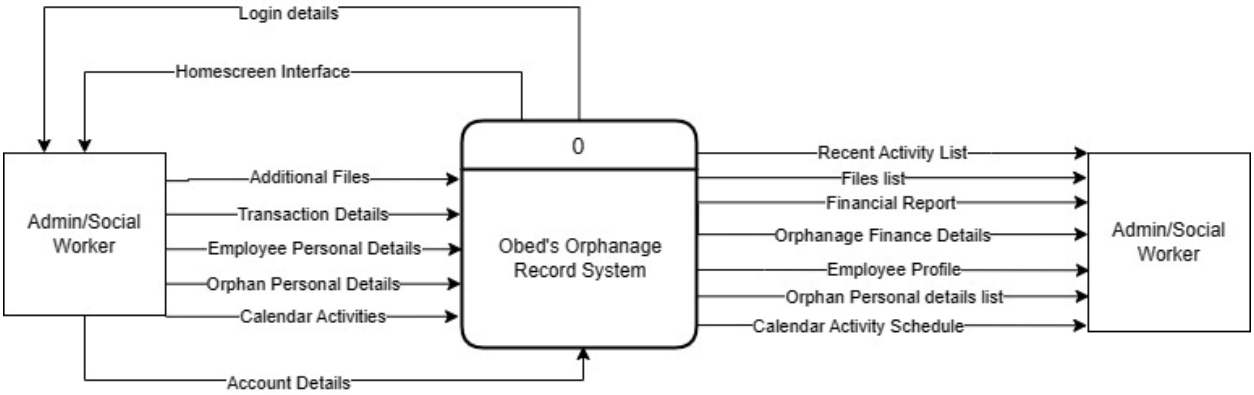
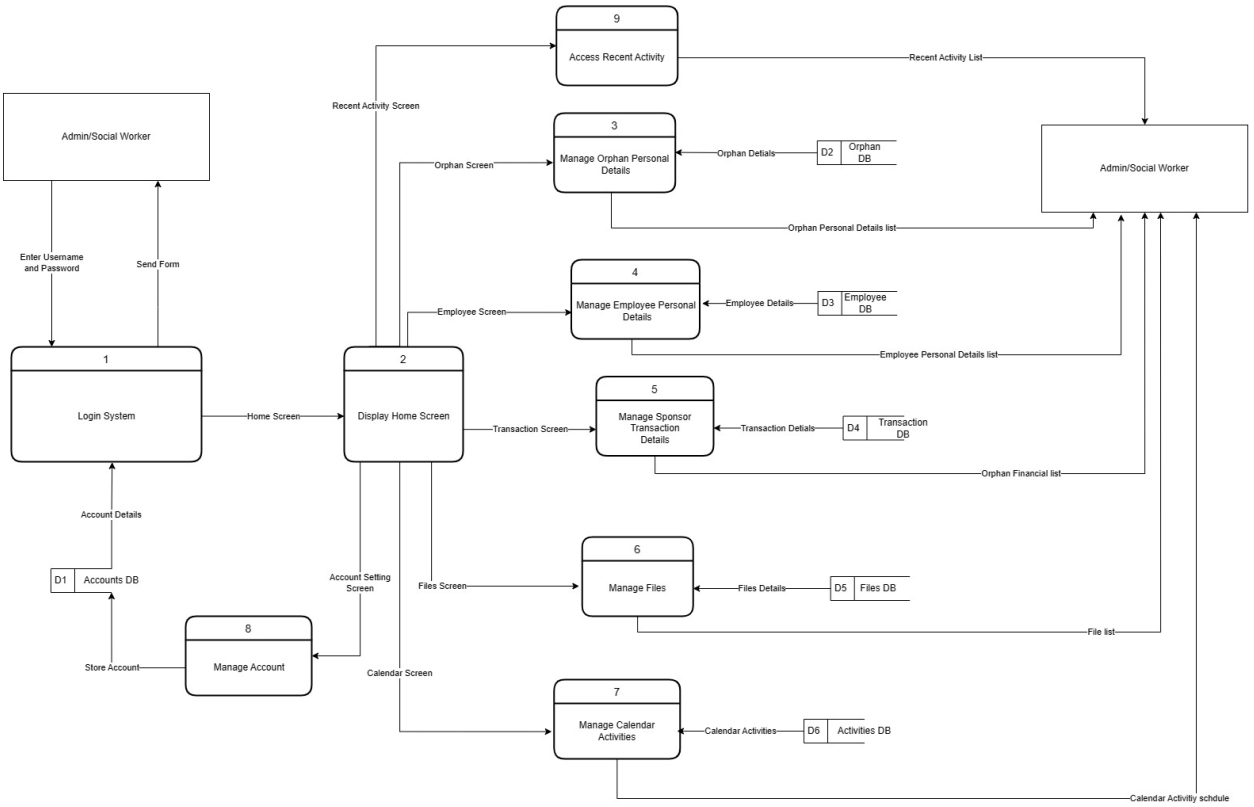
APPENDICES

