**Chapter 1**

**INTRODUCTION**

Learning Management System is a Web-based system for training programs and information sharing between employees giving them the flexibility to access it from their workplace. Learning Management Systems enable an organization to effectively train a large group of individuals spread across the organization. With a Learning Management System, training and e-Learning are managed by software that allows users and administrators alike to easily access progress and training reports.

A learning platform allows to train the staff from different locations at no extra cost. It’s easy to keep track of who has completed a training program and how well they performed. You only need to create a core training program once, and then assign it to all departments. An orientation program is usually prepared by an HR manager.

**Chapter 2**

**ORGANIZATION PROFILE**

BEML Limited (formerly Bharat Earth Movers Limited) was established in May 1964 as a Public Sector Undertaking for manufacture of Rail Coaches & Spare Parts and Mining Equipment at its Bangalore Complex. The Company has partially disinvested and presently Government of India owns 54 percent of total equity and rest 46 percent is held by Public, Financial Institutions, Foreign Institutional Investors, Banks and Employees. BEML Limited, a ‘Schedule-A’ Company, plays a pivotal role and serves India’s core sectors like Defence, Rail, Power, Mining and Infrastructure. The Company started with a modest turnover of Rs. 5 Cr during 1965 and today, thanks to its diverse business portfolio, the company has been able to achieve a turnover of more than Rs.3,500 Cr.

The Company operates under three major Business verticals viz., Mining & Construction, Defence and Rail & Metro. The three verticals are serviced by nine manufacturing units located at Bangalore, Kolar Gold Fields (KGF), Mysore, Palakkad and Subsidiary - Vignyan Industries Ltd, in Chikmagalur District. Each Business vertical is headed by a Director who reports to the Chairman & Managing Director of the company. The products manufactured under the three Business Verticals are :-

**2.1 Defence and Aerospace**

Being India's leading defence equipment manufacturer, BEML Limited keeps the Indian Army and other defence forces abreast with state-of-the-art military equipment. The company manufactures variants of BEML Tatra vehicle for all terrain operations including Bridge Layer, Field Artillery Tractor, Medium & Heavy Recovery Vehicle, Pontoon Mainstream Bridge Systems, Crash Fire Tenders, Mobile Mast Vehicle, etc. BEML also supplies Engineering Mine Ploughs, Tank Transportation Trailers, Weapon Loading equipment, Armoured Recovery Vehicle, Milrail Coaches and Wagons. BEML plays a stellar role in the country's Integrated Guided Missile Development Project by supplying ground support vehicles. The company has also created a world class test track at its KGF Complex to test defence equipment and vehicles.

BEML has forayed into Aerospace business to take advantage of the global and domestic opportunities available in the fast expanding aerospace market in India. A new Aerospace Manufacturing Division was launched during Aero India 2009. The division manufactures Ground Support Equipment such as Aircraft Towing Tractor (ATT), Aircraft Weapon Loading Trolley, Multi-Purpose Weapon Loader (MPWL Bheema) and Crash Fire Tender (CFT).

* 1. **Mining & Construction**

Being India’s leading Mining & Construction Equipment manufacturer, BEML offers a comprehensive and diverse range of mining machinery for both opencast and underground mines.

BEML produces machines such as Hydraulic Excavators, Bulldozers, Wheel Loaders, Wheel Dozers, Dump Trucks, Motor Graders, Pipe Layers, Tyre Handlers, Water Sprinklers and Backhoe Loaders. BEML has ventured into Underground Mining with products such as Side Discharge Loader, Under Ground Mine Cruiser, Load Haul Dumper and Granby Car.

BEML has also ventured into Dredging Business.

* 1. **Rail and Metro**

BEML Limited’s Rail Coach Factory situated in Bangalore, India is the first all steel integrated rail coach factory established by Government of India during 1948. It was set up with the assistance and technical know-how imparted by M/s. MAN, Federal Republic of Germany. This factory was established to indigenously manufacture the passenger rail coaches (of broad gauge) for the use of Indian Railways.

The factory was under the administrative control of M/s. Hindustan Aircraft Limited (now M/s. Hindustan Aeronautics Limited) which was later transferred to BEML Limited (earlier known as Bharat Earth Movers Limited) on 11th May, 1964.

BEML’s products are sold and serviced through its large Marketing Network spread all over the Country and are exported to more than 67 countries. BEML's nationwide network of sales offices enables buyers with ready access to its wide range of products. Also, the full-fledged service centers and parts depots offer total equipment care, maintenance contracts and rehabilitation services.

The company has a dedicated R&D infrastructure and team in line with consistent policy of the company to meet the technological demands through in-house R&D and strategic technical tie-ups with global players.

**2.4 Vision**

Become a market leader, as a diversified Company, supplying quality products and services to sectors such as Mining & Construction, Rail & Metro, Defence & Aerospace and to emerge as a prominent international player.

**2.5 Mission**

* Improve competitiveness through collaboration, strategic alliances and joint ventures, to sustain and enhance market share in product groups BEML operates.
* Grow profitably by aggressively pursuing business and market opportunities in domestic and international markets by pursuing atleast 10% of sales in exports.
* Adoption of state-of-the-art technologies and bring in new products through Transfer of Technology and in-house R&D.
* Continue to diversify and grow addressing new products and markets with turnover from in-house R&D developed products at 60%.
* Attract and retain people in a rewarding and inspiring environment by fostering creativity and innovation with attrition levels less than 5%.
* Offer technology and cost effective total solutions for enhanced customer satisfaction.

**2.6 BEML Value Statement**

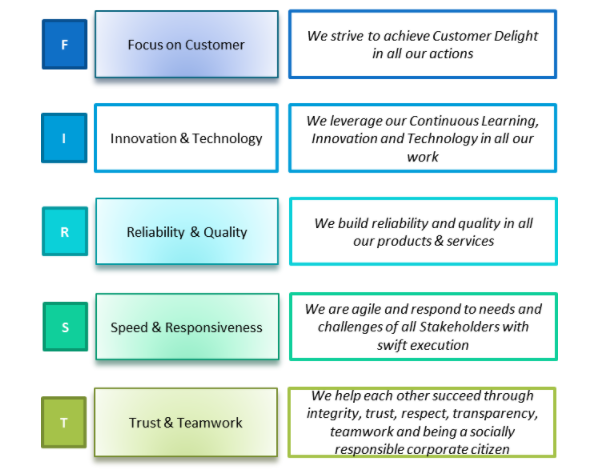
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Figure 2.1 Shows the value statement of BEML

**Chapter 3**

**ASP.NET AND C#**

**3.1 Introduction to ASP.NET**

ASP.NET is a web development platform, which provides a programming model, a comprehensive software infrastructure and various services required to build up robust web applications for PC, as well as mobile devices.

ASP.NET works on top of the HTTP protocol, and uses the HTTP commands and policies to set a browser-to-server bilateral communication and cooperation.

