

DEPARTMENT OF B.VOC SOFTWARE DEVELOPMENT

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Integrated Hybrid Learning Earning Management System

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| ASUTOSH COLLEGE  92, S.P Mukherjee Road, Kolkata – 700056  Department Of Bachelor of Vocation  Software Development  hit-naac-A-Grade.jpg  CERTIFICATE  We are hereby *Certify* that the project work presented in the B.Voc Project Report entitled “Integrated Hybrid Learning Earning System”, in partial fulfillment of the requirements for the award of the Bachelor of Vocation of Software Development and submitted to the Department of Software Development of Asutosh College, Kolkata is an authentic record of our own work carried out during a period from January 2018 to May 2018 (6th Semester) under the supervision of Prof. Abhishek Barman, Assistant Professor, Department of Computer Science, Ramakrishna Mission Vidyamandira, Belur Math. Guest Lecturer of Asutosh College Department of Software Development. |

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LIST OF ABBREVIATIONS

IHLEMS - Integrated Hybrid Learning Earning Management System

LMS - Learning Management System

E-learning – Electronic learning

M-learning – Mobile Learning

CBT - Computer-Based Training

IBT - Internet Based Training

WBT - Web Based Training

CAI - Computer Assisted Instruction

PLATO - Programmed Logic for Automatic Teaching Operation

PDAs - Personal Digital Assistants

HTML –Hyper Text Markup Language

CSS –Cascading Style Sheet

XAMPP – Xcross Apachi Mysql PHP Parl

WWW – World Wide Web

RAM – Random Access Memory

HDD –Hard Disk Drive

DVD – Digital Virtual Disk

GHz – Giga Harze

OS – Operating System

TB – Terra Byte

GB – Giga Byte

PHP - PHP Hypertext Preprocessor

SQL – Stractured Query Language

RDBMS - Relational Database Management Systems

SDLC - Software Development Life Cycle

BRS - Business Requirement Specification

ER – Entity Relationship

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Signature of the students:

**ABSTRACT**

The electronic learning (E-Learning) considered as computer assisted learning has been around since the 1960s but its adoption and popularization mainly started after the popularization of the internet and the web. Since its introduction till present days the e-learning rapidly evolved regarding the technology and the e-learning methods/tools used. Having in mind that it has many benefits for the teacher/instructors from one side and the learners on the other, the e-learning found its application in education, business and the military or wherever is needed. The purpose of this paper is to outline, examine and discuss the evolution, the current state and the new trends in e-learning. The research showed that there is abundance of available technology and e-learning tools that foster and support the learning process. It is evident that e-learning is widely used in education and business and it is expected to grow further. On the other hand there is insufficient evidence of the particular effectiveness of the various pedagogical methodologies used for e-learning. Current state in e-learning and prevailing new trends form the foundations for future direction and development of this field for educational and training purposes. These trends include but are not limited to: blended learning, micro learning, gasification, personalized learning, Massive Open Online Courses, etc.

E-learning comprises all forms of electronically supported learning and teaching. The information and communication systems, whether networked learning or not, serve as specific media to implement the learning process. The term will still most likely be utilized to reference out-of-classroom and in-classroom educational experiences via technology, even as advances continue in regard to devices and curriculum.



E-learning is essentially the computer and network-enabled transfer of skills and knowledge. E-learning applications and processes include Web-based learning, computer-based learning, virtual education opportunities and digital collaboration. Content is delivered via the Internet, intranet/extranet, audio or video tape, satellite TV, and CD-ROM. It can be self-paced or instructor-led and includes media in the form of text, image, animation, streaming video and audio.

Abbreviations like CBT (Computer-Based Training), IBT (Internet-Based Training) or WBT (Web-Based Training) have been used as synonyms to e-learning. Today one can still find these terms being used, along with variations of e-learning such as elearning, Elearning, and eLearning. The terms will be utilized throughout this article to indicate their validity under the broader terminology of E-learning.

The purpose of Integrated Hybrid Learning Earning Management System is to automate the existing manual system by the help of Computerized equipments and full-fledged of Application Software, fulfilling their requirements easily accessing your learning module any time also we provide 1 live class facility in every week, Daily home task and carefully guidance. We also provide free of cost Researches facility for Intelligent students.

Integrated Hybrid Learning Earning Management System as described above, can lead to error free, secure, reliable and fast management system. It can assist the user to concentrate on organization can maintain computerized records without redundant entries. That means that one need not be distracted by information that is not relevant, while being able to reach the information.

The aim is to automate its existing manual system by the help of computerized equipments and full-fledged application software and web, fulfilling their requirements, so that their valuable data/information can be stored for longer period will easy accessing and manipulation of the same.

**CHAPTER -1 OVERVIEW**

* **INTRODUCTION**

In this chapter, we try to give an introduction to the world of of Integrated Hybrid Learning Earning Management System and what are the existing technologies that are in mostly use today.Web consists of billions of clients and server connected through wires and wireless network. The web client make requests to web server. The web service receives the requests then web server find the resources and then return response to the client. There are so many website. It could be shopping website, tutorial website, e commerce website, official website etc. Those all website are made for help client to make their work easier.

We made a website for helping those people who wants to learn through the internet. Our website mainly based on tutorial learning system. There are so many tutorial website in market. but our website will provide you some more features compared to existing platforms. From this website you can get learning material, tutorial video, expert teacher Helpdesk , Interactive Excersise , Projects and many more.

As well as learning you can you can earn money from here. One more things you can do here. Here you can buy and sell software. There are so many website for tutorial learning for website and software selling website. But now 1st time we present you one website where you can learn and earn both. You can learn many IT language which are running in the market. Getting your material you can easily understand the subject. In case you have any problem to understand, you can directly contact to the expert teacher for that each particular subject.

This movement has affected different elements and components; infrastructures, tools, content-oriented applications, human-computer interactions, pedagogical issues, methodologies and models, case studies and projects. This chapter briefly describes the overall idea of the development of e-learning system for OGITECH by using Apache, PHP and MySQL. This chapter includes objectives of the project, scope of work, problem statement and features of project before developed the own sites. E-Learning has its historical background in about 30 years of development in computer based on the training and education. With the growth of the internet this kind of training became much more accepted and the creation of multimedia contents and systems to manage learning activities went on faster. Additional e-learning is based on a long tradition of teaching and learning experience. The larger worlds Information Technology and Education and Training influenced the new term e-learning and so e-learning became a subset of both of them. Nowadays, e-learning refers to learning that is delivered or enabled via electronic technology. It encompasses learning delivered via a range of technologies such as the internet, television, videotape, and computer-based training. In principle, e-learning is a kind of distance learning. Learning materials can be accessed from the web or intranet via a computer and tutors and learners can communicate with each other using e-mail, chat or discussion forums. Therefore, it can be used as the main method of delivery of training or as a combined approach with classroom-based training. It can be valuable when used as a part of well-planned and properly supported education and training environment, but e-learning is not a magic bullet that replaces existing pedagogical theories and approaches. Nevertheless, it has almost everything that those theories need to get implemented. Many learning and technology professionals believe that e-learning will have become state of the art when we will stop referring to it by a separate name and begin considering it as an integral part of a complete learning environment.

