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# Leave management system project report

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# Leave management system project report

Kamal Acharya<sup>1</sup>

<sup>1</sup>Affiliation not available

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## **ABSTRACT**

The Leave management system is an Intranet based application that can be accessed throughout the organization or a specified group/Dept. This system can be used to automate the workflow of leave applications and their approvals. The periodic crediting of leave is also automated. There are features like email notifications, cancellation of leave, automatic approval of leave, report generators etc. in this Tool.

The project has been planned to be having the view of distributed architecture, with centralized storage of the database. The application for the storage of the data has been planned. Using the constructs of MS-SQL Server and all the user interfaces have been designed using the ASP.Net technologies. The database connectivity is planned using the “SQL Connection” methodology. The standards of security and data protective mechanism have been given a big choice for proper usage. The application takes care of different modules and their associated reports, which are produced as per the applicable strategies and standards that are put forwarded by the administrative staff.

In this Leave management system, attempts were made to register the presence of employees. The main purpose of this java application is to maintain information about the presence that all employees can use in their departments. This web application retrieves the details of the departments assigned to the relevant administrative employees and employees enrolled in the courses from the server with the internet connection and stores them in the database. At the end of the month, when the administrator is needed to attend, attendance reports can directly generate an administrator report view.

# **CHAPTER 1**

## **INTRODUCTION**

The Leave management system is an Intranet based application that can be accessed throughout the organization or a specified group/Dept. This system can be used to automate the workflow of leave applications and their approvals. The periodic crediting of leave is also automated. There are features like email notifications, cancellation of leave, automatic approval of leave, report generators etc. in this Tool.

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### **1.1.OBJECTIVE**

This project is aimed at developing Leave Management System that allows to automate or computerize all employee management operations.

- To automate the existing leave management in educational institutes.
- To decrease the paperwork and enable the process with efficient, reliable record maintenance by using centralized database, thereby reducing chances of data loss.

This project is aimed at developing an online leave management system that is of importance to either an organization. The Leave Management System (LMS) is an Intranet based application that can be accessed throughout the organization or a specified group/Dept. This system can be used to automate the workflow of leave applications and their approvals. The periodic crediting of leave is also automated.

There are features like email notifications, automatic approval of leave, report generators etc. in this system. Leave Management application will reduce paper work and maintains record in more efficient way.

The advancement in technology in the last few decades has improved our lives in every aspect. Manually driven systems are being substituted by the computerized systems. The existing Leave Management System of DBBL is totally manual to keep track of all the leave associated records such as leave status, employee's availability and creating yearly reports etc. DBBL uses a very lengthy process to grant or refuse leave including finding out the eligibility of the employees for the type of leave applied for. Moreover, the information can be distorted as it has to go through a long chain of officials. The objective of this project is to formulate a sensible analysis of the current system to find out its problems and thus design a new computerized system which will be more optimized and synchronized. The management will be availed with such a system which may make their task simpler in case of leave related activities and the employees will not need to wait for a long time to know the decision of the management.

This project is aimed at developing a web based Leave Management Tool, which is of importance to either an organization or a college. This is an Intranet based application that can be accessed throughout the organization or a specified group/Dept. This system can be used to automate the workflow of leave applications and their approvals. The periodic crediting of leave is also automated. There are features like email notifications, cancellation of leave, automatic approval of leave, report generators etc. in this Tool.

## **CHAPTER 2**

### **PROJECT ANALYSIS**

#### **2.1. System Study**

It is always necessary to study and recognize the problems of existing system, which will help in finding out the requirements for the new system. System study helps in finding different alternatives for better solution.

The project study basically deals with different operations and steps involved in generation of examination mark sheets. It includes:

- Data gathering
- Study of existing system
- Analyzing problem
- Studying various documents
- Feasibility study for further improvements

Following are the steps taken during the initial study:

Initially, we collected all the information, which they wanted to store. Then we studied the working of the current system which is done manually. We noted the limitation of that system which motivated them to have new system.

With the help of these documents we got basic ideas about the system as well as input output of the developed system. The most important thing is to study system thoroughly. Here we are studying both existing system and proposed system so that advantages & disadvantages of both the systems can be understood. The first task was identifying how system can be computerized. Some analysis and projections was done regarding changes to be made to the existing system.

#### **2.2. Existing System**

In existing system every college follows manual procedure in which faculty should enter in time and out time in a record book. At the end of each month Head of department will calculate leaves of every faculty member which is a time taking process and there is chances of losing records.

### **2.3. DISADVANTAGES OF EXISTING SYSTEM**

- Cannot Upload and Download the latest updates.
- No use of Web Services and Remoting.
- Risk of mismanagement and of data when the project is under development.
- Less Security.
- No proper coordination between different Applications and Users.
- Fewer Users – Friendly.

### **2.4. Proposed System**

In proposed system chances of losing data is not possible because data is maintained in the form of database. Every day attendance, leaves and notices information is updated in to database using a user friendly GUI. This will reduce work for Head of departments. This application is an online application which makes more flexible to access information.