ASP.NET is a part of Microsoft .Net platform. ASP.NET applications are compiled codes, written using the extensible and reusable components or objects present in .Net framework. These codes can use the entire hierarchy of classes in .Net framework.

The ASP.NET application codes can be written in any of the following languages:

* C#
* Visual Basic.Net
* Jscript
* J#

ASP.NET is used to produce interactive, data-driven web applications over the internet. It consists of a large number of controls such as text boxes, buttons, and labels for assembling, configuring, and manipulating code to create HTML pages.

#### **3.2 Web Application:**

A web application is an application installed only on the web server which is accessed by the users using a web browser like Microsoft Internet Explorer, Google Chrome, Mozilla FireFox, Apple Safari, etc. There are also some other technology like Java, PHP, Perl, Ruby on Rails, etc. which can be used to develop web applications. Web applications provide the cross-platform feature. The user needs only a web browser to access a web application.

The web applications which are developed using the .NET framework or its subsets required to execute under the **Microsoft Internet Information Services(IIS)** on the server side. The work of IIS is to provide the web application’s generated HTML code result to the client browser which initiates the request as shown in the below diagram.

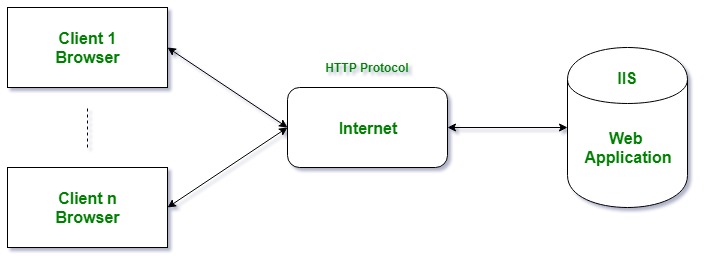


Figure 3.1: IIS working flow to generate HTML code.

# **3.3 ADO.NET**

ADO.NET provides a bridge between the front end controls and the back end database. The ADO.NET objects encapsulate all the data access operations and the controls interact with these objects to display data, thus hiding the details of movement of data.

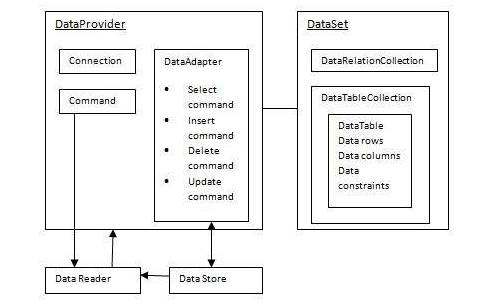


Figure 3.2 ADO.NET work flow Diagram

**3.4 Introduction to C#**

C# is a modern, general-purpose, object-oriented programming language developed by Microsoft and approved by European Computer Manufacturers Association (ECMA) and International Standards Organization (ISO).

C# was developed by Anders Hejlsberg and his team during the development of .Net Framework.

C# is designed for Common Language Infrastructure (CLI), which consists of the executable code and runtime environment that allows use of various high-level languages on different computer platforms and architectures.

## **3.5 Introduction to MySQL Database**

MySQL is a fast, easy-to-use RDBMS 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 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 very friendly to PHP, the most appreciated language for web development.
* MySQL supports large databases, up to 50 million rows or more in a table. The default file size limit for a table is 4GB, but you can increase this (if your operating system can handle it) to a theoretical limit of 8 million terabytes (TB).
* MySQL is customizable. The open-source GPL license allows programmers to modify the MySQL software to fit their own specific environments.

**Chapter 4**

**SYSTEM REQUIREMENT**

**4.1 Software Requirement Specification**

Front End : ASP.NET

Backend : C#

Database :MySQL

Tools Used : Visual Basic 2019

Operating System : Windows 10

**4.2 Hardware Requirement Specification**

Processor : PENTIUM IV 2.6 GHz

RAM : 512 MB DD RAM

Monitor : 15” COLOR

Hard Disk : 20 GB

Floppy Drive : 1.44 MB

CD Drive : LG 52X

Keyboard : Standard 102 Keys

**Chapter 5**

**TASKS PERFORMED**

Internship gave me an opportunity to explore the IT world. It also helped me to gain practical experience. It helped me identify my strengths and weaknesses by creating learning objectives and receiving feedback from my mentors. It helped me in applying the specific techniques that I have learnt and apply them in the world of work and get more equipped with them.

**5.1 Internship workflow:-**

#### Table 5.1 Internship Workflow

|  |  |  |  |
| --- | --- | --- | --- |
| **Sl.No** | **Task** | **Remark** | **Date** |
| 1 | ASP.NET | Basic with code | 12-10-2020 to 23-10-2020 |
| 2 | C# | Basic with code | 26-10-2020 to 29-10-2020 |
| 3 | MySQL | Connection | 30-10-2020 to 06-11-2020 |
| 4 | Creating Login Page and Master Page | Design Using ASP.NET and C# code | 07-11-2020 to 20-11-2020 |
| 5 | Giving connection to MySQL | Using ASP.NET and C# code | 23-11-2020 to 27-11-2020 |
| 6 | Sending Emails to selected Emails from Database | Using ASP.NET and C# code | 30-11-2020 to 11-12-2020 |

**Chapter 6**

**SYSTEM DESIGN**

A **system architecture** is the [conceptual model](https://en.wikipedia.org/wiki/Conceptual_model) that defines the [structure](https://en.wikipedia.org/wiki/Structure), [behaviour](https://en.wikipedia.org/wiki/Behavior), and more [views](https://en.wikipedia.org/wiki/View_model) of a [system](https://en.wikipedia.org/wiki/System). An architecture description is a formal description and representation of a system, organized in a way that supports reasoning about the [structures](https://en.wikipedia.org/wiki/Structure) and [behaviours](https://en.wikipedia.org/wiki/Behavior) of the system.

A system architecture can consist of system [components](https://en.wikipedia.org/wiki/System) and the sub-systems developed, that will work together to implement the overall system.

**6.1 Learning Management System Architecture:**

LMS developers help to create electronic course work and deliver it with unprecedented flexibility. The below figure 6.1 shows the working flow of LMS where the Admin login in to the web page of the BEML . After login it direct to Master Page where the HR who act as an admin here enters the complete details about the training held by the complex, department and for particular staff Id, and then sends the Email to the respective employee’s.