E-learning is the practice of using information and communication technology to create learning experience that can be formulated, organized and created with ample freedom without any boundaries (Horton, 2006). It is a process where a set of lessons is provided on digital devices like computers or any mobile devices that supports the learning. E-Learning is interactive learning in which the learning content is available online and provides automatic feedback to the student's learning activities (Paulsen, 2003). Besides acquiring general knowledge one of the other main goals of e-learning is to develop professional skills and understanding to help learners to achieve their learning objectives (Clarke, Mayer, 2008). In an era where educational and technological modernizations are redefining the standards of higher education, the converging point of interconnection is elearning (Garrison, 2002). The concept of E-learning has been here for more than two decades. What once was just a radical idea now evolved into mainstream phenomenon. The manner in which the e-learning methodology evolved can be approached as a chain process. When the internet started to change, people using the internet started to change and just importantly e-learning pedagogy techniques originated to evolve. Modern e-learning trends are stated as “learner oriented design”. Not only the student can control the appearance of the virtual elements but also have full control over the entire learning process (Downes, 2005). E-learning has evolved a lot from its older style; the tools are combined, making the content creation easy and delivering directly to the Web with increased integrated collaborations, describing future e-learning makes learning “More organic”. In corporations, e-learning is used in elevating sales, technical expertise, professional capability, training and legal compliance preparation. As the organizations vie for profit growth and lesser economical expense; it pays more attention to employee education which can be gained by effective elearning practices (Tai, 2008). The basic elements of an eLearning process can be identified as: technological infrastructure, e-learning platform, e-learning content and participants. The two major perspectives/aspects of e-Learning are technological and pedagogical (Devedzic, 2006). The technology including the infrastructure and the platform should enable development, hosting and delivery of e-learning content for its users. The pedagogical aspect concerns the e-learning content and its use for expanding the knowledge of the learners. The two significant modes/types of e-learning are synchronous training and asynchronous training. When both, the instructor and the learner participate in e-learning activity at the same time, via internet is known as synchronous learning. Communication between them can happen in various means such as webinars, instant messaging, video chat etc. Whereas in asynchronous learning, the instructors posts the content in advance then users can engage in web based training at their own pace whenever they need it (Rosen, 2009). The process of E-Learning is not always supported by and only by LMS. The technologies that enable E-Learning are personal computer, internet connection, web browser, media players, e-mail programs, client software for online meetings, microphone for audio conferencing, video camera for video conferencing (Horton & Horton, E-learning Tools and Technologies, 2003). Audio broadcasting methods like webcasts and podcasts; video broadcasting methods in YouTube, Skype, Adobe Connect and webcams; using tools like Microsoft Word, PowerPoint, Excel and PDF and through blogs, whiteboards, screen casting are some of the technologies also used in E-Learning (Patil, 2014). E-learning has several advantages but also some disadvantages when compared to traditional learning. The study by Welsh et al. (2003) found that organizations can accomplish numerous benefits from implementing e-learning programs, including consistency in training, reduced cycle time, increased convenience for learners, improved tracking capabilities, and reduced cost. Potential drawbacks, according to the authors, can include higher up-front cost, lack of trainee interaction, etc. Some of the disadvantages of E-Learning are compensated with the introduction of blended learning a combination of e-learning and traditional learning.

* **Why eLearning**
* eLearning encompasses freedom, flexibility and the power to break conventions of traditional learning methods.
* E – stands for Extended, Enhanced, Electronic, Efficient, Effective learning
* Learning experience is delivered to the learner effectively with pleasant appearance.
* **Other opportunities are:**
* Overcome geographical boundaries.
* Reduced publishing and distribution costs.
* Content published once is available over web by a click of button.
* E-learning can be done one-on-one, in private, uncovering the individual's potential.
* Self-paced i.e Advanced students are allowed to speed through or bypass instruction that is redundant while novices slow their own progress through content, eliminating frustration with   
   themselves, their fellow students.

**Flexibility to learn**

* On-demand availability enables students to complete training conveniently at more convenient times and/or from the comfort of their home.
* Self-pacing for slow or quick students reduces stress and increases satisfaction.
* Skip over material you already know and focus on topics you'd like to learn.
* Unbound by time - courses are available 24/7.
* Unbound by place - study at home, work, or on any place.
* **E-learning Scope in India**

There is a huge scope of E-learning in india, especially for the indian youths. E-learning has opened new avenues to education in India & has changed the dynamics of educational content. What seemed like a distant dream a few years back is India’s future today. E-learning has surpassed challenges of reaching out to a varied audience, overcome the non-availability of adequately qualified teachers in rural India & making rich content available to an audience that was unreachable earlier. Today, with changing times, basic education is taught with a single computer in rural villages & has helped several children to get exposed to primary levels of education.

Many of the universities and colleges are conducting their course online and also certificated will be provided online. The e-learning scenario in India is still growing and at an experimental stage. India’s education policy has largely neglected the opportunity of benefiting from this technological revolution in education. E-learning is not only inexpensive, but also convenient. Yet there are huge digital divides which need to be bridged on an urgent basis. Indians however are more inclined to conventional methods of classroom training thus accepting e-learning is a major hindrance. Though, the corporate sector has imbibed e-learning in their business communication practices rather intelligently. Lets look at some statistics made by the researchers-

1. E-learning is eco-friendly, according to a study by Britain's Open University, "eLearning courses consume 90% less energy on an average and produce 85% fewer CO emissions per student than classroom training".

2.  6 out of the top 10 outsourcing destinations are in India according to 2014 rankings released by Tholons (Tholons, 2014)

3 According to the 2014 Training Industry Report, more and more organisations are showing an increasing focus on training to close skill gaps, and activity. The report says that among the respondent organisations, 44% intend to purchase online learning tools and systems, 41% are looking into purchasing Learning Management Systems (LMSs), 37% plan on purchasing authoring tools/systems and 33% aim to purchase classroom tools and systems..

4. Revenue from the sale of eLearning reached $5.2 billion in 2011 and is expected to more than double to $20.5 billion by 2017.

* **History of eLearning**

As the origin of the word e-Learning is not certain; it is proposed that the term probably originated during 1980 (Moore, et al, 2011). In this digital Era, e-learning is becoming more viable and approachable. What once was just “Computer based training” now became “Take your class anywhere you go”. E-learning can be considered as natural evolution of distance learning. It has always taken advantage of the modern technology to develop and adapt the framework of educational tool for shaping education (Sangra, et al, 2012). E-learning has its origins from mail-learning method through correspondence courses. Sir Isaac Pitman’s mail courses used shorthand technique to teach in 1840. It has said to be the first distance learning course. The concepts remained the same throughout the history, but medium multiplied as the technology developed (Horton, 2001). Evolution of distance learning can be described as an inconsistent pedagogy method which uses unconventional, conventional and new communication medium to deliver instructional material without any geographical constraint. Since distance education began its course, authors and academics have diverse definitions for it. Content delivery format for distance education have taken various forms such as mail delivered instructions, materials in print format, classes over electronic medium, via mobile devices and now, virtual classes (Moore, 1990). Distance education has been around for centuries, but it was only since 1960, elearning has started to evolve. It influenced its way over Corporations, Academic institutions, in Training, and in Military (Fletcher & Rockway, 1986). Sidney Pressey’s concept of ‘teaching machines’ emerged in 1920’s. It was only later in 1950’s it was widely popularized by the works of B. E Skinner . As, the cumulative demand for education cannot be met by building more schools and teachers, the teaching machines empowered schools to direct programmed instruction to their students. Later in 1980, the era of personal computers began which paved the way for e-learning. Over the past 50 years a number of new approaches have been in practice to aid the instructor's role in the classroom (Benjamin, 1988). Computer-based training (CBT) is a training method in which the primary data transfer takes place in a computer through software over internet or intranet (Rouse, 2011). In 1960’s, Computer assisted instruction (CAI) progressed into computer bases learning (CBL). Computer-based learning was not only used for education but also for communication. Computer- based training’s pioneer system is PLATO (Programmed Logic for Automatic Teaching Operation) which began in 1960. It had the basic layout that is used in modern e-learning method, comprising of graphic elements, text along with graphics, forums and chat rooms (Shimura,2006). Multimedia learning models have created a number of ideologies and guidelines to ease the design of computerbased training (CBT). With computer-based training practical training can be made more operative, where student-teacher ratio is one to one and where the training is workshop based or job based (Dean, Whitlock, 1992). In early 90’s CD-based training was considered as the new training technology of e-learning. Occasional workshops were held as a part of CD-ROM based training. More than 95% of the content comprised of Information Technology lessons. Public chat boards were created in websites and it was called “mentoring”. Around 1998, Web took over CD based training not only by providing learning instructions and materials over the web, but also by providing a ‘personalized’ learning experience aided with chat rooms, study groups, newsletters and interactive content (Cross, 2004). When internet and personal computers became phenomenal and started to flourish in the late 20th century, it was really when the concept of e-learning began to take form. The technology, the concept and the device complemented each other well, providing new learning trend. The first web based Learning management system (LMS) named Cecil was launched in 1996 (Sheridan, et al, 2002). LMS is a software application that organizes, documents, records and delivers e-learning courses. The modern LMS are mainly web based and enable hosting and/or delivering of different types of learning content including but not limited to: reading materials, video and audio, wikis, web conferencing, chats, forums, blogs, learning games, testing, grading etc. Around 2000’s corporations, business and military took advantage and adapted the e-learning concepts to their necessities. The new e-learning methods gave open access to information and provided communicative and interactive features. The learner experience became cohesive with upgraded pedagogy. Affirming, education is more about ideas and not facts. ’The passive information transfer’ of academia distinguished from ‘interactive and constructive’ e-learning methods (Garrison, Anderson, 2003). The development of the mobile technology brings a new era in E-Learning known as m-learning. Mobile learning can be defined as the portable and lightweight platform where the learner can engage in learning activity without having any geographical constraint. Mobile phones, smartphones, palmtops, handheld computers, Tablet PCs, laptops and media players are aided in Mobile-learning technique (Kukulska-Hulme, 2005). In 1990’s ‘Palm Pilot personal digital assistants (PDAs), a handheld device was developed which performed multi tasks like calculator, calendar and notepad. When technology and ‘learner-centered design’ started developing, Mobile learning started to flourish simultaneously (Berge & Muilenburg, 2013). Having gone through numerous diverse evolutionary phase, e-learning is still evolving mutually alongside the upsurge in modern technology. Advancement in new technology makes it practical to blend synchronous and asynchronous training into one. Modern e-learning methods are considered to be revolutionizing contemporary learning systems. But history shows that education can only be developed by evolution and not by revolution (Sir John Daniel, 2017).