**2.4.1. Performance:** During past several decades, the records are supposed to be manually handled for all activities. The manual handling of the record is time consuming and highly prone to error.

To improve the performance of the Hotel Management System, the computerized system is to be undertaken. This project is fully computerized and user friendly even that any of the members can see the report and status of the company.

**2.4.2. Efficiency:** The basic need of this website is efficiency. The website should be efficient so that whenever a new user submits his/her details the website is updated automatically. This record will be useful for other users instantly.

**2.4.3. Control:** The complete control of the project is under the hands of authorized person who has the password to access this project and illegal access is not supposed to deal with. All the control is under the administrator and the other members have the rights to just see the records not to change any transaction or entry.

**2.4.4. Security:** Security is the main criteria for the proposed system. Since illegal access may corrupt the database. So security has to be given in this project.

## **2.5. ADVANTAGES OF THE PROPOSED SYSTEM**

The development of the new system contains the following activities, which try to automate the entire process keeping in view of the database integration approach.

- User friendliness is provided in the application with various controls.
- The system makes the overall project management much easier and flexible.
- Readily upload the latest updates, allows user to download the alerts by clicking the URL.
- There is no risk of data mismanagement at any level while the project development is under process.
- It provides high level of security with different level of authentication.

## **2.6. SYSTEM ANALYSIS & DESIGN**

The way that is followed while carrying on with the development application is as follows

### **2.7. Defining a problem**

It is the phase in which the Current need for the System is to be defined. This site of Computer Peripherals & Consumables has all the up to date information. Regarding to all computer Peripherals & Consumables.

### **2.8 Feasibility study:**

Preliminary investigation examine project feasibility, the likelihood the system will be useful to the organization. The main objective of the feasibility study is to test the Technical, Operational and Economical feasibility for adding new modules and debugging old running system. All system is feasible if they are unlimited resources and infinite time. There are aspects in the feasibility study portion of the preliminary investigation:

- Technical Feasibility

- Operation Feasibility
- Economic Feasibility.

**For the complete feasibility study I need to concentrate on following area:**

The following feasibility study was undertaken for the proposed system:

**Technical feasibility:**

The technical issue usually raised during the feasibility stage of the investigation includes the following:

- Does the necessary technology exist to do what is suggested?
- Do the proposed equipment's have the technical capacity to hold the data required to use the new system?
- Will the proposed system provide adequate response to inquiries, regardless of the number or location of users?
- Can the system be upgraded if developed?
- Are there technical guarantees of accuracy, reliability, ease of access and data security?

Earlier no system existed to cater to the needs of 'Secure Infrastructure Implementation System'. The current system developed is technically feasible. It is a web based user interface. Thus it provides an easy access to the users. The database's purpose is to create, establish and maintain a workflow among various entities in order to facilitate all concerned users in their various capacities or roles. Permission to the users would be granted based on the roles specified. Therefore, it provides the technical guarantee of accuracy, reliability and security. The software and hard requirements for the development of this project are not many and are available as free as open source. The work for the project is done with the current equipment and existing software technology. Necessary bandwidth exists for providing a fast feedback to the users irrespective of the number of users using the system.

**2.9. Economic feasibility:**

A system can be developed technically and that will be used if installed must still be a good investment for the organization. In the economic feasibility, the development cost in creating the system is evaluated against the ultimate benefit derived from the new systems. Financial benefits must equal or exceed the costs.

The system is economically feasible. It does not require any addition hardware or software. Since the interface for this system is developed using the existing resources and technologies. There is nominal expenditure and economic feasibility for certain.

## **2.10. Operational feasibility:**

Proposed projects are beneficial only if they can be turned out into information system. That will meet the organization's operating requirements. Operational feasibility aspects of the project are to be taken as an important part of the project implementation. Some of the important issues raised are to test the operational feasibility of a project includes the following: -

Is there sufficient support for the management from the users?

Will the system be used and work properly if it is being developed and implemented?

Will there be any resistance from the user that will undermine the possible application benefits?

This system is targeted to be in accordance with the above-mentioned issues. Beforehand, the management issues and user requirements have been taken into consideration. So there is no question of resistance from the users that can undermine the possible application benefits.

The well-planned design would ensure the optimal utilization of the computer resources and would help in the improvement of performance status.

# **CHAPTER 3**

# **SYSTEM REQUIREMENT SPECIFICATION**

## **3.1. External Interface Requirements**

### **3.1.1. User Interfaces:**

All the users will see the same page when they enter in this website. This page asks the users a username and a password. After being authenticated by correct username and password, user will be redirect to their corresponding profile where they can do various activities. The user interface will be simple and consistence, using terminology commonly understood by intended users of the system. The system will have simple interface, consistence with standard interface, to eliminate need for user training of infrequent users.

- Hardware Interfaces:
- No extra hardware interfaces are needed.