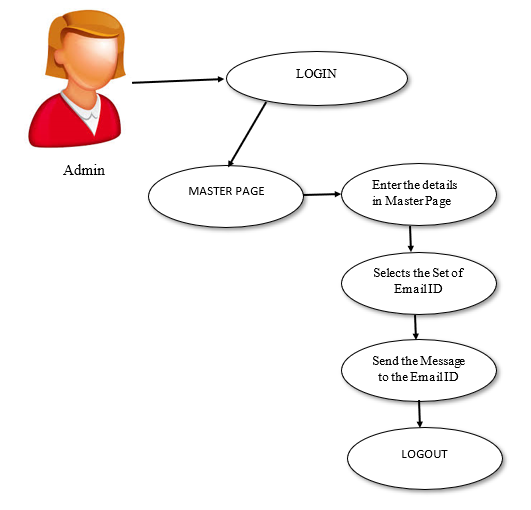
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Figure 6.1 System Model of Learning Management System

**6.2 Flowchart for LMS:**

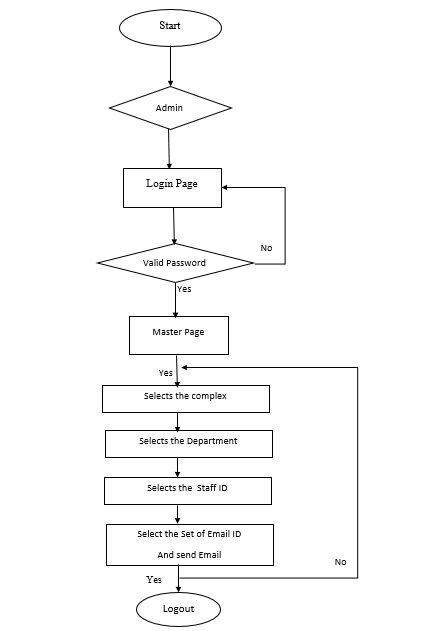
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Figure 6.2 Flow chart for LMS

**6.3 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](https://en.wikipedia.org/wiki/Use_case) in which the user is involved. A use case diagram can identify the different types of users of a system and the different use cases and will often be accompanied by other types of diagrams as well. The use cases are represented by either circles or ellipses.

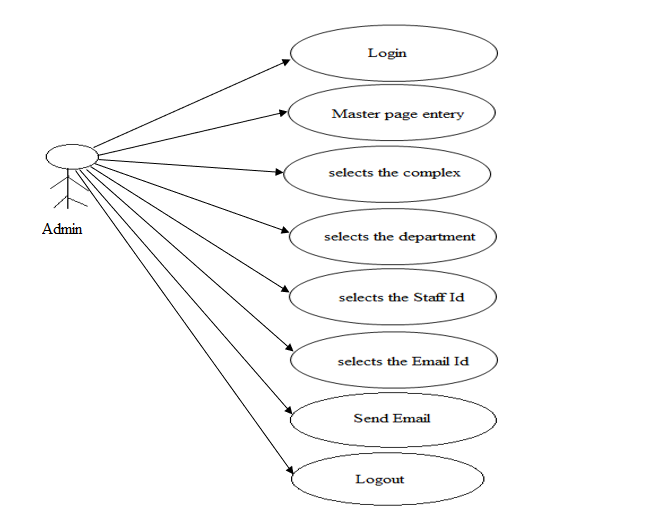
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Figure 6.3 Use case Diagram for Admin

The Admin Login in BEML Webpage after login it direct to the Master page where admin select the complex , based on that select the department, based on that select the Staff Id ,based on that selects the Email ID and send the Email to Employees.

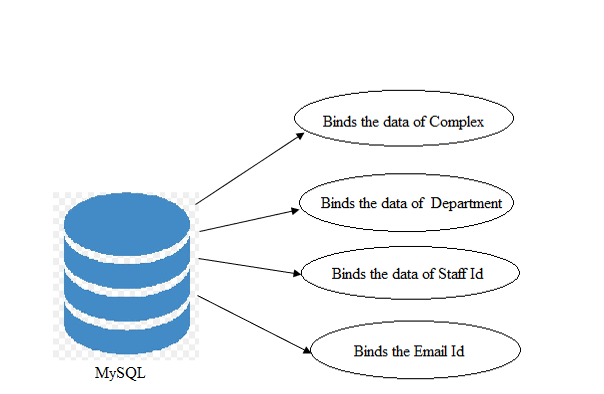
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Figure 6.4 Use case Diagram for Database

* Once the Admin login at Master Page, when Admin click on the dropdown Button of Complex the database binds the data of complex and uniquely displays the different complex name.
* when Admin click on the dropdown Button of Department the database binds the data of Department and uniquely displays the different Department name.
* when Admin click on the dropdown Button of Staff Id the database binds the data of Staff Id and uniquely displays the different Staff Id related to department.
* Admin selects the Email ID based on Staff Id and sends the Email to the particular employee.

**Chapter 7**

**SAMPLE CODE**

// **Database Connectivity**

using System;

using System.Collections.Generic;

using System.ComponentModel;

using System.Data;

using System.Data.SqlClient;

using System.Drawing;

using System.Linq;

using System.Text;

using System.Threading.Tasks;

using System.Windows.Forms;

namespace DemoApplication1

{

public partial class Form1 : Form

{

public Form1()

{

InitializeComponent();

}

private void button1\_Click(object sender, EventArgs e)

{

string connetionString;

SqlConnection cnn;

connetionString = @"Data Source=WIN-50GP30FGO75;Initial Catalog=Demodb; User ID=sa; Password=demol23";

cnn = new SqlConnection(connetionString);

cnn.Open();

MessageBox.Show("Connection Open !");

cnn.Close();

}

}

}

//**Form data collection**

using System.Web.Mvc;

namespace SaveFormData.Controllers

{

public class HomeController : Controller

{

// GET: Home

public ActionResult Index()

{

return View();

}

// GET: Home/Create

public ActionResult Create()

{

return View();

}

// POST: Home/Create

[HttpPost]

public ActionResult Create(FormCollection collection)

{

try

{

//Method 1: Using Component Name

/\*ViewData["Title"] = collection["Title"];

ViewData["Complex"] = collection["Complex"];

ViewData["Dept"] = collection["Dept"];

ViewData["Staffid"] = collection["Staffid"];

--Remaining fields here--

\*/

//Method 2: Using Component Index Position

ViewData["Title"] = collection[1];

ViewData["Complex"] = collection[2];

ViewData["Dept"] = collection["3"];

ViewData["Staffid"] = collection[4];

// rest of the fields here

return View("Index");

}

catch

{

return View();

}

}

}

}

**Chapter 8**

**RESULTS AND DISCUSSION**

The Results section follows the Methods and precedes the Discussion section. This provides the data collected during the study. The Discussion section follows the Results and precedes the Conclusions and Recommendations section. Discussion indicate the significance of their results.