CHAPTER-2 Tools and Environments Used

* ***Tools / Platforms:***

• **Front-end-**

* Web Technology: core PHP
* Languages Used: HTML,CSS,Jqery,Bootstrap,PHP
* Development Tool: Notepad ++, Atom, Xampp

**• Back end**

* Database: MySQL Server
* Operating System: Windows 7 Ultimate
* Any Operating System compatible with WWW

•**Hardware Requirements**

* Processor: Intel(R) Core(TM) i3-4030U CPU @1.90GHz 1.90GHz
* RAM: 4.00GB
* Hard Disk: 1.00TB
* System Type: 64-bit Operating System
* DVD Driver
* Peripherals like keyboard, Mouse, Printer
* Hardware Environment

Hardware Environment Like any good communicational software, a user interface is a two-way street. User don’t want to just see or hear what-ever the computer puts in front of them, They also wants to tell it what they would like to do. However everything they tells the computer is input and whatever the computer conveys to the user is output. On Interacting with computers an input and output devices used to communicate with users, and controls used to set preferences and make choices. A printer shall be used frequently. For this purpose, Dot Matrix/Inkjet printer is the minimum requirement. A line printer should prove to be more efficient. Authenticated Reports can be generated using a Laser Printer. The software shall be independent of printer type.

* **Software Environment**

Introduction to PHP

PHP started out as a small open source project that evolved as more and more people found out how useful it was. Rasmus Lerdorf unleashed the first version of PHP way back in 1994. • PHP is a recursive acronym for "PHP: Hypertext Preprocessor".

• PHP is a server side scripting language that is embedded in HTML. It is used to managedynamic content, databases, session tracking, even build entire ecommerce sites.

• It is integrated with a number of popular databases, including MySQL, PostgreSQL, Oracle,Sybase, Informix, and Microsoft SQL Server.

• PHP is pleasingly zippy in its execution, especially when compiled as an Apache module on the Unix side. The MySQL server, once started, executes even very complex queries with huge result sets in record-setting time.

• PHP supports a large number of major protocols such as POP3, IMAP, and LDAP. PHP4 addedsupport for Java and distributed object architectures (COM and CORBA), making n-tierdevelopment a possibility for the first time.

• PHP is forgiving: PHP language tries to be as forgiving as possible.

• PHP Syntax is C-Like.

**Why RDBMS?**

RDBMS approach is used for developing this project because it provides the minimum scope of data redundancy. Data redundancy is a very important factor which needs to be kept in mind. Redundant data may sometimes affect the efficiency of the whole system. Moreover there are various advantages of suing a RDBMS approach such that an important feature of relational systems is that a single database can be spread across several tables. This differs fromflat-file databases, in which each database is self-contained in a single table. Other advantages are:

• Better techniques for data storage

• Less data retrieval time

• Better space management

• Scope of creating logical relationships among the entities

Introduction to MySQL

MySQL is a fast, easy-to-use RDBMS (relational database management systems) being used for many small and big businesses. MySQL is developed, marketed, and supported by MySQL AB, which is a Swedish company. MySQL is becoming so popular because of many good reasons:

• MySQL is released under an open-source license. So you have nothing to pay to use it.

• MySQL is very friendly to PHP, the most appreciated language for web development.

• MySQL is a very powerful program in its own right. It handles a large subset of the functionality of the most expensive and powerful database packages.

• MySQL uses a standard form of the well-known SQL data language.

• MySQL works on many operating systems and with many languages including PHP, PERL, C,C++, JAVA, etc.

• MySQL works very quickly and works well even with large data sets.

• MySQL is customizable

•Testing with git.

CHAPTER-3 Analysis Document

* **Introduction to SDLC**

The software development life cycle (SDLC) is a process which is used to develop software. SDLC is a step by step procedure need to be followed by the organization to design and develop a high quality product. The phases of software development life cycle are which describes that how to develop, maintain particular software. The life cycle aims to develop a good quality product/software. SDLC produces intermediate products that can be reviewed to check whether they work according to customer requirement.

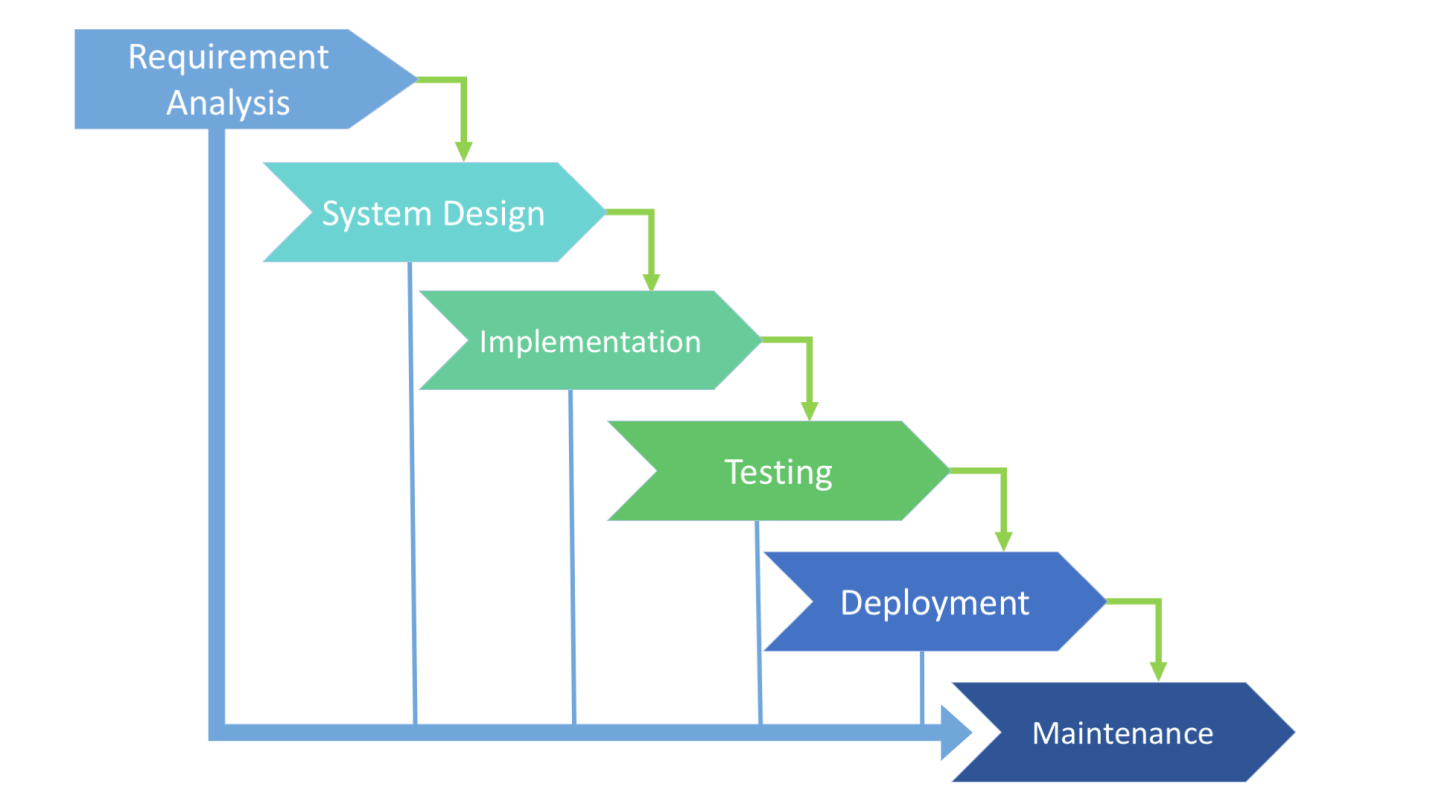
* SDLC is also known as Software development process.
* SDLC is an approach creates considerable documentation where this documentation helpful to make sure that requirement can be traced back to stated business requirements.
* It is a framework which has a set of tasks performed at each phase in the software development process.