The system will use the standard hardware and data communication resources. This includes, but not limited to, general network connection at the server/hosting site, network server and network management tools.

- Application Interfaces:
- OS: Windows 7, Linux

### **3.1.2 Non Functional Requirements**

Non-functional requirements, as the name suggests, are requirements that are not directly concerned with the specific services delivered by the system to its users. They may relate to emergent system properties such as reliability, response time, and store occupancy. Alternatively, they may define constraints on the system implementation such as the capabilities of I/O devices or the data representations used in interfaces with other systems. Non-functional requirements, such as performance, security, or availability, usually specify or constrain characteristics of the system as a whole.

**3.1.4. Usability:** The system provides a help and support menu in all interfaces for the user to interact with the system. The user can use the system by reading help and support.

**3.1.5. Security:** The system provides username and password to prevent the system from unauthorized access. The staffs' password must be greater than eight characters. The subsystem should provide a high level of security and integrity of the data held by the system, only authorized personnel of the company can gain access to the company's secured page on the system; and only users with valid password and username can login to view user's page.

**3.1.5. Performance:** The system response time for every instruction conducted by the user must not exceed more than a minimum of 10 seconds. The system should have high performance rate when executing user's input and should be able to provide response within a short time span usually 50 second for highly complicated task and 20 to 25 seconds for less complicated task.

**3.1.6. Availability:** The system should always be available for access at 24 hours, 7 days a week. Also in the occurrence of any major system malfunctioning, the system should be available in 1 to 2 working days, so that business process is not severely affected.

**3.1.7. Error handling:** Error should be considerably minimized and an appropriate error message that guides the user to recover from an error should be provided. Validation of user's input is highly essential. Also the standard time taken to recover from an error should be 15 to 20 seconds.

**3.1.8. Ease of use:** Considered the level of knowledge possessed by the users of this system, a simple but quality user interface should be developed to make it easy to understand and required less training.

**3.2. Functional Requirements:** These are statements of services the system should provide, how the system should react to particular inputs, and how the system should behave in particular situations. It specifies the application functionality that the developers must build into the product to enable users to accomplish their tasks.

## **CHAPTER 4**

### **HARDWARE REQUIREMENTS**

Processor	:	Pentium IV 2.4 GHz
Hard Disk	:	500 GB.
Monitor	:	15 VGA Colour.
Mouse	:	Logitech.
Ram	:	4GB
Keyboard	:	Standard 102 Keys

#### **4.1. Software Requirements**

Operating system	:	Windows 7
Coding Language	:	vb.net
Database	:	MYSQL

#### **4.2. Software Features**

##### **4.2.1. Vb.net as the front end:**

Here is some discussion about visual basic:

What is vb.net?

VB.Net is a simple, modern, object-oriented computer programming language developed by Microsoft to combine the power of .NET Framework and the common language runtime with the productivity benefits that are the hallmark of Visual Basic. This tutorial will teach you basic VB.Net programming and will also take you through various advanced concepts related to VB.Net programming language.

Visual Basic .NET (VB.NET) is an object-oriented computer programming language implemented on the .NET Framework. Although it is an evolution of classic Visual Basic language, it is not backwards-compatible with VB6, and any code written in the old version does not compile under VB.NET.

Like all other .NET languages, VB.NET has complete support for object-oriented concepts. Everything in VB.NET is an object, including all of the primitive

types (Short, Integer, Long, String, Boolean, etc.) and user-defined types, events, and even assemblies. All objects inherit from the base class Object.

VB.NET is implemented by Microsoft's .NET framework. Therefore, it has full access to all the libraries in the .Net Framework. It's also possible to run VB.NET programs on Mono, the open-source alternative to .NET, not only under Windows, but even Linux or Mac OSX.

#### **4.2.2. The following reasons make VB.Net a widely used professional language:**

- Modern, general purpose.
- Object oriented.
- Component oriented.
- Easy to learn.
- Structured language.
- It produces efficient programs.
- It can be compiled on a variety of computer platforms.
- Part of .Net Framework.
- Strong Programming Features VB.Net

#### **4.2.3. VB.Net has numerous strong programming features that make it endearing to multitude of programmers worldwide. Let us mention some of these features:**

- Boolean Conditions
- Automatic Garbage Collection
- Standard Library
- Assembly Versioning
- Properties and Events
- Delegates and Events Management
- Easy-to-use Generics
- Indexers
- Conditional Compilation
- Simple Multithreading

Applications communicate with a database, firstly, to retrieve the data stored there and present it in a user-friendly way, and secondly, to update the database by inserting, modifying and deleting data.

Microsoft ActiveX Data Objects.Net (ADO.Net) is a model, a part of the. Net framework that is used by the .Net applications for retrieving, accessing and updating data.