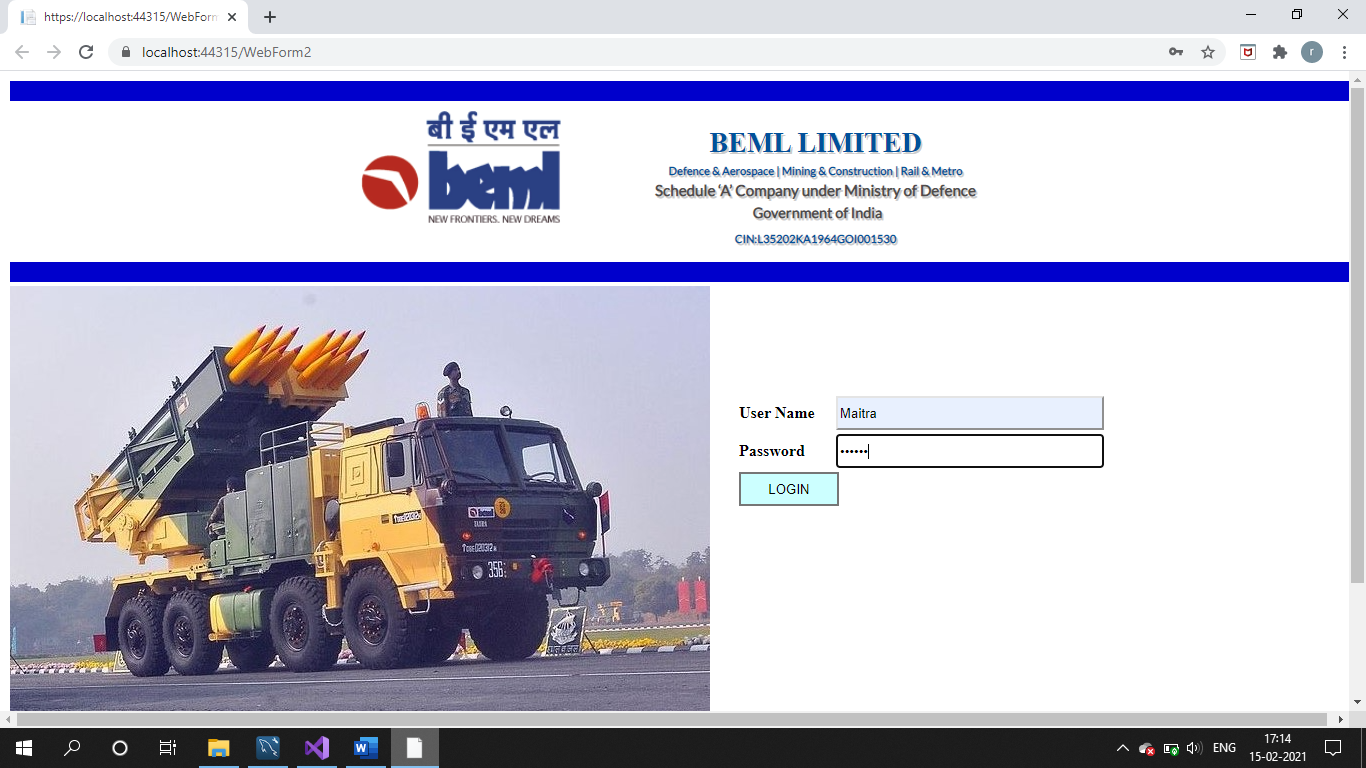


Figure 8.1 Admin Login page

* In the above figure 8.1 the Admin login using his/her user name and password in the BEML Web page.
* In figure 8.2 shows after login the Admin is directed to the Master Page, where the Admin has to enter the complete details