## SDLC:

SDLC is a step by step procedure or systematic approach to develop software and it is followed within a software organization. It consists of various phases which describe how to design, develop, enhance and maintain particular software.

It consists of various phases like requirement, feasibility study, design, coding, testing, installation and maintenance.

Figure 1.0 SDLC Diagram



**Figure 1.1** SDLC Diagram using Water fall

### ****Phase 1: Requirement collection and analysis:****

In this phase mainly focus on gathering the business needs from the customer. Business Analyst collects the requirement from the customer and prepares the BRS (Business requirement Specification) which has the requirement in the business form. Then a group (BA, Project managers and customers) of people sits together and determines the requirements like; what should be input data to the system?  Who is going to use the system? What should be output data by the system?  These questions are getting answered during this phase. After this, a Requirement Specification document is created which gives the guideline for the upcoming phase of the model.

### ****Phase 2: Feasibility study:****

Once the BRS document is completed, a set of people like Human Resource department, Finance department, Business analyst, Architect and Project manager are sit together and analyze if the project is do able or not. This decision is taken based on the cost, time, resources and etc.

### ****Phase 3: Design:****

In this phase system design specification is prepared from the requirement document once the project is feasible, this design specification give input for the next phase of the model. Design is a blue print of the application and it helps in specifying hardware and requirements of the system and helps in defining architecture of the system.

### ****Phase 4: Coding:****

Once the system design document is ready, in this phase developer’s starts writing the code using any programming language i.e., they start developing the software. Generally task is divided in units or modules and assigned to the developers and this coding phase is the longest phase of SDLC.

### **Phase 5: Testing:**

Once the software is ready and is deployed in the testing environment, test engineers starts testing, if the functionality of an application is working according to requirement or not. During this phase test engineers may encounter some bugs/defects which need to be sent to developers, the developers fix the bug and sent back to test engineers for testing. This process continuous until the software is bug free/stable/working according to the requirement.

### **Phase 6: Installation/Deployment:**

Once the product developed, tested and works according to the requirement it is installed / deployed at customer place for their use.

### ****Phase 7: Maintenance:****

When the customers starts using the software they may face some issues and needs to be solved from time to time means need to fix those issue, tested and handed over back to the customer as soon as possible, which is done in the maintenance phase.

## ****SDLC Models:****

The models of SDLC are the methodologies that are selected for the software development is depending on the project’s aims and goals. These models are mainly used to develop software, based on the requirement, cost, customer and time, decide which model to be followed to develop software. Each model follows sequential steps of its own type, to develop high quality software.

The types of SDLC models are:

* Waterfall Model
* Spiral Model
* Prototype Model
* V-Model
* Iterative model
* Agile Model

In the next chapter, we will explore the Prototype Model

PROTOTYPE MODEL

In this Prototype Model before designing phase, a prototype is developed, tested, reviewed and approved by the customer, after that design will be ready for coding, testing, installation and maintenance will takes place. This prototype is prepared based on the customer requirements. Prototype testing is checking for the required components are present or not.

By using this prototype, customer can understand the requirements of desired system and also the customer can get an “actual feel” of the system. It is an attractive idea for complex and bigger systems.

In this Prototype Model before designing phase, a prototype is developed, tested, reviewed and approved by the customer, after that design will be ready for coding, testing, installation and maintenance will takes place. This prototype is prepared based on the customer requirements. Prototype testing is checking for the required components are present or not.

By using this prototype, customer can understand the requirements of desired system and also the customer can get an “actual feel” of the system. It is an attractive idea for complex and bigger systems.

During Prototyping model, the software development team, clarify requirements and/or design elements, that generate mockups and prototypes of screens, reports, and processes. Although some of the prototypes may appear to be very substantial, they’re generally similar to a movie set: everything looks good from the front but there’s nothing in the back.

When a prototype is generated, the developer produces the minimum amount of code necessary to clarify the requirements or design elements under consideration. No effort is made to comply with coding standards, provide robust error management, or integrate with other database tables or modules. As a result, it is generally more expensive to retrofit a prototype with the necessary elements to produce a production module then it is to develop the module from scratch  
using the final system design document.

For these reasons, prototypes are never intended for business use, and are generally crippled in one way or another to prevent them from being mistakenly used as production modules by end-users