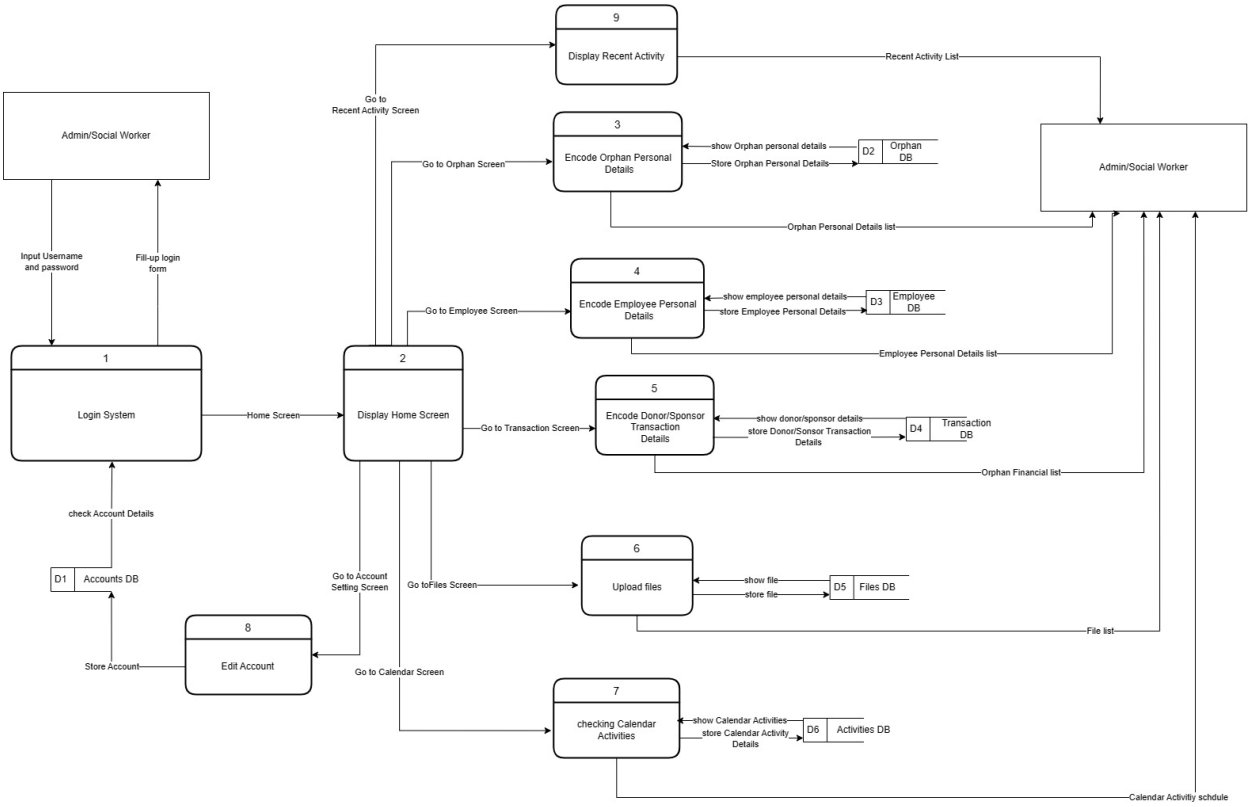
Appendix A: Context Level



Appendix B: Level 0 Logical Diagram

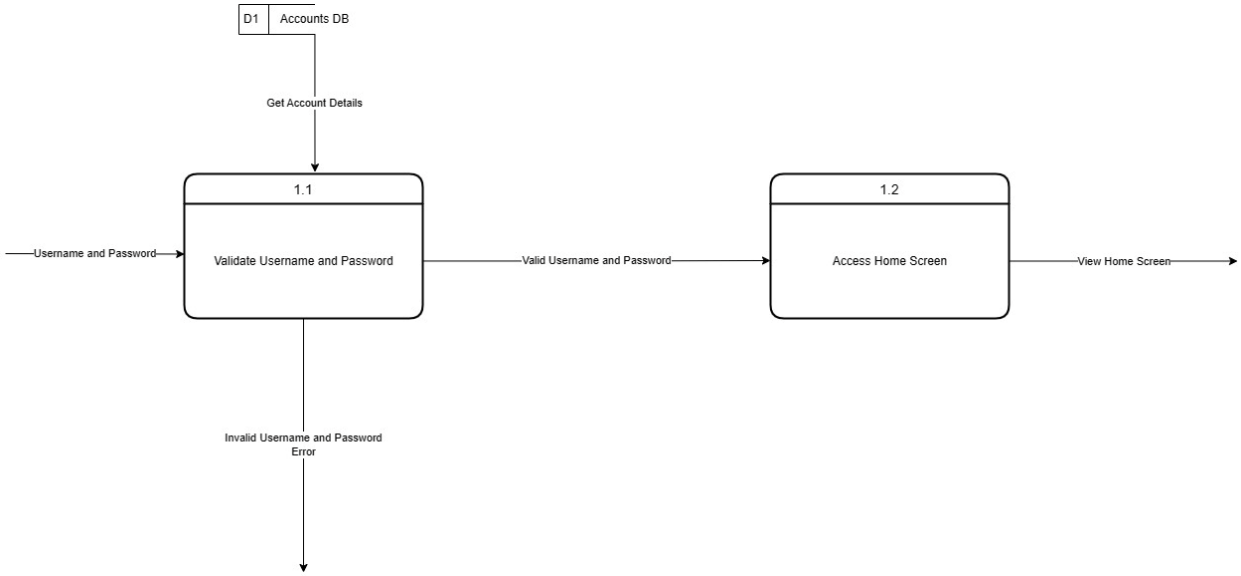