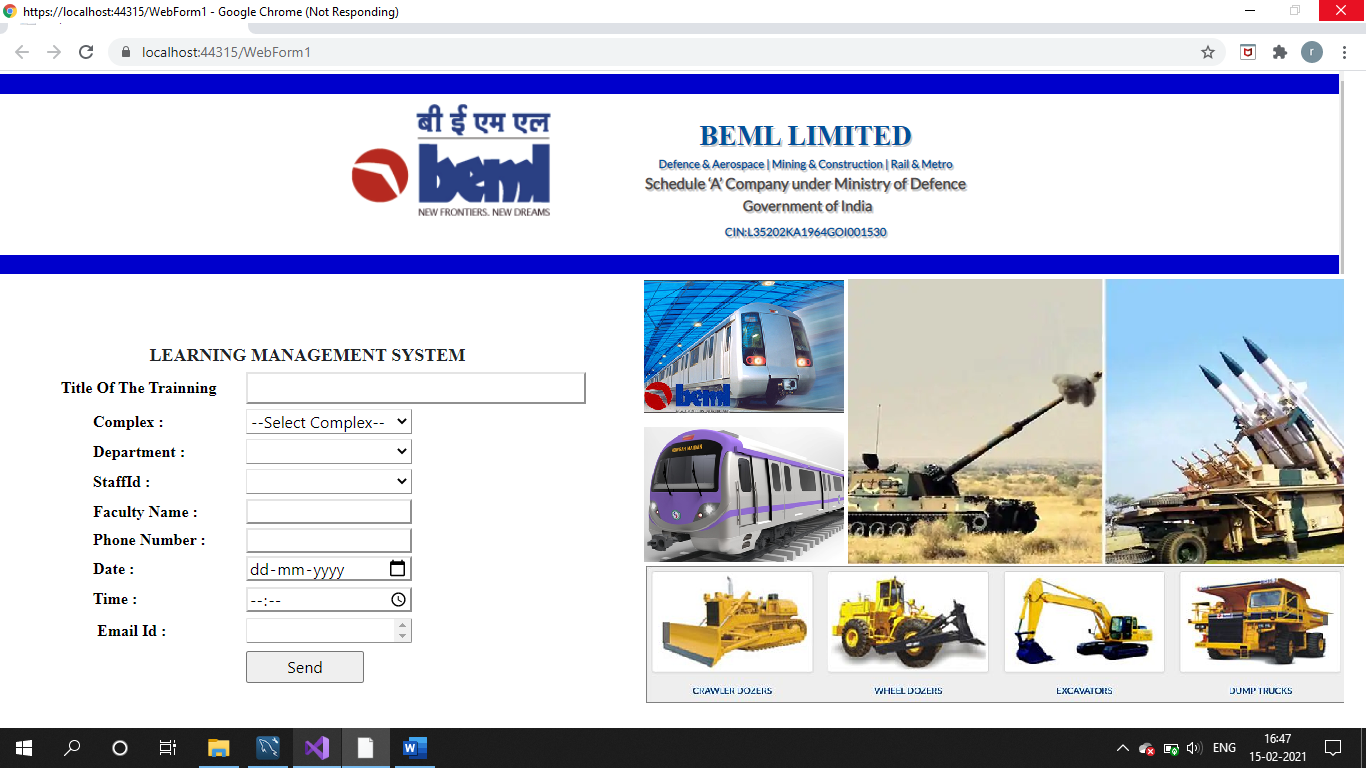


Figure 8.2 After login Admin is directed to Master Page

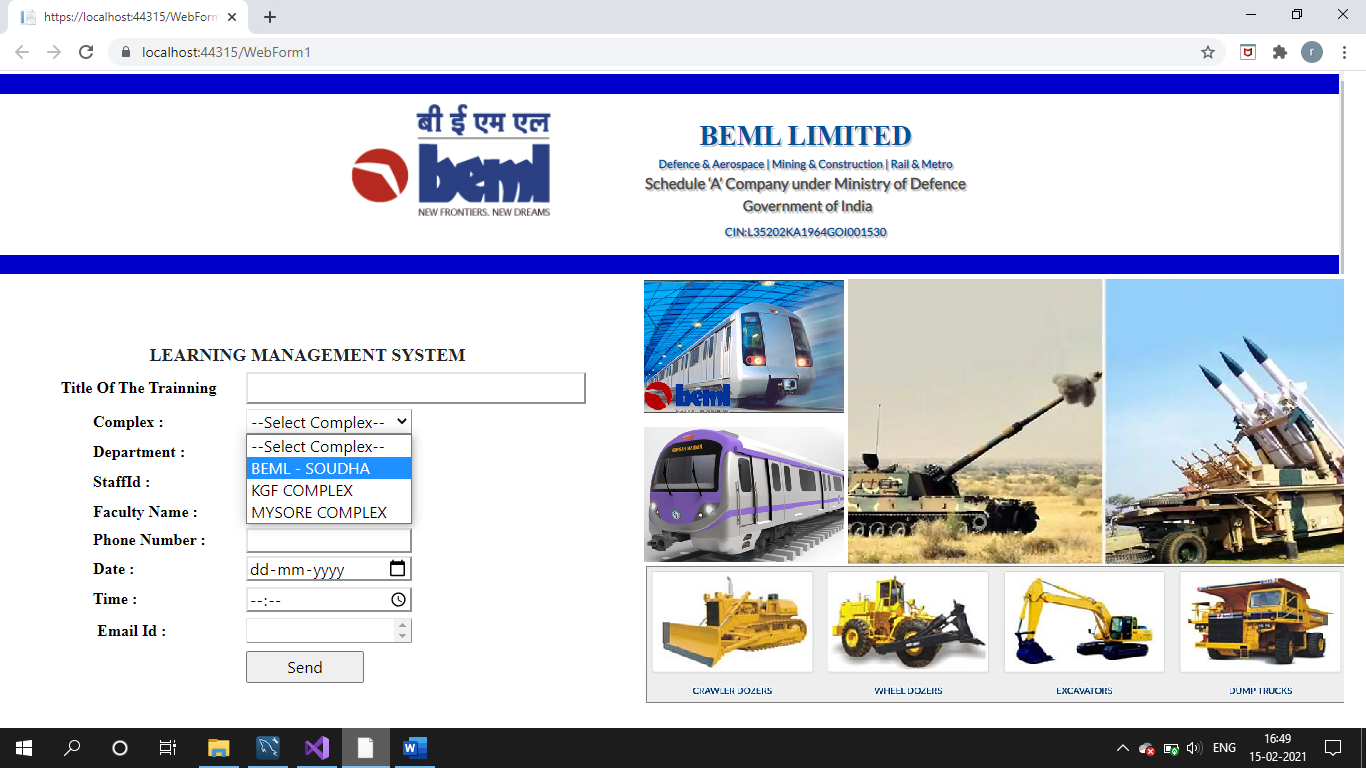


Figure 8.3 The Admin needs to select the Complex

* In figure 8.3 when Admin click on the dropdown Button of Complex the database binds the data of complex and uniquely displays the different complex name.

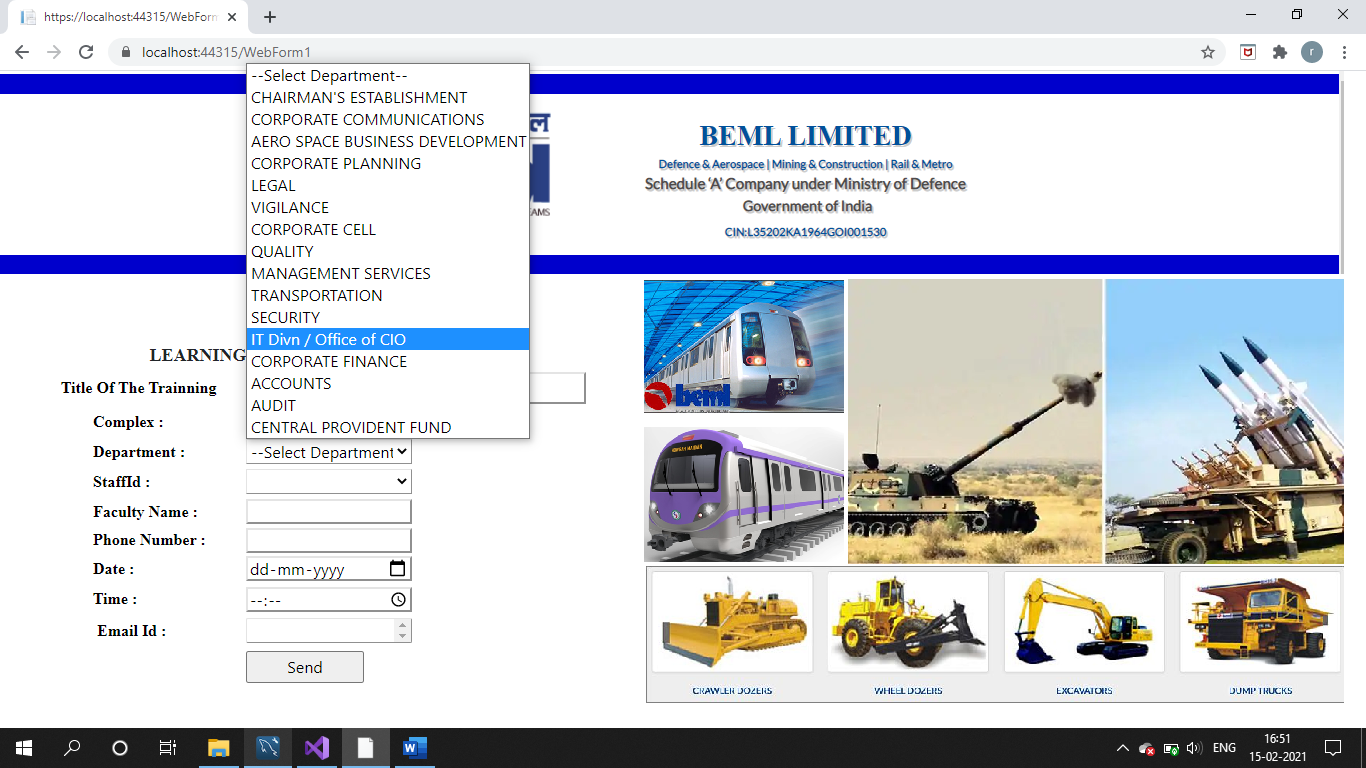


Figure 8.4 The Admin needs to select the Department

* In figure 8.4 when Admin click on the dropdown Button of Department the database binds the data of Department and uniquely displays the different Department name.
* In figure 8.5 when Admin click on the dropdown Button of Staff Id the database binds the data of Staff Id and uniquely displays the different Staff Id related to department.