#### **4.3. ADO.Net Object Model**

ADO.Net object model is nothing but the structured process flow through various components. The object model can be pictorially described as:

- i. The data residing in a data store or database is retrieved through the data provider. Various components of the data provider retrieve data for the application and update data.
- ii. An application accesses data either through a dataset or a data reader.
- iii. Datasets store data in a disconnected cache and the application retrieves data from it.
- iv. Data readers provide data to the application in a read-only and forward-only mode.

#### **4.4. Data Provider**

A data provider is used for connecting to a database, executing commands and retrieving data, storing it in a dataset, reading the retrieved data and updating the database.

#### **4.5. DataSet**

DataSet is an in-memory representation of data. It is a disconnected, cached set of records that are retrieved from a database. When a connection is established with the database, the data adapter creates a dataset and stores data in it. After the data is retrieved and stored in a dataset, the connection with the database is closed. This is called the 'disconnected architecture'. The dataset works as a virtual database containing tables, rows, and columns.

#### **4.6. Connecting to a Database**

The .Net Framework provides two types of Connection classes:  
SqlConnection – designed for connecting to Microsoft SQL Server.  
OleDbConnection – designed for connecting to a wide range of databases, like  
Microsoft Access and Oracle.

## **CHAPTER 5**

### **SYSTEM DESIGN**

In the previous chapter we have identified the functional and non-functional requirements of the system and produced the analysis model. The following are discussed in this chapter: design goals, system architecture, system decomposition, deployment and database design.

Design is the first step into the development phase for any engineered product or system. Design is a creative process. A good design is the key to effective system. The term “design” is defined as “the process of applying various techniques and principles for the purpose of defining a process or a system in sufficient detail to permit its physical realization”. It may be defined as a process of applying various techniques and principles for the purpose of defining a device, a process or a system in sufficient detail to permit its physical realization. Software design sits at the technical kernel of the software engineering process and is applied regardless of the development paradigm that is used. The system design develops the architectural detail required to build a system or product. As in the case of any systematic approach, this software too has undergone the best possible design phase fine tuning all efficiency, performance and accuracy levels. The design phase is a transition from a user oriented document to a document to the programmers or database personnel.

#### **5.1. System design goes through two phases of development:**

- i. Logical Design and
- ii. Physical Design.
- iii. Logical Design

The logical flow of a system and define the boundaries of a system. It includes the following steps:

- i. Reviews the current physical system – its data flows, file content, volumes,
- ii. Reviews the current physical system – its data flows, file content, volumes, frequencies etc.
- iii. Prepares output specifications – that is, determines the format, content and

- frequency of reports.
- iv. Prepares input specifications – format, content and most of the input functions.
  - v. Prepares edit, security and control specifications.
  - vi. Specifies the implementation plan.
  - vii. Prepares a logical design walk through of the information flow, output, input, controls and implementation plan.
  - viii. Reviews benefits, costs, target dates and system constraints.

## 5.2. Physical Design

Physical system produces the working systems by define the design specifications that tell the programmers exactly what the candidate system must do. It includes the following steps.

- i. Design the physical system.
- ii. Specify input and output media.
- iii. Design the database and specify backup procedures.
- iv. Design physical information flow through the system and a physical design Walk through.
- v. Plan system implementation.
- vi. Prepare a conversion schedule and target date.
- vii. Determine training procedures, courses and timetable.
- viii. Devise a test and implementation plan and specify any new hardware/software.
- ix. Update benefits, costs, and conversion date and system constraints.

## **CHAPTER 6**

### **DATABASE DESIGN**

The database, called a bank, will have two tables, one called accounts and the other called customer. Each will hold information about either the account or the customer.