Appendix C: Level 0 Physical Diagram

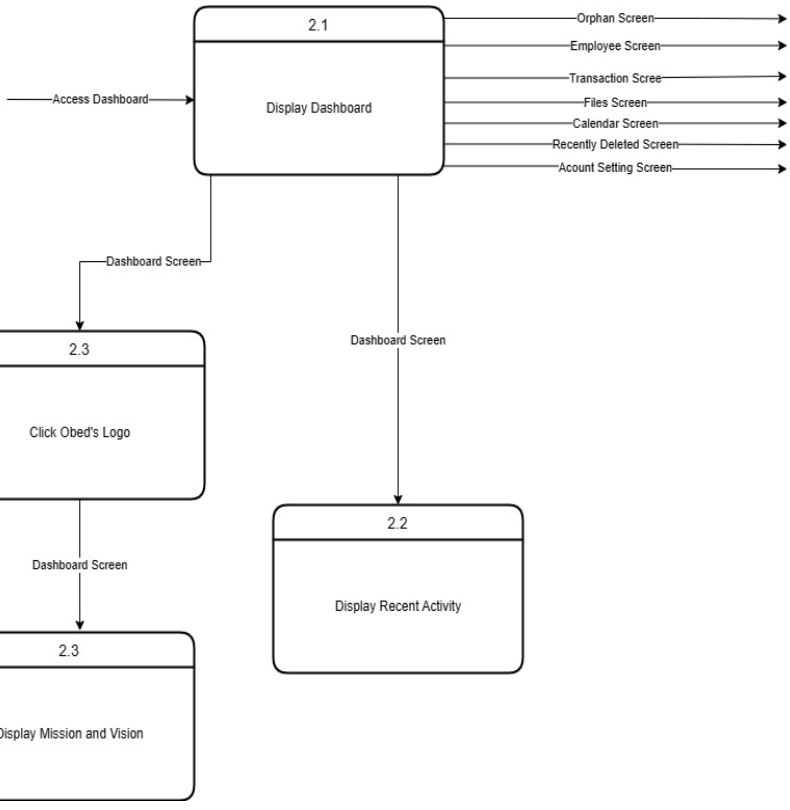


Appendix D: Child Diagrams

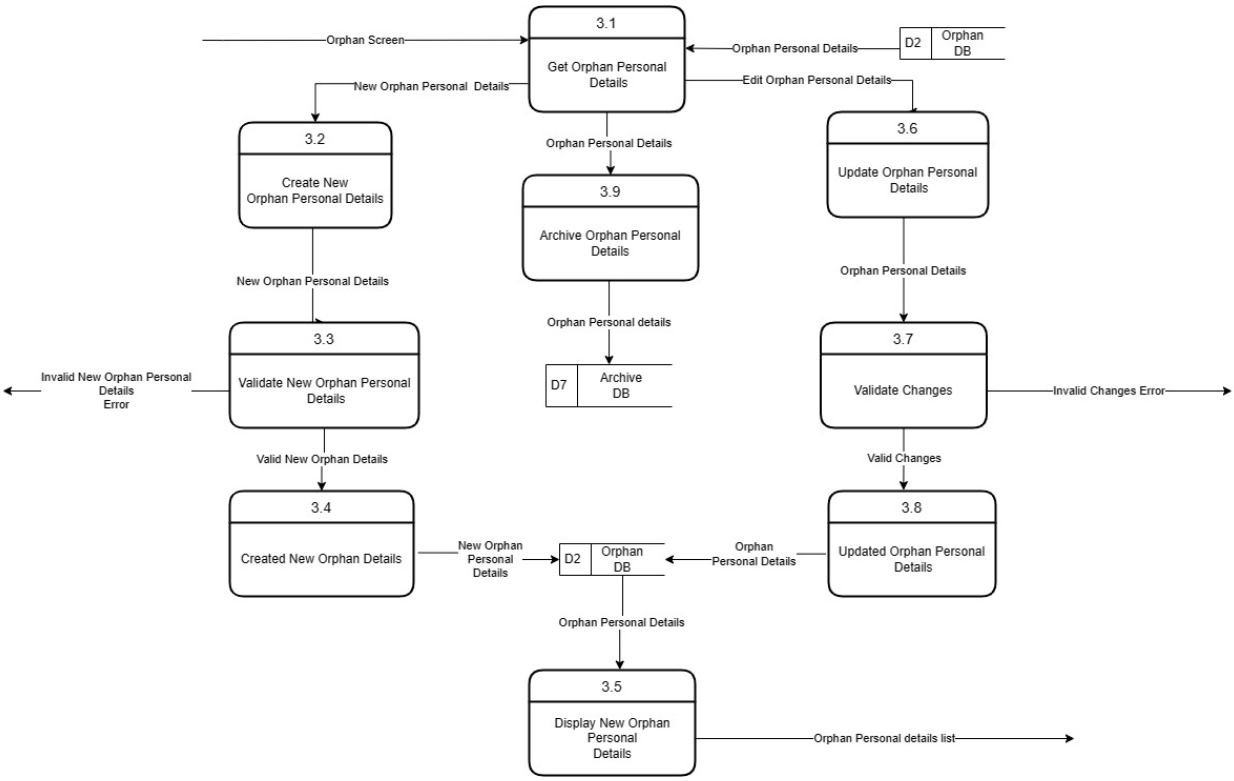