**Prototype Diagram:**

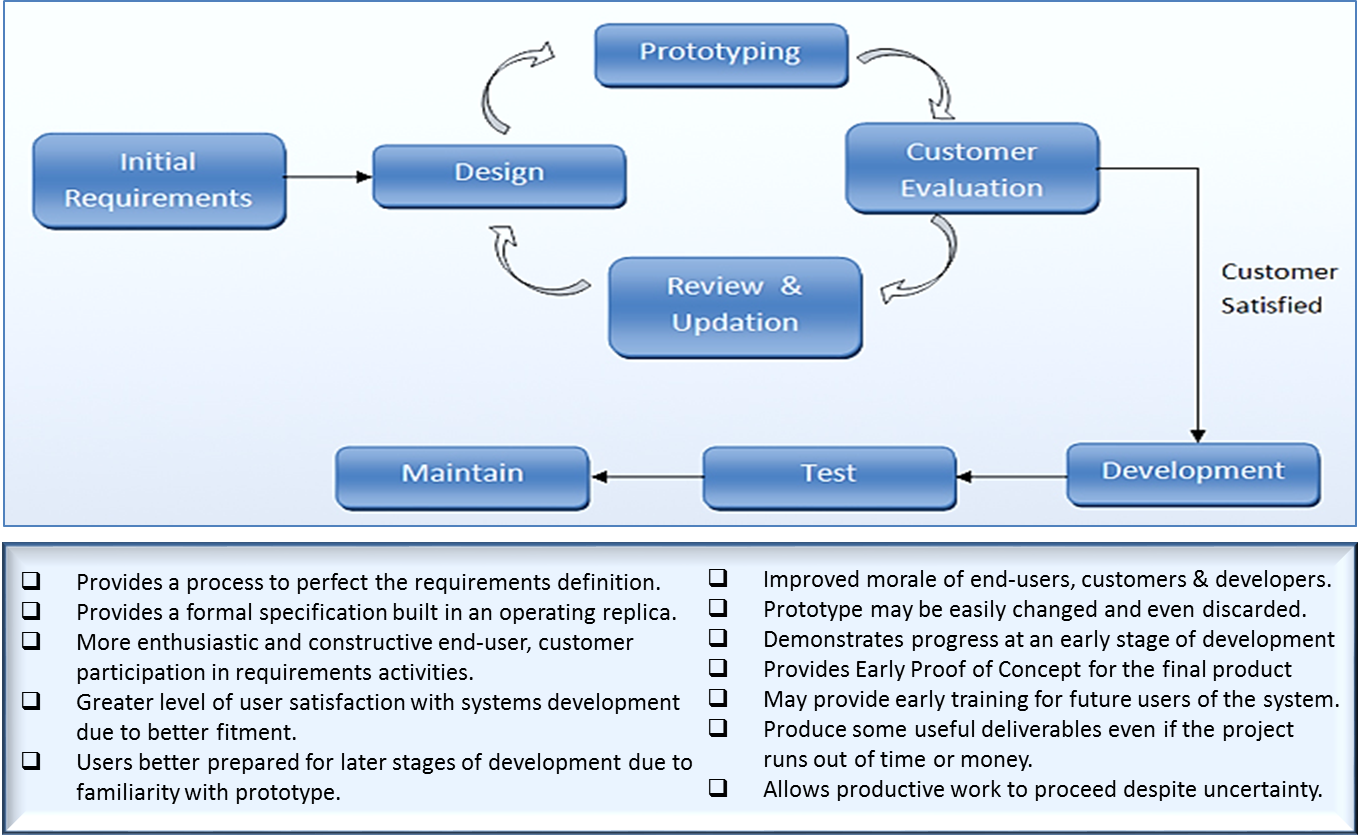


Figure 2.0 Prototype Diagram

This Prototype Model is same as waterfall model, but in this model we need to develop prototype and customer interaction will be there. Since there is customer interaction there will be less chance of rejection.

When to use Prototype model:

* Whenever the customer not clears about the requirement in this situation we generally go for prototype model.
* If it is complex project then prototype model makes clear understand the requirement.
* Prototyping make sure that the customer constantly work with the system and provide a feedback about the system.
* Advantages of Prototype model:
* Customer satisfaction exists, because customer can feel the product at very early stage.
* If there is missing functionality can be identified easily
* There will be less chance of software rejection.
* Requirement changes are allowed.
* Due to customer approval we can find the errors at early stage.
* Customer involvement will be there in the development where its leads to better solutions for any confusion / complexity / difficult functions
* The developed prototype can be re-used by developer and test engineer.
* The software designer and implementer can obtain feedback from the users early in the project.
* The client and the contractor can compare if the software made matches the software specification, according to which the software program is built.
* **Disadvantages of Prototype model:**
* There are no parallel deliverables
* It is a time consuming if customer ask for changes in prototype
* This methodology may increase the system complexity as scope of the system may expand beyond original plans.
* The invested effort in the preparation of prototypes may be too much if not properly monitored.
* Customer may get confused in the prototypes and real systems.
* **Application of prototype Model**

1. The new system requirements are defined in as much detail as possible. This usually involves interviewing a number of users representing all the departments or aspects of the existing system.
2. A preliminary design is created for the new system.
3. A first prototype of the new system is constructed from the preliminary design. This is usually a scaled-down system, and represents an approximation of the characteristics of the final product.
4. The users thoroughly evaluate the first prototype, noting its strengths and weaknesses, what needs to be added, and what should to be removed. The developer collects and analyzes the remarks from the users.
5. The first prototype is modified, based on the comments supplied by the users, and a second prototype of the new system is constructed.
6. The second prototype is evaluated in the same manner as was the first prototype.
7. The preceding steps are iterated as many times as necessary, until the users are satisfied that the prototype represents the final product desired.
8. The final system is constructed, based on the final prototype.
9. The final system is thoroughly evaluated and tested. Routine maintenance is carried out on a continuing basis to prevent large-scale failures and to minimize downtime.

Design Documents:

The Design phase requires the creation of several documents to save the documentation of the project. Two of those use case diagram and Data flow Diagram .

**Use case Diagram:**

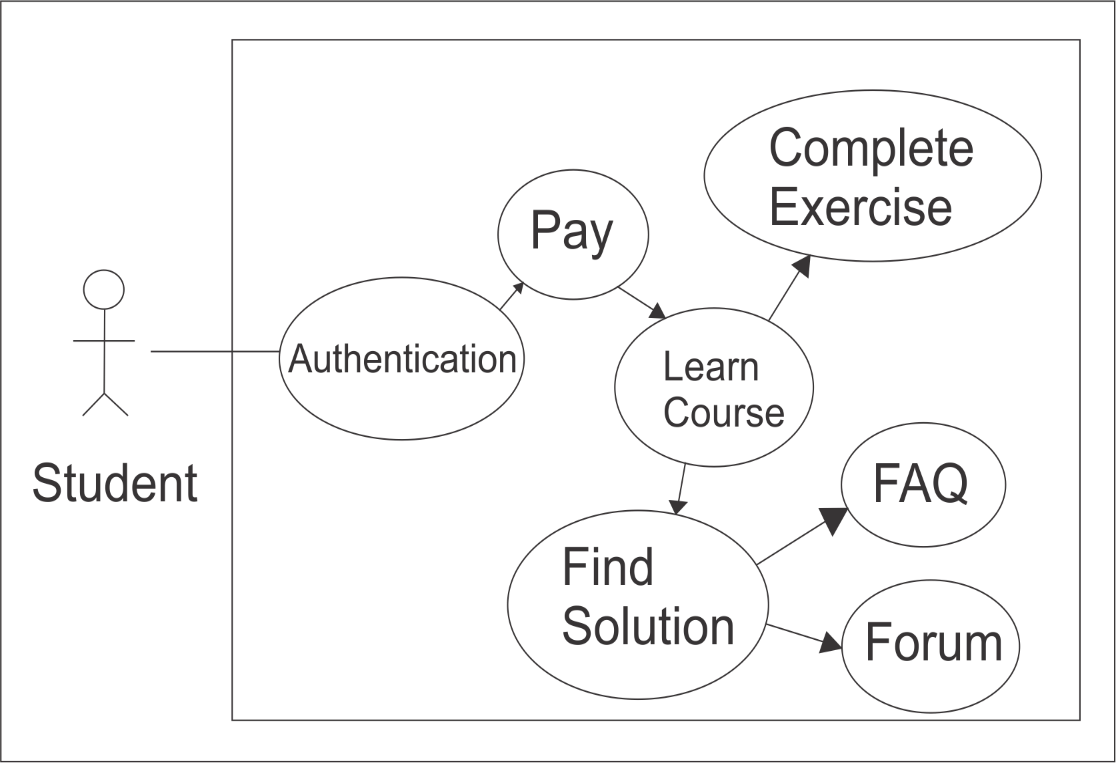
A use case diagram at its simplest is a representation of a user’s interaction with  
the system that shows the relationship between the user and the different use cases in which the user is involved. It gives a very high level view of the system and is usually prepared before the development starts.

Figure 3.0 Use Case Diagram

From the diagram (Figure 1.0), We are able to see the interaction between the student and our system. Student must have to authenticate themselves via using register and login then the user must have to pay for his/her cource fee afterthat the student can start learning the cources.During cource various excersise student have to perform in order to complete the cource .If The student face any problem during cource thenhe/she can find solution form FAQ and Forum .If any one wants to share knolodge the person can do this by using our forum community.