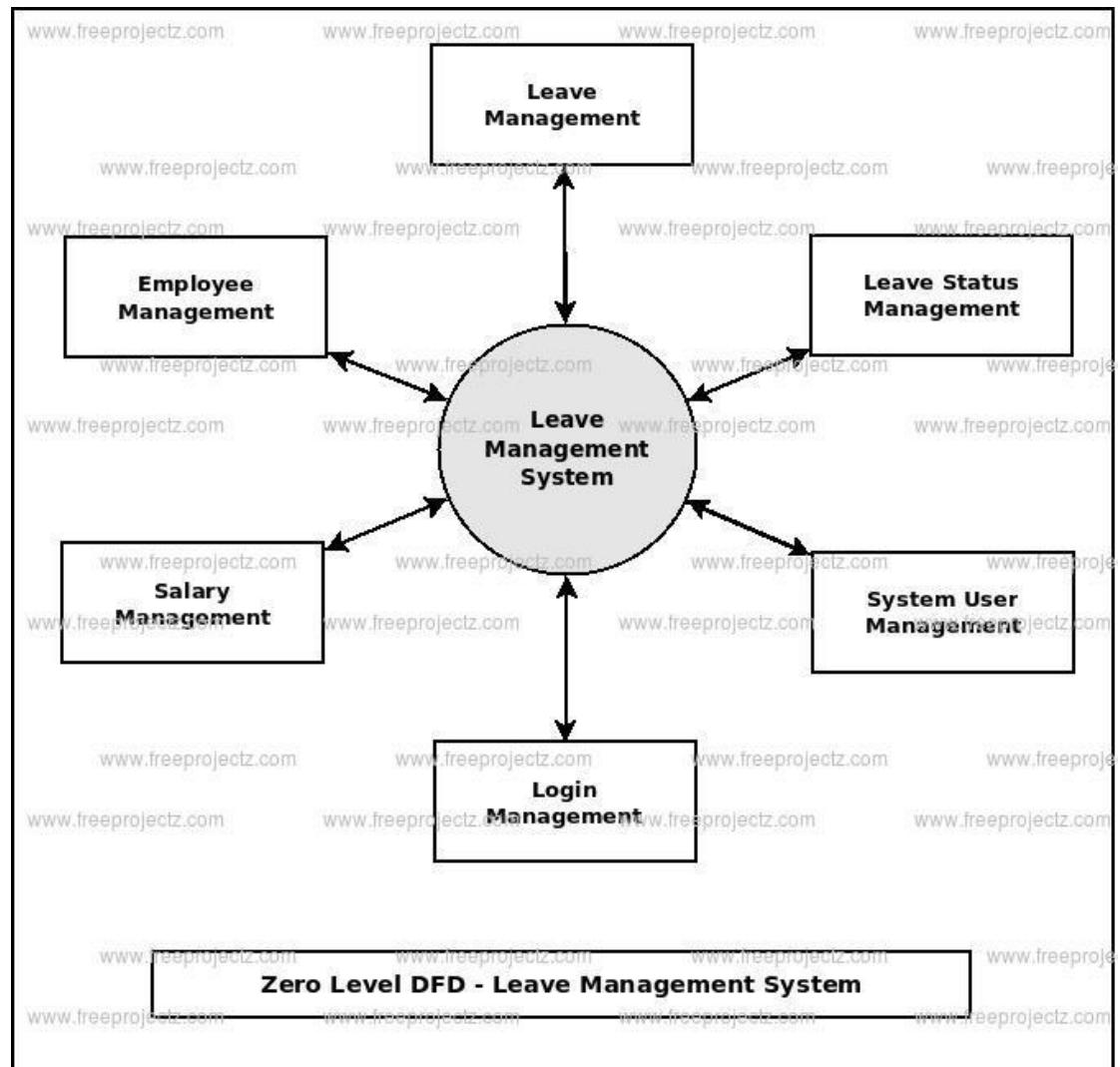
#### **6.1. DFD (Data flow diagram) of banking management system**

A DFD is a graphical representation that depicts information flow and the transforms that are applied as data move from input to output. The DFD may be used to represent a system or software at any level of abstraction DFD's may be partitioned into levels that represent increasing