Child Diagram for the Login Process



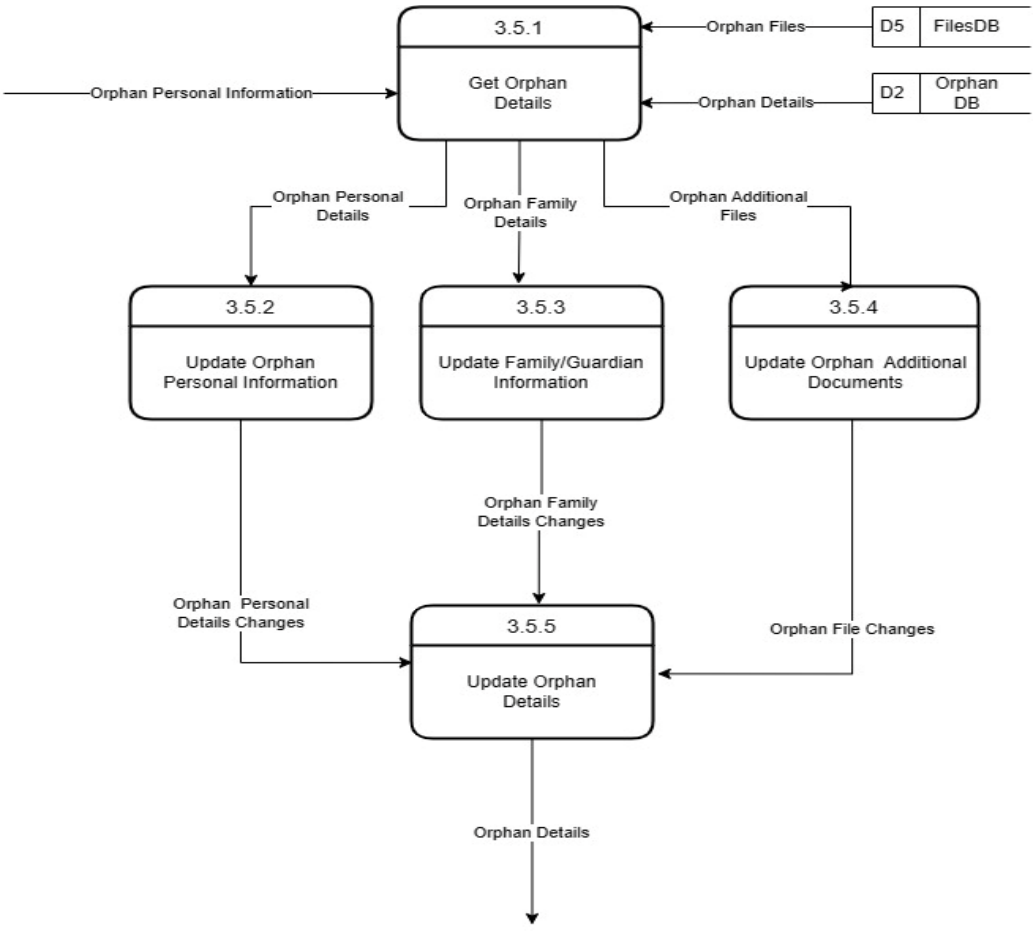
Child Diagram for the Dashboard