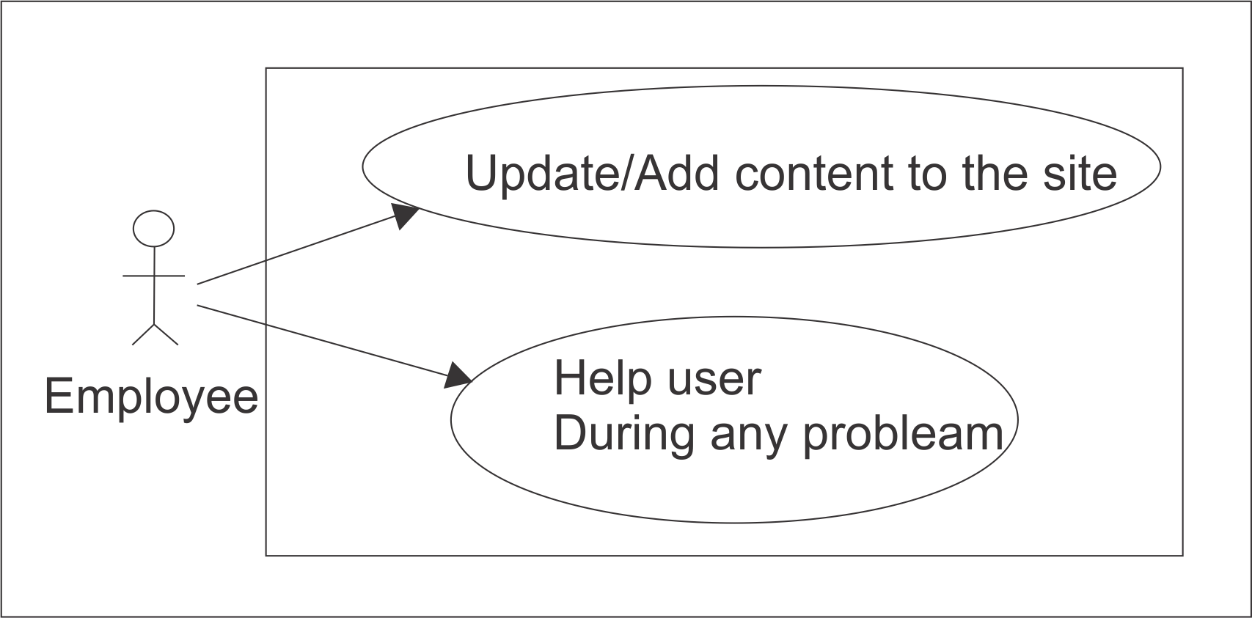


Figure 3.1 Use Case Diagram

In this ( Figure 3.1) Diagram we can see the work mechanisum of an employee. Hence an employee is a valuable person for our system that’s why employee have the ablity to change/update and add content to our system.employee also liable for giving response to the user during their problem.

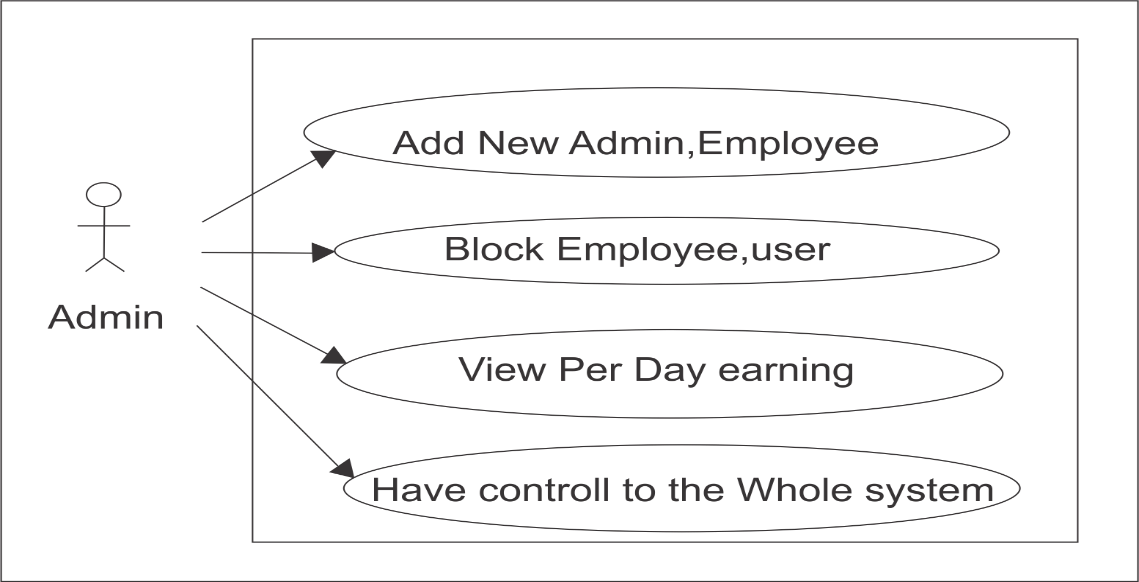


Figure 3.2 Use Case Diagram

Here the diagram(Figure 3.2) is giving us a brief idea of most liable person Admin and the liabilities hence admin is the owner of the system that’s why Admin have full control to the system, as well as Admin can do more the the normal user and the employee. Admin have the access to block an employee , add another person as admin and can see how much earning coming to the system dailt,weekly,monthly and yearly.

**Data Flow Diagram (DFD):**

A data flow diagram (DFD) maps out the flow of information for any process or system. It uses defined symbols like rectangles, circles and arrows, plus short text labels, to show data inputs, outputs, storage points and the routes between each destination. Data flowcharts can range from simple, even hand-drawn process overviews, to in-depth, multi-level DFDs that dig progressively deeper into how the data is handled. They can be used to analyze an existing system or model a new one. Like all the best diagrams and charts, a DFD can often visually “say” things that would be hard to explain in words, and they work for both technical and nontechnical audiences, from developer to CEO. That’s why DFDs remain so popular after all these years. While they work well for data flow software and systems, they are less applicable nowadays to visualizing interactive, real-time or database-oriented software or systems.

A data flow diagram can dive into progressively more detail by using levels and layers, zeroing in on a particular piece.  DFD levels are numbered 0, 1 or 2, and occasionally go to even Level 3 or beyond. The necessary level of detail depends on the scope of what you are trying to accomplish.

**0-LEVEL or Context level Diagram**:

DFD Level 0 is also called a Context Diagram. It’s a basic overview of the whole system or process being analyzed or modeled. It’s designed to be an at-a-glance view, showing the system as a single high-level process, with its relationship to external entities. It should be easily understood by a wide audience, including stakeholders, business analysts, data analysts and developers.

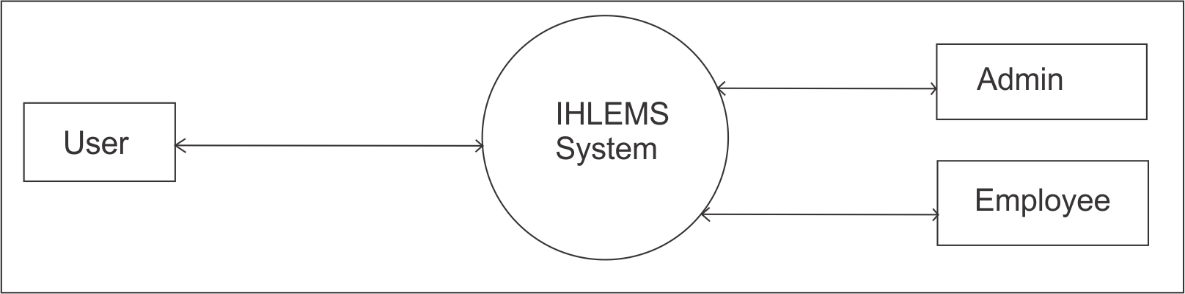


Figure 4.0 Context Level DFD / 0-Level(0.0)

In this Diagram (fig 4.0) we can see or easily understand the data flow in our system .User is interecting with IHLEMS System as well as admin and Employee also interacting with the system for back side hence andmi and employee palnel will never appear in front of normal user.

**1-LEVEL Diagram:**

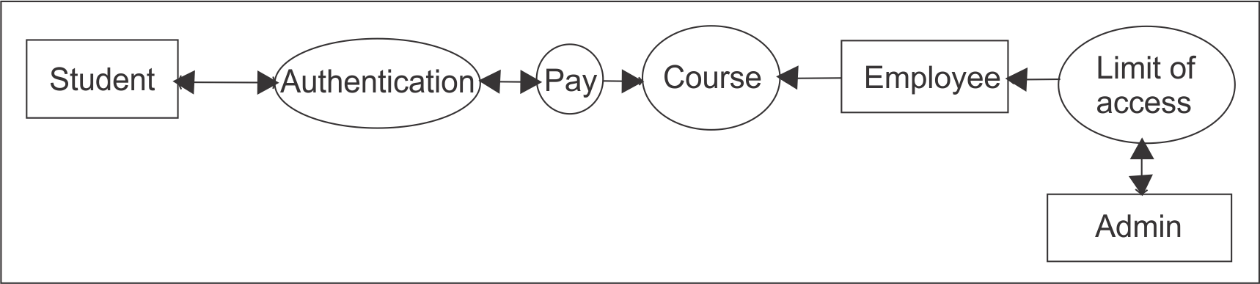
DFD Level 1 provides a more detailed breakout of pieces of the Context Level Diagram. You will highlight the main functions carried out by the system, as you break down the high-level process of the Context Diagram into its subprocesses.