information flow and functional details. The DFD provides a mechanism for functional modeling as well as information flow modeling.

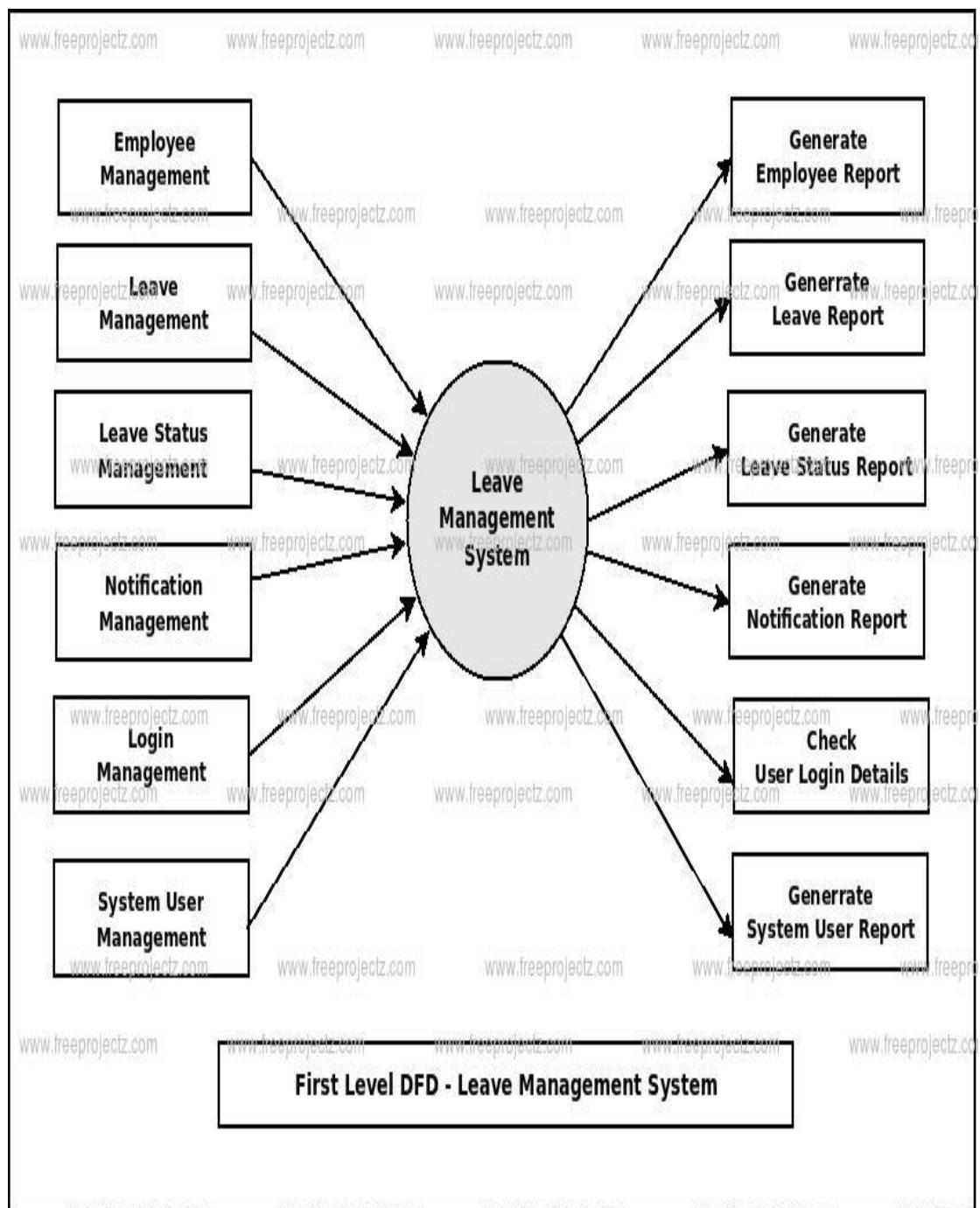
A level “O” DFD, also called a fundamental system model or a context model, represents the entire software element as single bubble with input and output data indicated by incoming and outgoing arrows respectively.