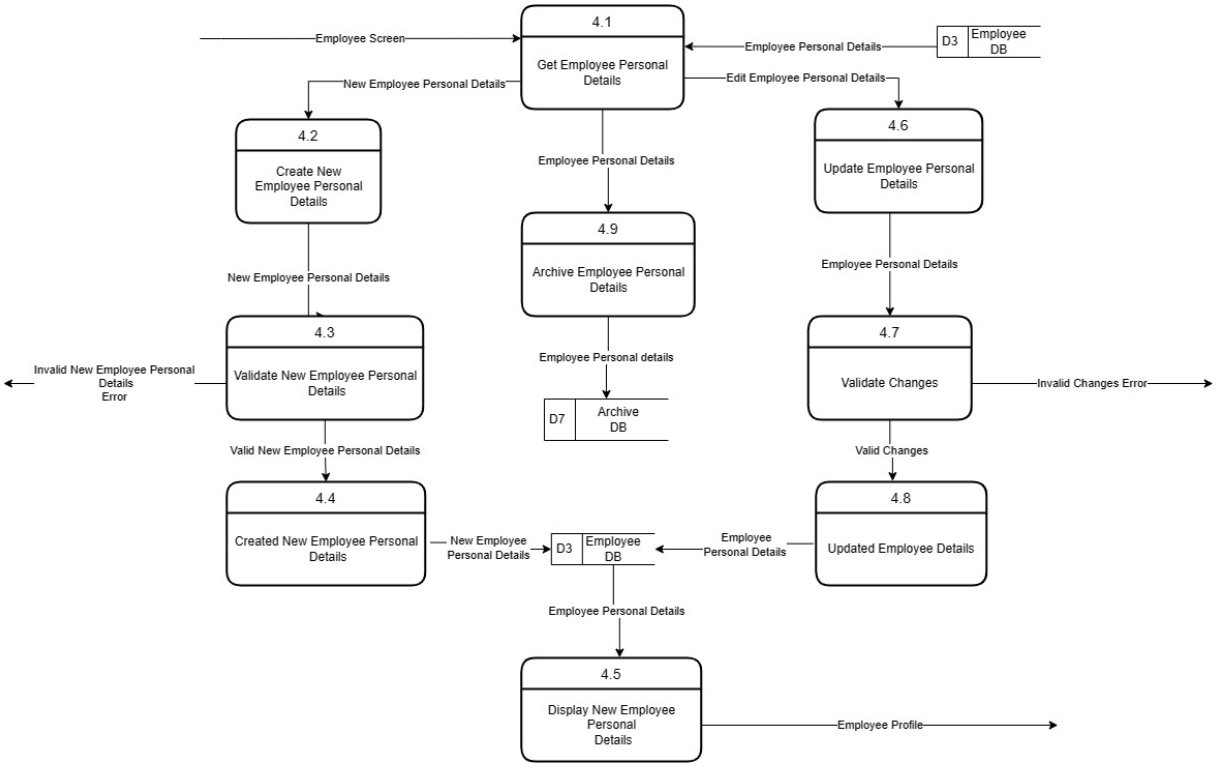
Child Diagram for Managing Orphans



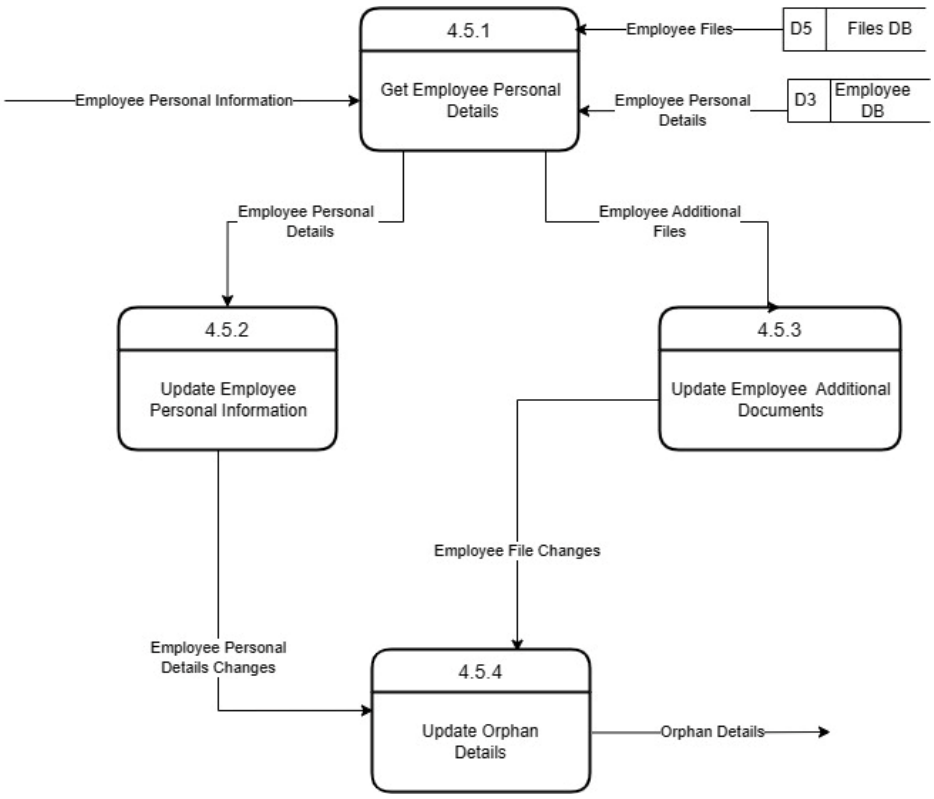
Child Diagram for Updating Orphan Details