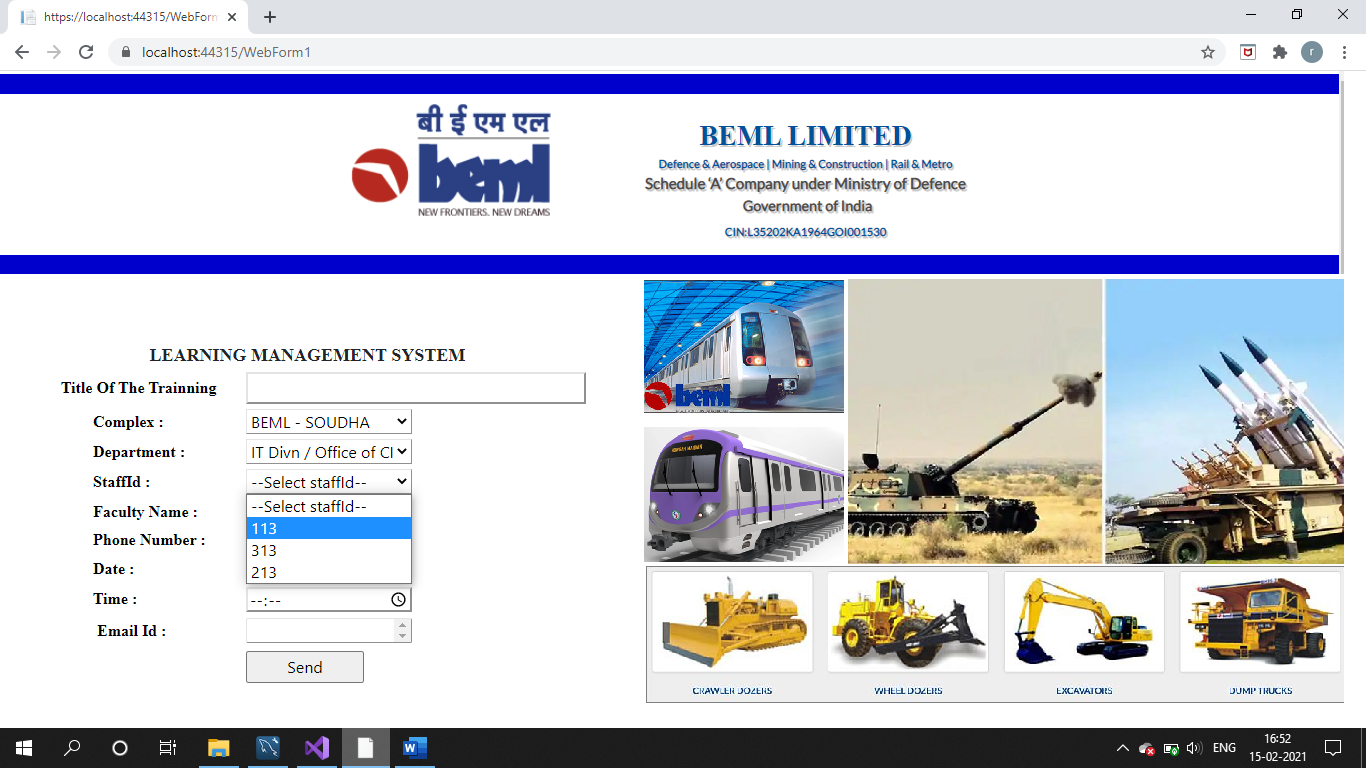


Figure 8.5 The Admin needs to select the Staff Id

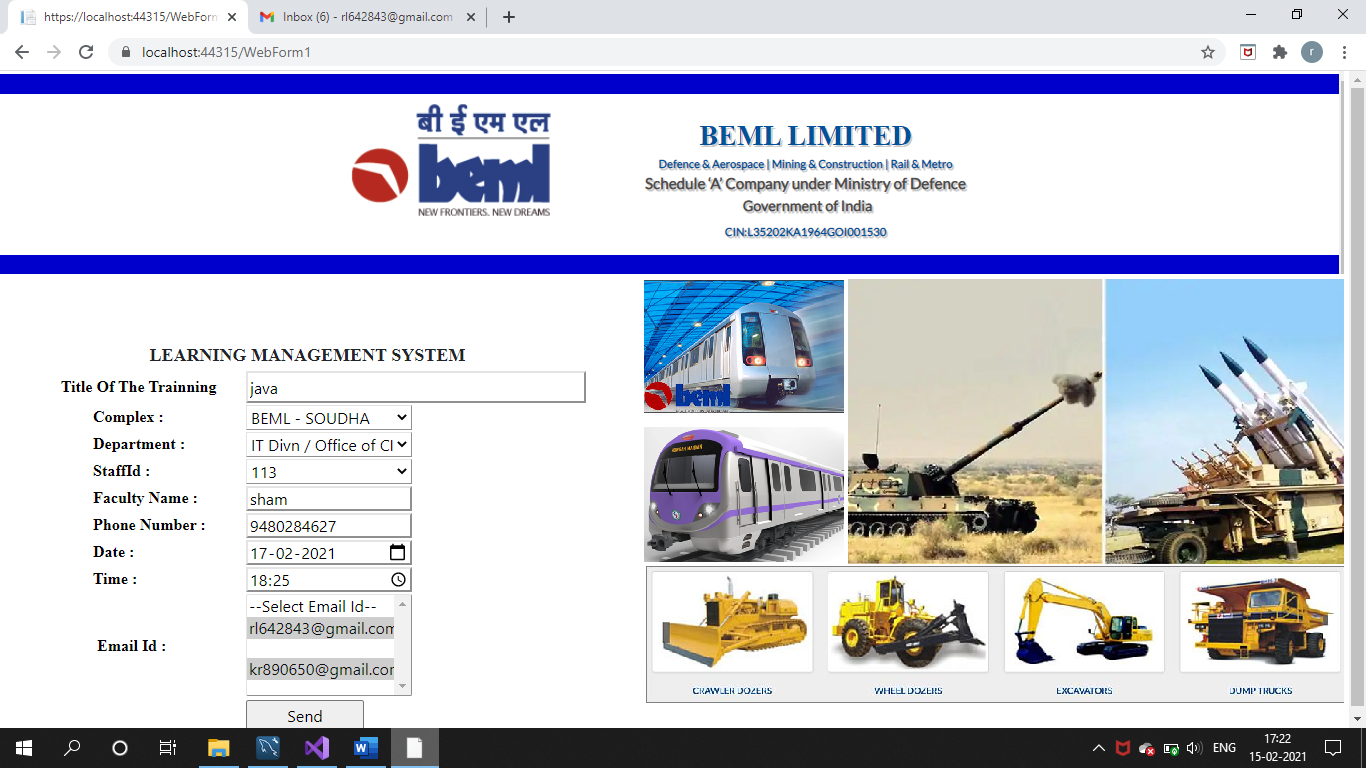


Figure 8.6 The Admin selects the Email ID and Send the information to the employees

* In figure 8.6 The Admin selects the Email ID based on Staff Id and sends the Email to the particular employee.