Figure 4.1 1- Level Diagram(0.1)

In this diagram (fig 4.1) we are able to see the interaction between student employee admin are break down into some sub processes. Now student have to authenticate before entering the system. then the user must have to pay for his/her cource fee afterthat the student can start learning the cources.Cources can be altered by employee for beterment and employee has some limit to access to interact with the system and the limitation is controlled by admin who is the owner of the system.

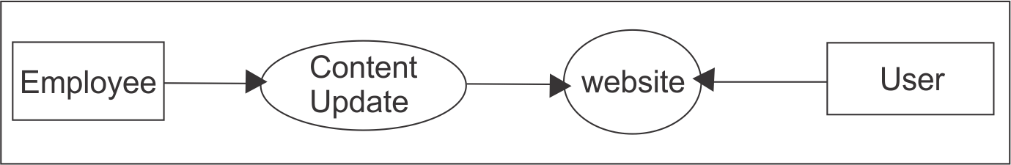


Figure 4.2 1-Level Diagram(0.2)

The diagram (fig 4.2) shows the interaction between the employee and the system. From the diagram we are able to see that employee can manipulate the content of the system or the website for betterment and ease of use.

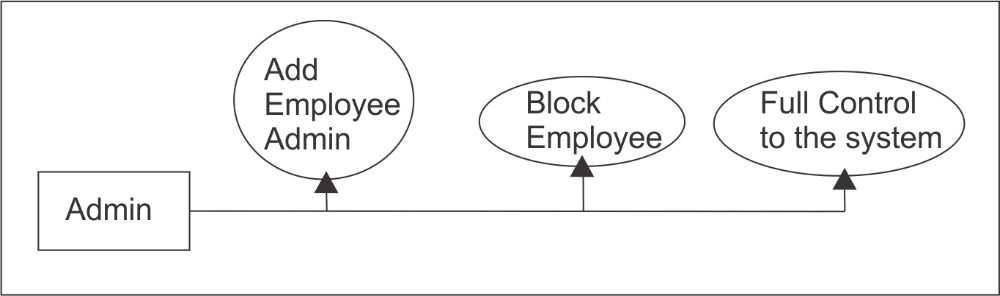


Figure 4.3 1-Level (0.3)

In this diagram (fig 3.4) shows the Admin interaction between the system. Hence admin is the most liable person to the system that’s why Admin has full control the system also

**CHAPTER-4 Development schedule**

Development schedule is one of the important part of the planning, there are different way of making development here we used Gantt chart for development schedule. The development schedule must be independent as possible. Ideally the components should be stand-alone so that it does not need any other component to operate. This is only possible for every simple component and more complex component is inevitably having some dependencies on other component. The schedule gives the time estimation of the project. In the project or development of software there are different phases like study, design, implementation and test. Our project also has different phases and each phase takes different time for development. Our project starts from 22/03/2018 and ends on 22/05/201. The total time taken by our project is 8 weeks. The project consists of different phases like Analysis, design, implementation and testing

* Total Project time:
* Analysis – 7 days (22/03/2018 – 29/03/2018)
* Design – 7 days (29/03/2018 – 06/04/2018)
* Implementation – 25 days (06/04/2018 – 30/04/2018)
* Testing – 7 days (30/04/2018 – 07/05/201)
* Deployment – 15 days (07/05/2018 – 22/05/2018)

**CHAPTER-5 Feasibility Analysis**

* **Operational Feasibility**

Proposed project is beneficial only if it can be turned into information systems that will meet the operating re-quirements of the organization. This feasibility asks if the system will work when it is developed and installed. So in this project we tested the operational feasibility by determining:

• Whether there is sufficient support for the project from the organization.

• Is the current system being acceptable by them

• Will the proposed system cause harm?

* **Technical Feasibility**

There are number of technical issues which are generally raised during the technical feasibility which are determined as follows:

• Does the necessary technology assist to do what is suggested?

• Does the proposed equipment have the technical capacity to hold the data required to use the new system?

• Can the system be upgraded if developed?

• Is there technical guarantee of accuracy, reliability, and ease to access?

* **Economic Feasibility**

A system that can be developed technically and that will be used if installed must still be profitable for the organization. Financial benefits must equal or exceed the costs. The analysis raises various financial questions during the investigation to estimate the following:

• The cost of conduct, a full system investigation.

• The cost of hardware and software for the application being used.

• The benefits in the form of cost or fewer costly errors.

• The cost if nothing changes. To be judged feasible, a proposal for the specific project must pass all these tests. Otherwise it is not considered as economic feasible.

* Time Feasibility

The required system development was expected to be successfully completed within the stipulated time, as the constraint of time placed on the process was of crucial importance. Thus finally concluding that the proposed project fulfilled all feasibility requirements, the implementation of the project was progressed with. Thus everything is done while taking time into consideration. In general, a developed system that don’t pass all the feasibility tests are not persuaded further, unless they are modified and resubmitted as new proposals.

* Functional And Operational Requirements

The first step in the system development life cycle (SDLC) is the preliminary investigation to determine the feasibility of the system. The purpose of the preliminary investigation is to evaluate the project request. It is neither a design study nor does it includes the collection of details to describe the system in all respect. Rather it is collection of information that helps the maker to evaluate the merits of the project requests and make an informed judgment about the proposed project. The report analyses accomplish the following objective:

• Clarifying and determining the project request.

• Determining the size of the project.

• Accessing costs and benefits of alternatives approaches.

• Reports of the finding to the organization, with recommendations outlining the acceptance of the proposal.

* **Problem Definition:** 
  + The definition of our problem lies in manual system and a fully automated system.

**Manual System:**

The system is very time consuming and lazy. This system is more prone to errors and sometimes the approach to various problems is unstructured.

**Technical System:**

With the advent of latest technology if we do not update our system then our business result in losses gradually with time. The technical systems contains the tools of latest trend i.e. computers prainters, fax, Internet etc. The systems with this technology arevery fast, accurate, user-friendly and reliable. • Need of Reviewing Organization document In this the investigation is made about the organization involved in, or affected by the project. So the present activities are studied in order to develop a fully automated system.

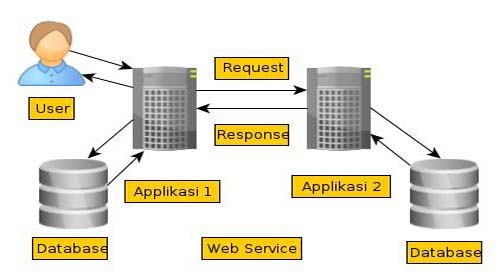
**CHAPTER-6 Database Design**

Database design is the process of developing database structures to hold data to user requirements. The final design must satisfy user needs in terms of completeness, integrity, performance and other factors. For a large enterprise, the database design will turn out to be an extremely complex task leaving a lot to the skill and experience of the designer. A number of tools and techniques, including computer-assisted techniques, are available to facilitate database design.

The primary input to the database design process is the organizations’ statement of requirements. Poor definition of these requirements is a major cause of poor database design, resulting in databases of limited scope and utilities which are unable to adopt to changes.

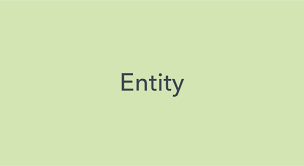
The major step in database design is to identify the entities and relationships that reflect the organizations’ data, naturally. The objective of this step is to specify conceptual structure of the data and is often referred to as data modeling.

There are several methodologies to model the data logically. We adopted ER modeling as our data modeling technique. ER model is technique for analysis and logical modeling of systems data requirements. It uses three basic concepts: entities, attributes and relations.