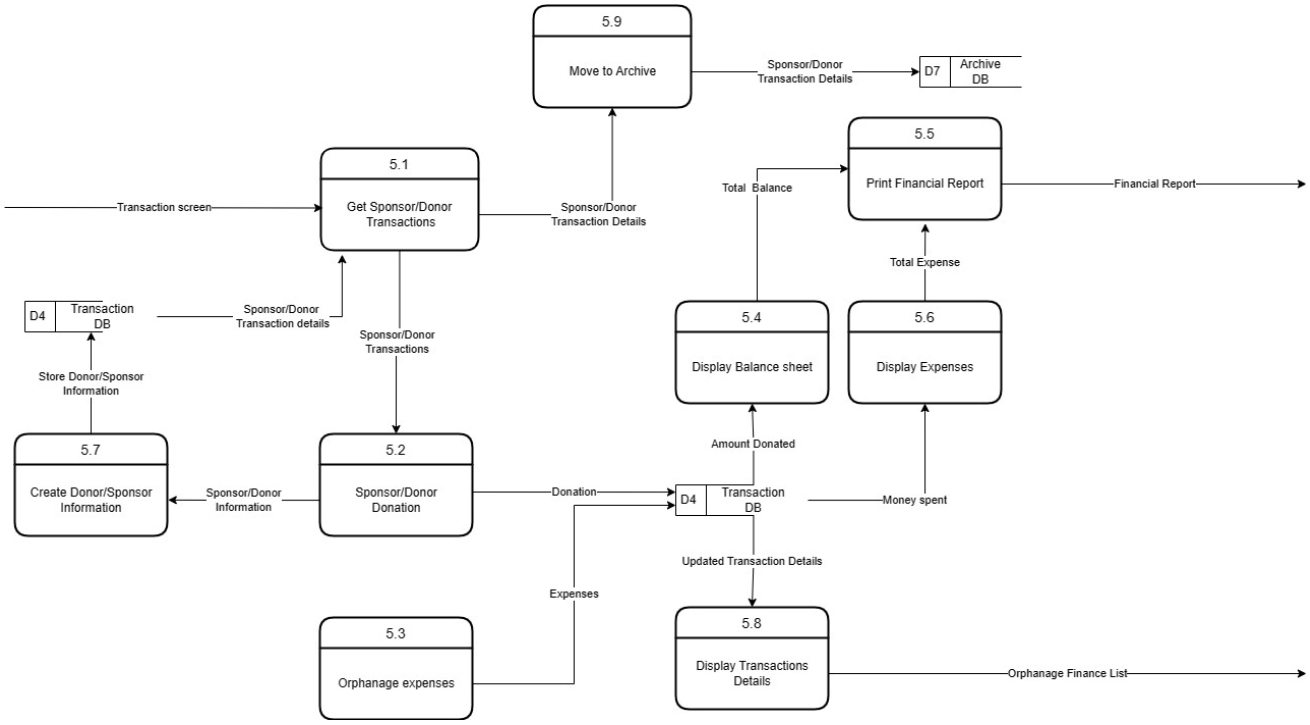
Child Diagram for Managing Employees



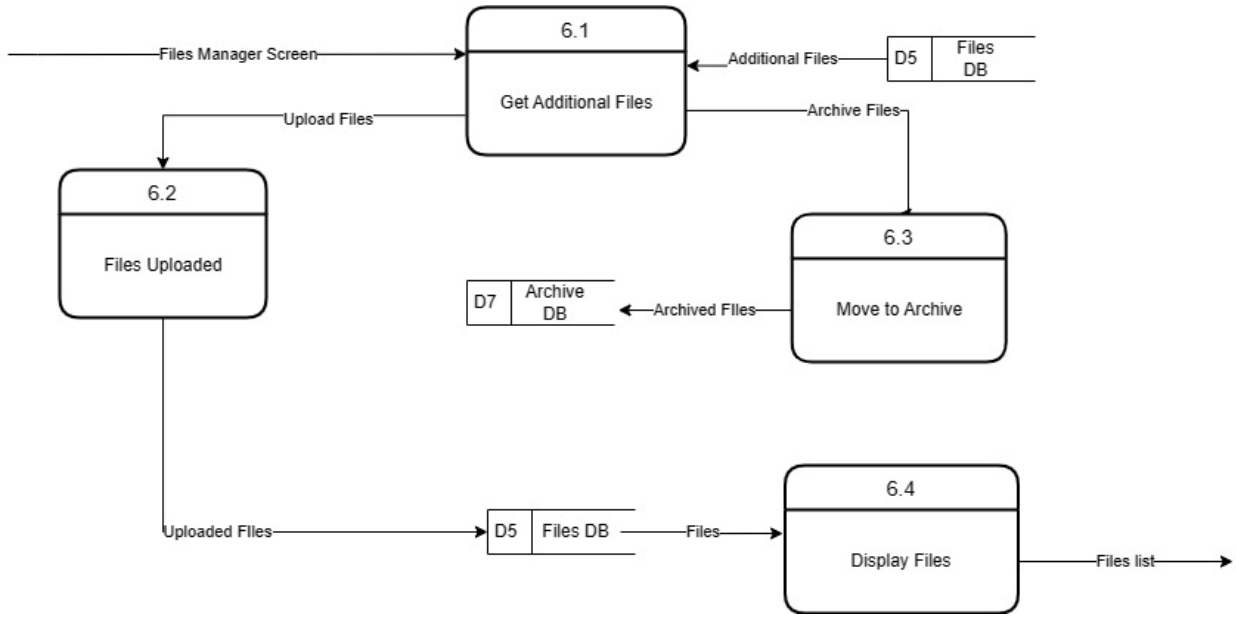
Child Diagram for Updating Employee Personal Details