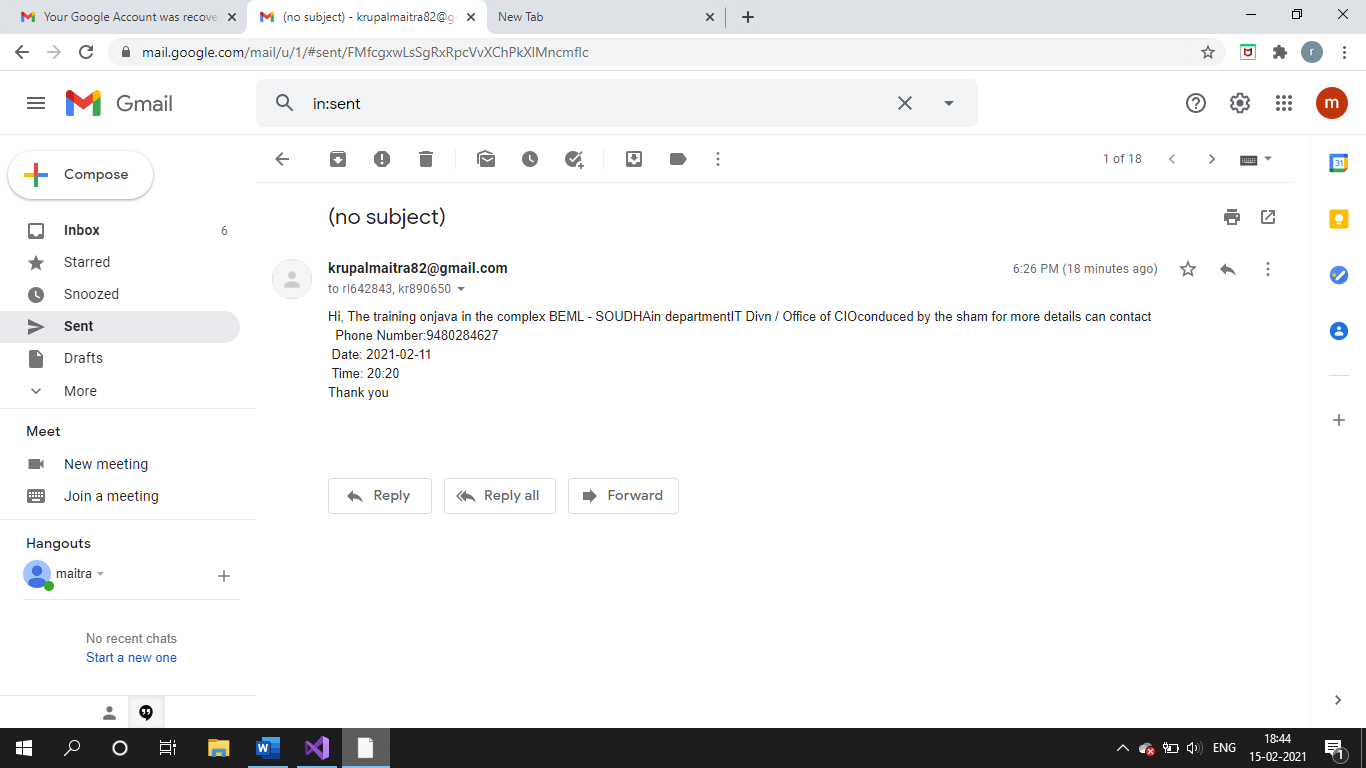


Figure 8.7 The Mail sent by Admin

* The above figure 8.7 shows the Email ID used by the Admin to send the mail to different employee’s.

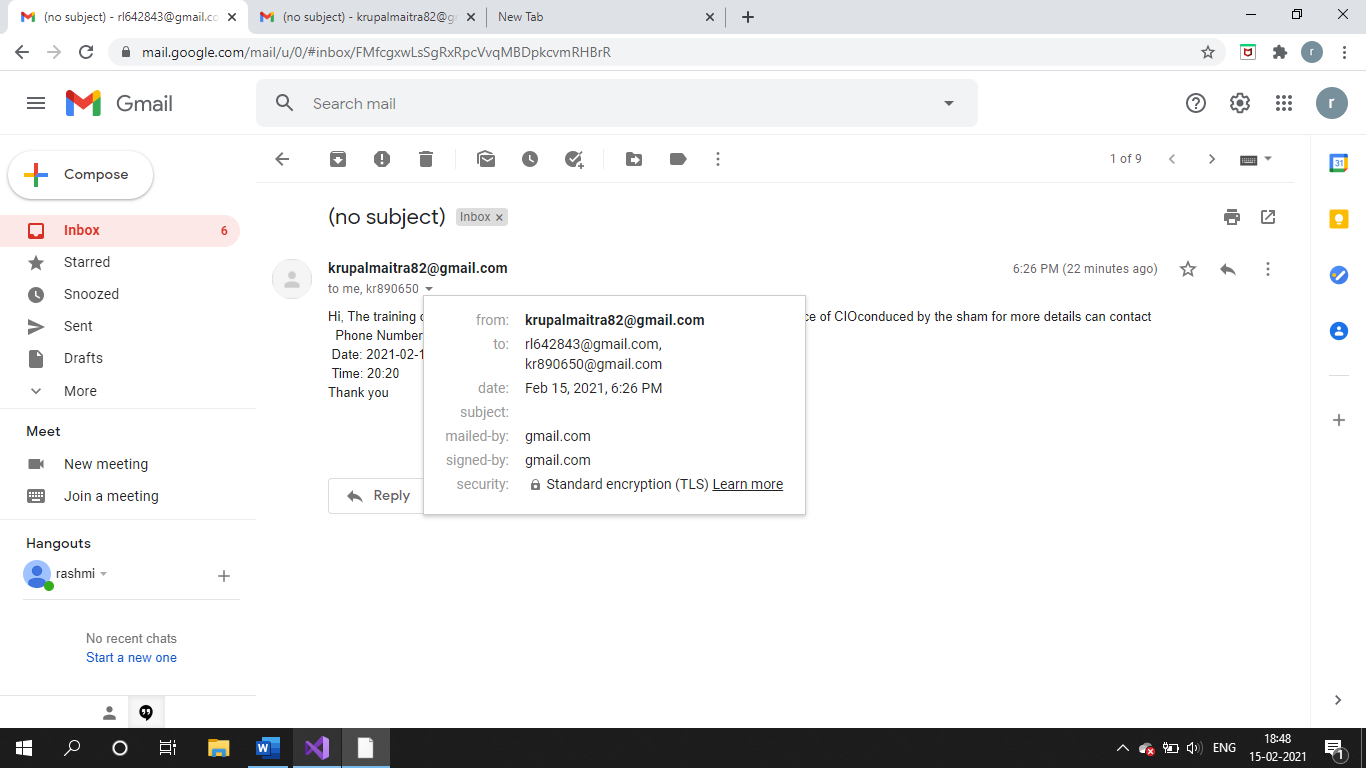


Figure 8.8 The Mail received by employee

* Figure 8.8 shows the Mail received by the employee.