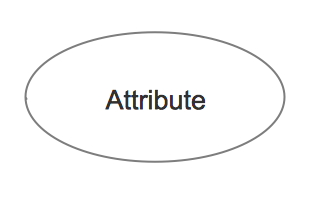
Entity :

Entity is a distinguishable object. These entities are classified into regular entities and weak entities. A weak entity is an entity that is existence dependent on some other entity i.e. it does not exist if that other entity does not exist. A regular entity is that it is not weak. The graphical notation of entity is shown below.

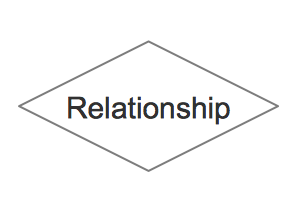
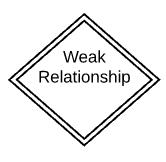
**Attribute**

Entities have properties known as attributes. All entities of a given type have certainkinds of properties in common. Each kind of property draws its value from a corresponding value set. Properties can be of various types: Simple or composite, key, single or multi, missing, and base or derived. Attributes are graphically represented as shown below.



Relationship

Relationship defines an association among entities. The entities involved in a given relationship are said to be participants in that relationship. The number of participants in a given relationship is called the degree of that relationship. An ER relationship can be one – one, one – many, and many - many. Cardinality of a relationship refers to representing the number of occurrences of entities in a given relationship. The graphical notation of relation is represented as shown below.

In our project we have identified entities, attributes for those entities, and relationships between those entities from data collected at analysis phase.

Normalization

Normalization is the process of refining the data model built by the ER diagram. The normalization technique, logically groups the data over the number of tables, with minimum redundancy of data. The entities or tables resulting from normalization contain data items, with relationships being represented by replication of key data items. The goal of relational database design is to generate a set of relation schemes that allow us to store information with minimum redundancy of data and allow us to retrieve information easily and efficiently. The approach followed is to design schemas that are in an appropriate form one of the so-called normal form.

The first step towards normalization is to convert the ER model into tables or relations. The next step is to examine the database for redundancy and if necessary, change them to non-redundant forms. This non-redundant model is then converted into a database definition, which achieves the objective of the database design phase. We defined database from the above ER model by normalizing it to 3rd normal form. We will show the definitions of those database tables later at the time of physical database design phase.

CHAPTER 7-TESTING

**Introduction:**

Software Testing is the process of executing a program or system with the intent of finding errors. Or, it involves any activity aimed at evaluating an attribute or capability of a program or system and determining that it meets its required results Software is not unlike other physical processes where inputs are received and outputs are produced. Where software differs is in the manner in which it fails. Most physical systems fail in a fixed set of ways. By contrast, software can fail in many bizarre ways. Detecting all of the different failure modes for software is generally infeasible unlike most physical systems; most of the defects in software are design errors, not manufacturing defects. Detecting all of the different failure modes for software is generally infeasible unlike most physical systems; most of the defects in software are design errors, not manufacturing defects. Because software and any digital systems are not continuous, testing boundary values are not sufficient to guarantee correctness. All the possible values need to be tested and verified, but complete testing is infeasible. Exhaustively testing a simple program to add only two integer inputs of 32-bits (yielding 2^64 distinct test cases) would take hundreds of years, even if tests were performed at a rate of thousands per second. Obviously, for a realistic software module, the complexity can be far beyond the example mentioned here. If inputs from the real world are involved, the problem will get worse, because timing and unpredictable environmental effects and human inter actions are all possible input parameters under consideration.

Purpose of Testing software

* To carry out comprehensive testing of the system/product and its individual components in order to ensure that the developed system/product conforms to the user requirements/ design.
* To verify the proper integration of all components of the software.
* To verify that all requirements have been correctly implemented.
* To identify and ensure defects are addressed prior to the deployment of the software.

A test Plan must contain the following

• Scope of testing.

• Methodology to be used for testing.

• Types of tests to be carried out.

• Resource & system requirements.

• A tentative Test Schedule.

Testing Methods Used For Project

* **Correctness testing**

Correctness testing will need some type of oracle, to tell the right behavior from the wrong one. The tester may or may not know the inside details of the software module under test, e.g. control flow, data flow, etc. Therefore, either a white-box point of view or black-box point of view can be taken in testing software.

* **Black-box testing**

The black-box approach is a testing method in which test data are derived from the specified functional requirements without regard to the final program structure It is also termed data-driven, input/output driven or requirements-based testing. Because only the functionality of the software module is of concern, black box testing also mainly refers to functional testing -- a testing method emphasized on executing the functions and examination of their input and output data. The tester treats the software under test as a black box – only the inputs, outputs and specification are visible and the functionality are determined by observing the outputs to corresponding Inputs. In testing, various inputs are exercised and the outputs are compared against specification to validate the correctness. All test cases are derived from the specification. No implementation details of the code are considered.

* **White-box testing**

A white-box, or glass-box in white-box testing, as the structure and flow of the software under test are visible to the tester. Testing plans are made according to the details of the software implementation, such as programming language, logic, and styles. Test cases are derived from the program structure. White-box testing is also called glass-box testing, logic-driven testing or design-based testing. There are many techniques available in white box testing, because the problem of intractability is eased by specific knowledge and attention on the structure of the software under test. The intention of exhausting some aspect of the software is still strong in white-box testing, and some Degree of exhaustion can be achieved, such as executing each line of code at least once (statement coverage), traverse every branch statements (branch coverage), or cover all the possible combinations of true and false condition predicates (Multiple condition coverage). Control-flow testing, loop testing, and dataflow testing, all maps the corresponding flow structure of the software into a directed graph. Test cases are carefully selected based on the criterion that all the nodes or paths are covered or traversed at least once. By doing so we may discover unnecessary "dead" code -- code that is of no use, or never get executed at all, which cannot be discovered by functional testing.

* **Performance testing**

Not all software systems have specifications on performance explicitly. But every system will have implicit performance requirements. The software should not take infinite time or infinite resource to execute. "Performance bugs" sometimes are used to refer to those design problems in software that cause the system performance to degrade. Performance has always been a great concern and a driving force of computer evolution. Performance evaluation of a software system usually includes: resource usage, throughput, and stimulus response time and queue lengths detailing the average or maximum number of tasks waiting to be serviced by selected resources. Typical resources that need to be considered include network bandwidth requirements, CPU cycles, disk space, disk access operations, and memory usage. The goal of performance testing can be Performance bottleneck identification, performance comparison and evaluation, etc. The typical method of doing performance testing is using a benchmark -- a program, workload or trace designed to be representative of the typical system usage.

* **Reliability testing**

Software reliability refers to the probability of failure-free operation of a system. It is related to many aspects of software, including the testing process. Directly estimating software reliability by quantifying its related factors can be difficult. Testing is an effective sampling method to measure software reliability. Guided by the operational profile, software testing (usually black-box testing) can be used to obtain failure data, and an estimation model can be further used to analyze the data to estimate the present reliability and predict future reliability. Therefore, based on the estimation, the developers can decide whether to release the software, and the users can decide whether to adopt and use the software. Risk of using software can also be assessed based on reliability information.

* **Security testing**

Software quality, reliability and security are tightly coupled. Intruders to open security holes can exploit flaws in software. With the development of the Internet, software security problems are becoming even more severe. Many critical software applications and services have integrated security measures against malicious attacks.

**CHAPTER 8. - CONCLUSION**

From the above discussion we conclude that e-learning is an innovative technique from Integrated Hybrid Learning Earning Management System used in providing learning experiences to the students on-line through the use of Internet services and Web technology of computers on the same lines as witnessed by us in the from of e-mail, e-banking, e-booking and e-commerce in our day-to-day life. E-Learning is also having some disadvantages which are discussed earlier.

Inspire of certain defect, e-Learning is very useful and it is becoming more and more popular.

* Integrated Hybrid Learning Earning Management System bring with it new dimensions in education. Many of the unique features of e-Learning . the project have a smart way to learning courses the user feel a friendly environment any where & any time.
* Opening up border education option 24/7 accessibility makes scheduling easy and allows a greater number of people to attend classes on-demand access mean learning programs.