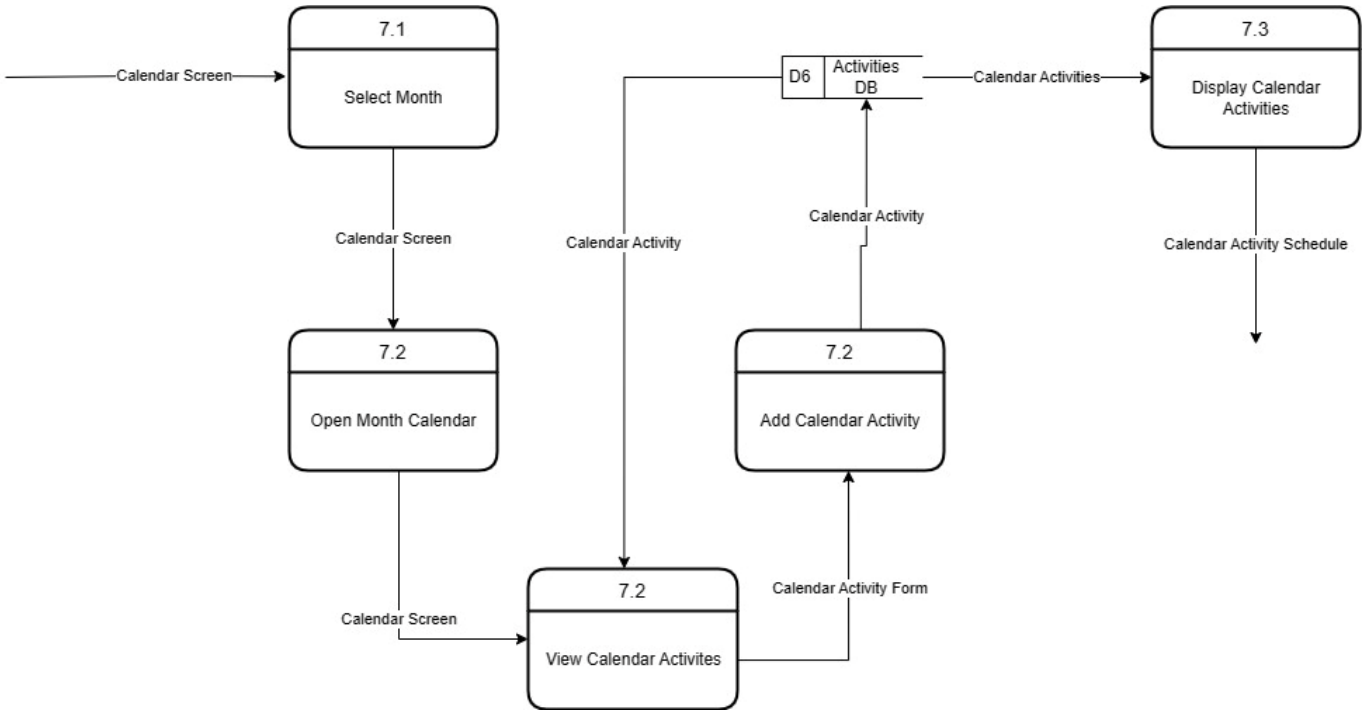
Child Diagram for Managing Transactions



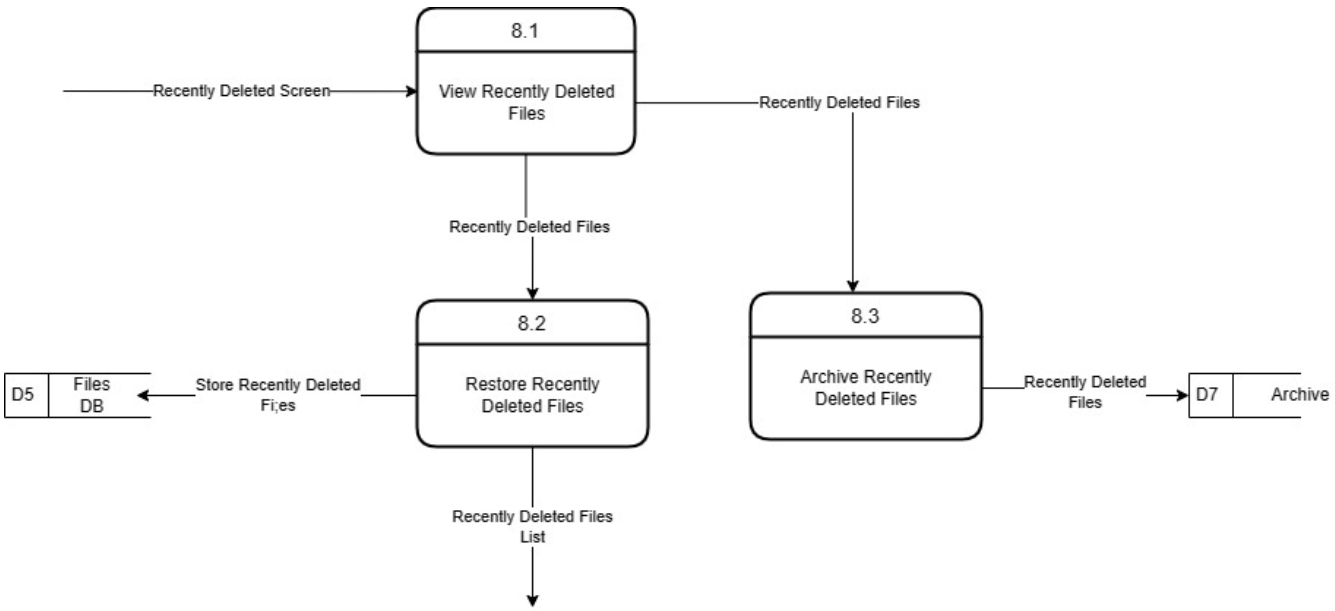
Child Diagram for Managing Files



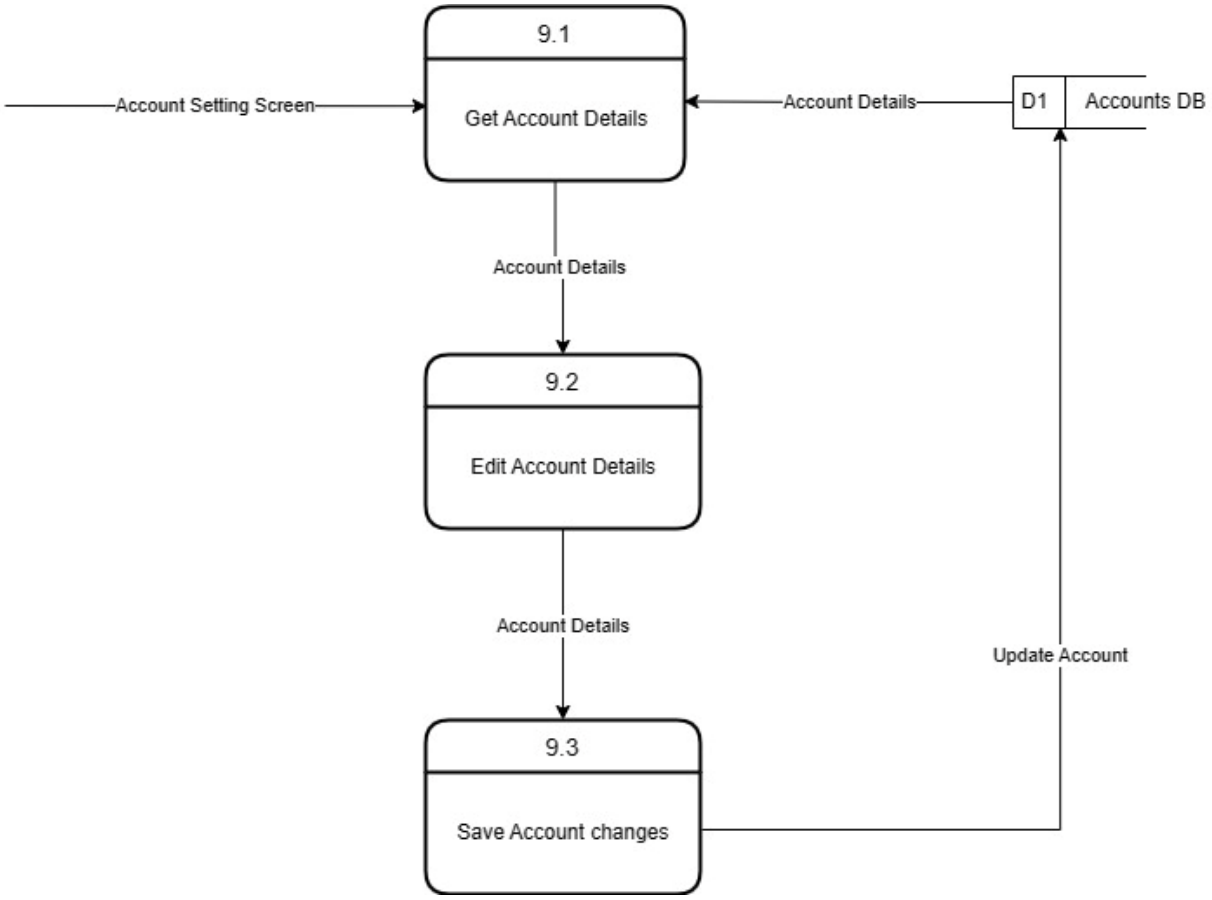
Child Diagram for Managing Calendar Activities



Child Diagram for the Recently Deleted Files



Child Diagram for the Account Settings



Appendix E: Entity Relationship Diagram