A level “1” DFD contain five or six bubbles with interconnecting arrows. Each of the processes represented at level 1 is a sub function of the overall system. Similarly DFD level 1 can be refined into next level 2 .The information flow continuity has been maintained between each levels.

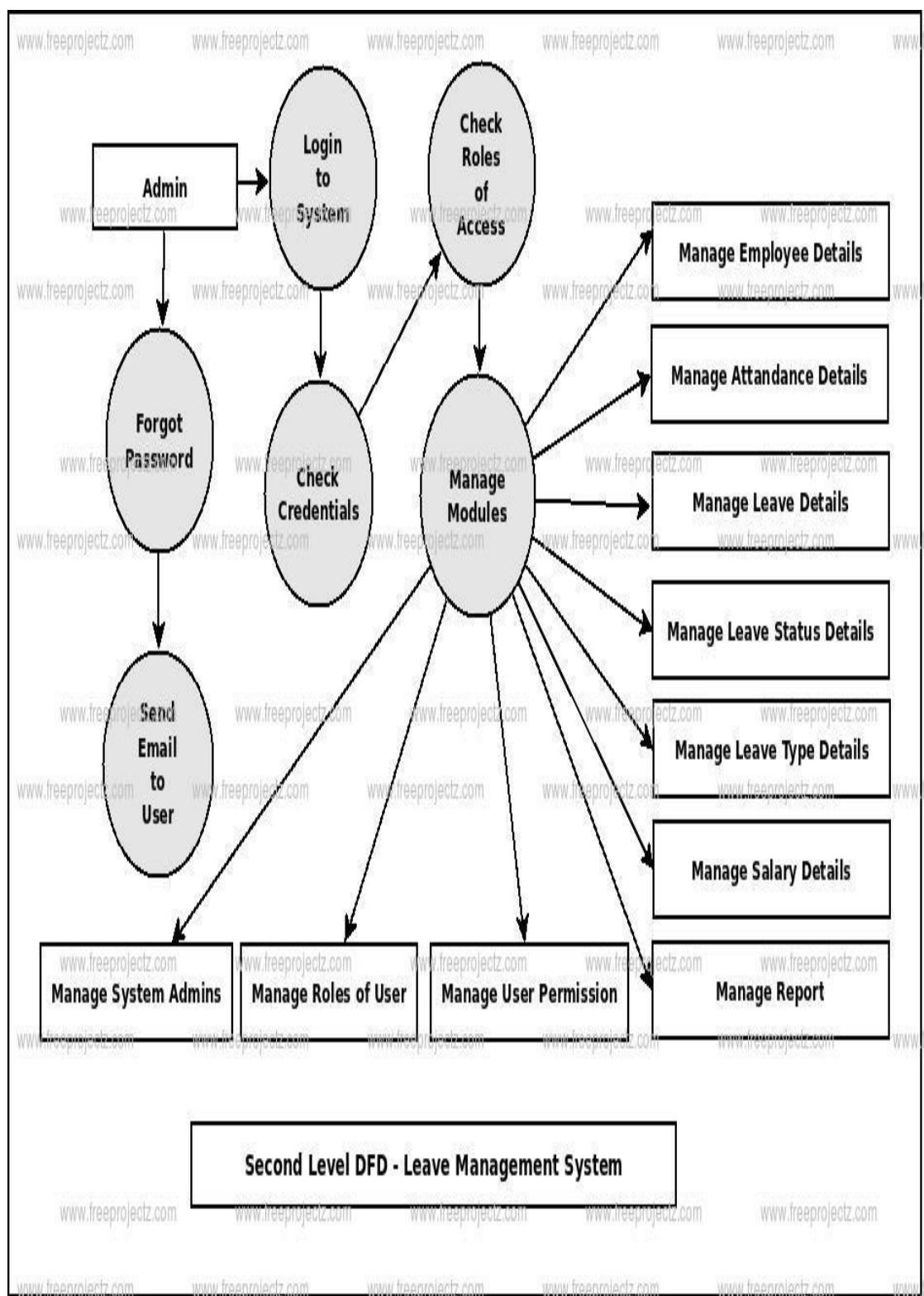
## 6.2. DFD '0'Level



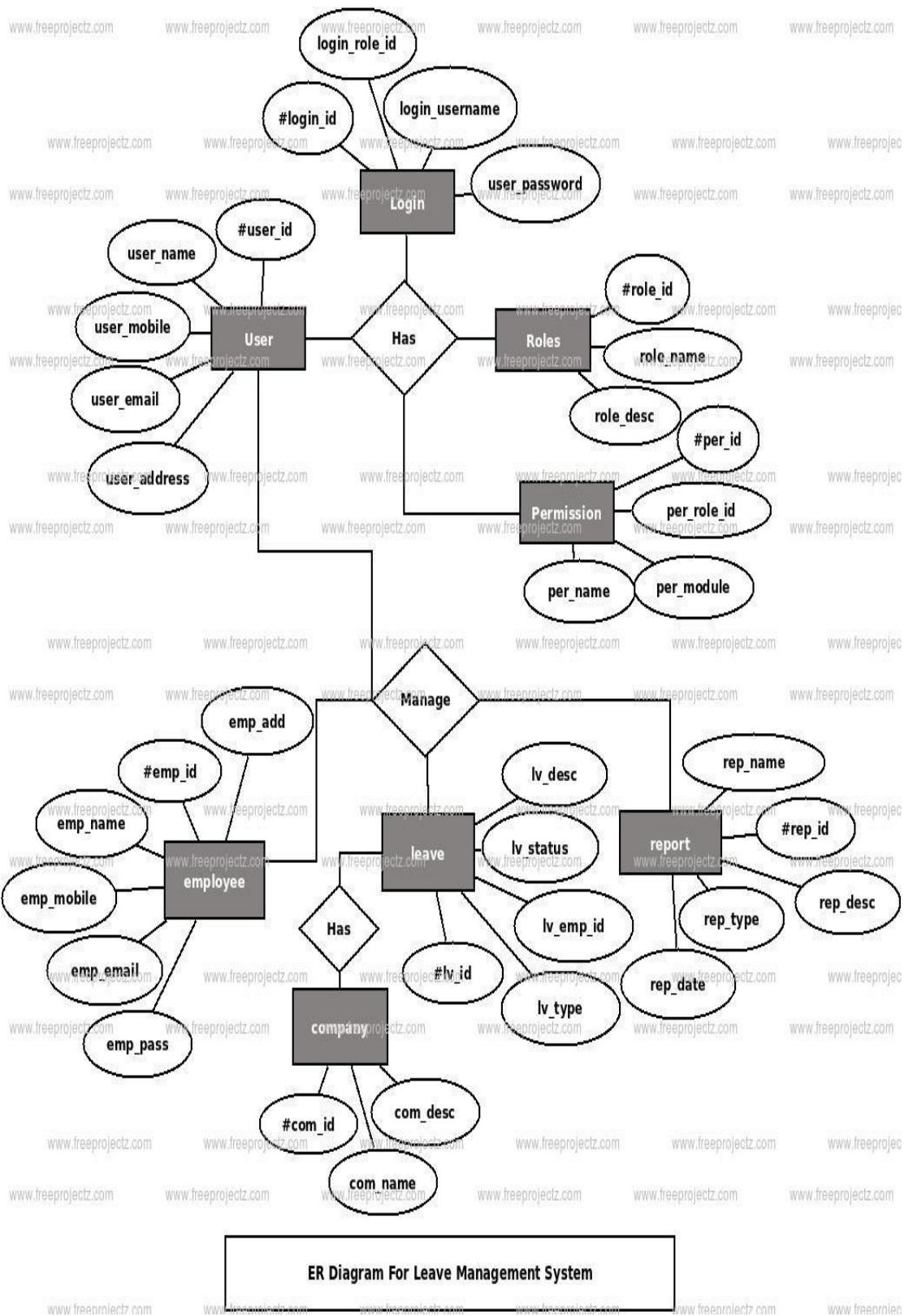
### 6.3. '1' Level



#### 6.4. '2' level



## 6.5. Entity Relationship Diagram



## **CHAPTER 7**

### **TESTING**

Programming Testing is the most critical piece of the developer where the blunders or blames or the disappointments of the framework is discernable. Programming testing is one of the predetermined parts of planning, nature of the product and the execution of code, where the disappointments happens the framework won't give the legitimate yield to clients. Disappointments are happened because of the developer's issues, so it can simple to recognize by the software engineers. It might bring about the disappointment for the framework, so the software engineer ought to know about outlining devices, scraps for changing the conduct of framework. In the wake of creating stage, programming testing is vital to break up the deficiencies rapidly. Testing is a synchronized procedure where the data is taken care by improvement group.

The primary objective of testing is to correct the bugs, issues or blunders. To recognize mistakes the test engineers needs to test every individual segments of the venture arrange module. Every module is tried for the better execution and by checking the modules the mistakes are recognized. It confirms that the frameworks achieved its prerequisites are definitely not. By examining the every modules and mistakes are pester out of framework to get particular yield.

Dissimilar to every module gives the required yield, the assurance of test designer prompts the rightness of framework projects. The last module stage is intended to maintain a strategic distance from the disappointments and to expel deficiencies. So it's ideal to give the testing stage to the advancement of the venture.

#### **7.1 Testing Principles**

The testing goal of the framework programming is to make a point to substantiate the framework condition by dissolving the flaws and blunders.

#### **Some of the basic principles of testing are:**

“A successful test to be carried out which holds the capability of finding errors.”

“Planning of testing phase may require long time.”

“The tests are performed according to the clients need.”

“Effective test should require for detecting all errors.”

“Exhaustive testing is not possible”

## 7.2 Test Plan

The test plan is one of the essential stages in the framework testing. It serves to the general population who are working outside the testing field. The correct arranging makes the item to build up to customer. The test arrange gives the documentation of the exercises performed for programming testing and its serves to approve the yield work.

## 7.3 Phases of Test

**The phases of testing are:**

1. Unit Test
2. Integration Test
3. System Test

### 7.3.1 Unit Test

Unit testing as the name portrays that the testing procedure is completed with the testing where every individual models are tried in a steady progression. The operation to perform unit testing is to figure out where every module testing is approve or not. The investigation of testing gives the fruitful result and to perform correct report determination. The capacity of unit test additionally upgrades the level of testing before the reconciliation procedure. By testing every module the blunders are recognized in before stages and this may prompt the yearning yield of the projects. Unit testing isolates the every individual piece of modules and redresses whether the module is executed or not. The essential execution is to give an end-clients to enhancing the application programming, business handle and the level of framework setup.