## **8.1 Advantages of Learning Management Systems**

* **Provides unlimited access:** Once you upload your detail in Database, the Admin has unlimited access to the information they need. Even those who can login to the eLearning platform via their smartphones and tablets, so that they don’t have to wait until their next online training session to develop skills and perfect work-related tasks.
* **Easily tracks learner progress and performance:** The [best Learning Management System](https://elearningindustry.com/11-tips-choosing-best-learning-management-system) gives you the ability to keep track of learner progress and ensure that they are meeting their performance milestones.
* **Reduces Learning and Development time:** A Learning Management System can even reduce online training times, thanks to the fact that it gives online learners only the information they need in a direct and organized manner.
* **Keeps organizations up-to-date with compliance regulations:** If your organization must stay up-to-date with current [compliance regulations](https://elearningindustry.com/7-tips-for-effective-online-compliance-training), then a Learning Management System can be an invaluable tool. Compliance laws chance on a regular basis, and updating a traditional course to reflect these changes can be a time-consuming chore.
* **Integrates social learning experiences:** A Learning Management System makes it easy to integrate [social learning](https://elearningindustry.com/8-top-tips-create-effective-social-learning-strategy) into your eLearning strategy. Since the LMS is already online, you can include links to Facebook and Twitter pages, LinkedIn groups, and [online forums](https://elearningindustry.com/7-tips-use-forums-in-elearning) that may be beneficial for your learners.

**8.2 Disadvantage of Learning Management Systems**

The drawback of employing a LMS is that many aspects of coaching and plenty of things that require to be learned don’t lend themselves to online learning. Many roles need the acquisition of a physical ability, that cannot be simply learned or tested on-line. An LMS might not perpetually be able to accommodate different learning designs. Some trainers are thought of smart trainers as a result of they know how to present material in a very room.

**Chapter 9**

**REFLECTION NOTES**

Internship provided an opportunity to explore and know things, which are listed below.

* The world of IT Industry.
* Various kinds of Industries.
* How technology can make an impact.
* Various domains on which industries work on.
* Role and need to each domain for today’s world.
* The culture of IT Industry.
* Mapping up different technologies.
* Current trends in IT industry.
* Future scope.
* New technologies.
* Corporate happening and culture
* Gathering requirements to build a product.
* Design phase.
* Implementation.
* Development.

Internship training at BEML Limited has been a great learning experience. I got an opportunity to work in domain of IT department.

Internship at BEML Limited gave opportunity for exposure to the vast area of the IT industry. As an intern, I tried to demonstrate my knowledge, insight, experience and potential to the company.

**9.1 Technical Knowledge acquired**

1. Applying knowledge to the task: I learned how to apply the theoretical concepts which I have learned till now in a particular task which was assigned to me.
2. Identifying, understanding and working with professional standards: When they assigned different tasks, to me at first, I was facing problem to understand the problem later I got to know how to understand the given problem and then working with the task.
3. Improving problem solving and critical thinking skills: Earlier when a task was assigned, we just use to solve this blindly without proper understanding the problem. Now I have improved solving skill.
4. Effectively utilizing a new software tool to complete a task: There are various software tools which are helpful in completing tasks. Before, I was not having a proper knowledge about the software tools and how they are used. After joining in a company as an intern, they taught me how to use the tools when necessary.
5. Analyzing or visualizing data to create information: This is one of the main themes in the organization as in the company they will get some data from the customers they need to create proper information to understand to everyone. Then developer can read the information and easily develop the software.
6. Writing required documentation: Documentation is one of the necessary processes in any organization as it gives the proper information about the requirements and the other basic information. I have learned how to write proper documentation which includes requirements and other information.
7. Resource management: Resource management can also be known under other names such as ‘people planning’ or ‘utilization’ but in essence it is the solution for planning, managing and deploying the right people for the right projects. Resource management is therefore a ‘hot topic’ at the executive level in many project focused companies. There is more than ever a need to provide with the proactive, analytical information they need to support efficient and effective decision making.
8. Participation as a member of a team: One of the major things is how to work with a team in which all are having different mind-set and different ideas. I contributed my efforts in proper and good way which helps our team to complete the work.

**9.2 Soft skills acquired**

Few things are very common and these things we learnt during internship. Following are the few things that I learnt.

* **Become Confident:** Being confident about who are we and what are we doing is the most important tip for personality development. Never doubt our capabilities and if there is something we need to work upon then put in all the effort so that we can come over our fears and gain confidence.
* **Good Listening Skills:** Being a good listener may not seem like but it is an important step towards achieving a more likable personality. When somebody talks to you, listen with interest and give them all the attention and importance. Maintain a direct eye contact.
* **Read More Often and Develop New Interests:** A man of very few interests has very little to talk about. But if we are well informed about things and cultivate a number of interests, more people tend to like us. We can strike up interesting conversations instead of appearing to be dull and monotonous.
* **To Have Opinion**: Having an opinion and being able to confidently put it forward doesn’t just help making our conversations interesting but it also makes us look more influential and well informed around other people. Never shy away from projecting your opinions even if they happen to conflict with those of other people.
* **Positivity in Outlook**: Thoughts and actions both need to be positive in order to have an attractive personality. The way we think has a lot of effect on the way how we act. And if one prospers positive thoughts inside his mind then that also gives him a confidence boost and enhances their personality. Handling the project given by the manager with full passion and dedication. As the intern, he is dedicated towards work and does not quit until he meets the desired results.

As an intern, I tried to implement the work given to me with the full satisfaction of the manager and the mentor. The intern takes feedback from the manager as well as mentor and tried to improve as much as possible in the area we are lagging.

**Chapter 10**

**CONCLUSION**

I have worked as an Intern and I have designed Web application using the ASP.NET & C# , So from this I got knowledge on how to build the Internet applications, MySQL connection, Binding the data from the given dataset using database, Sending the message to the Selected Emails from the given dataset from a particular Email ID (HR Email ID) and storing the sent data in the database.

**REFERENCES**

1. <https://www.javatpoint.com/asp-net-introduction>
2. <https://www.tutorialspoint.com/asp.net/asp.net_introduction.htm#:~:text=Advertisements,as%20well%20as%20mobile%20devices>.
3. <https://www.w3schools.com/cs/cs_intro.asp>
4. <https://www.w3schools.com/cs/cs_intro.asp>
5. <https://www.academia.edu/Documents/in/Learning_Management_Systems>
6. <http://www.scielo.br/pdf/jistm/v13n2/1807-1775-jistm-13-2-0157.pdf>
7. <https://sci-hub.se/10.1109/CSCI.2015.160> : Online Learning Management System
8. <https://www.ijcsi.org/papers/IJCSI-9-2-2-379-385.pdf> : A Study on the Impact of Learning Management Systems on Students of a University College in Sultanate of Oman.