### 7.3.2 Integration Test

It is test where every one of the exhibitions are planned with the product testing procedure and individual set programming's are coordinated to perform in a gathering to run the one program. The fulfillment of this testing leads just when exhibitions of every necessities, programming modules and programming design. The yield execution makes when all reconciliation test modules are determined to play out the testing

procedure with craving input. At long last mix testing furnishes end-client with accuracy of the yield with determined programming testing.

### **7.3.3 System Test**

Framework Testing is one of the testing procedure where the fruition of testing stage is for the most part relies on upon System. Framework testing gives the spine support to all the testing stage on the grounds that once the consummation of all the testing procedure the framework testing plays out the Hardware and Software Requirement Specifications and the Software situated examination of framework. This depends on the desire of end-client, where it ought to fulfill to get crave result.

### **7.4 Test Cases**

Test cases are the arrangement of conditions that are being utilized to mediate an application by building up the testing of all the required things that must be tried whether the application is working legitimately or not. It will check the target and the objective a framework should be accomplished. At long last the info which must be given and the normal yield from the framework are to be known the execution of the framework can be additionally checked.

## **CONCLUSION**

The Leave Management System will make the whole leave management process efficient. Users will be able to access the software from anywhere. The employees may be applying for leave from their home as well. This supporting software will help the management in decision making in case of leave related affairs. Moreover, it will ensure less paper works and as a result the whole process will be swift and reliable.

As seen above, the common problem faced by students these days is related to Attendance. Due to lack of coordination or inefficient system, handling of leave records becomes very difficult. With the help of the proposed system concerned faculties will have proper information about student. It also helps those students who regularly attend the classes but due manual system. They get marked as absent On the other hand most of the students who are not attending classes usually get attendance because of the drawbacks of the existing system. Thus, Students will not be able to cheat and this application helps to take action against those students who usually are missing lectures. Faculties will also have relaxation from the proposal as all hustling and bustling of maintaining records gets almost eliminated. Overall, the efficiency of the proposal is incomparable and its effectiveness will bring an ease to the life of studying students, parents and teachers. Further upgradation of the Leave Management System for various types of organizations with multiple hierarchies can help in reducing paperwork, help achieve error free tabulation and calculation of leaves.

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