**Year 1** - Module

**Backend Development**

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**Report: ESA-Backend Project**

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* **What is Back-end Development?**

The back end, also known as server-side, it’s everything that takes place "behind the scenes," and its components aren't always visible. A database and software developed in a server-side language make up the back end. Servers and databases make up the back end. Users access to files is controlled by servers. Databases are collections of data that are well-organized and structured. When you visit the website, you need enter your username or email address, as well as your password. This information is subsequently provided to server-side software, which confirms that your email address appears to be an email address and that your password is formatted correctly. If everything appears to be in order, the data is sent to the database to authenticate that someone with that login and password already exists. Then it selects the most significant information and gives it to you in the form of your user page.

* **Uses of back-end development**
* Building systems and procedures to satisfy the application's needs managing databases, which includes data storage and retrieval, organization, backups, and security discovering and correcting errors in the back-end code
* Maintaining any APIs used by the organization to integrate apps both outside and internally
* Optimizing performance to improve productivity and user experience
* Creating and maintaining code libraries that may be shared by engineers throughout the company
* Assisting in the design of the application's general architecture
* Preventing cyber-attacks on the app
* **Types of Languages used in the project**
* **PHP** is all over the place. While you can't be certain that every hosting service will support web applications built in Python or Ruby, you can be sure that PHP will. That is a proven fact. There are several other reasons why many back-end developers prefer PHP to other popular programming languages. PHP, for example, is supported by the majority of operating systems, saving you time and money. PHP's efficient database management system decreases the time it takes to construct a web application, saving you time and money. https://www.bitdegree.org/
* **HTML**, I have also used html in my project for creating forms, tables, and webpage.
* **CSS**, for customizing or designing the project I have used CSS and also **BOOTSTRAP** and **JSS.**
* **Ubuntu Server to run webpage**

 Ubuntu Server was first released October 20, 2004, Ubuntu Server is a server operating system created by Canonical and open-source programmers all around the globe that can run on almost any hardware or virtualization platform. It can serve websites, file sharing, and containers, as well as increase your company's products by providing a strong cloud presence.

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* **Use of Window PowerShell**

Windows PowerShell is a command-line shell created by Microsoft for job automation and configuration management. PowerShell is currently an open-source project that may be used on Windows, Mac OS X, and Linux.

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* **What is Git?**

Git is a locally installed piece of software. Your computer stores your data as well as their history. You may also save a copy of the files and their revision history online by using services like GitHub. You can cooperate more readily with other developers if you have a centrally accessible location where you can post your modifications and get changes from others.

* **Used for Repository**

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All of the project files, as well as the whole revision history, are stored in a Git repository (or repo for short). You'll instruct Git to turn a regular collection of files (such as a website's root folder) into a repository. This generates a .git subdirectory with all of the Git metadata needed to monitor changes.

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* **phpMyAdmin**

phpMyAdmin is a PHP-based open-source software utility.  It is, in essentially, a third-party tool for managing the database's tables and data. On MariaDB and MySQL, phpMyAdmin provides a variety of operations. The primary goal of phpMyAdmin is to manage MySQL administration over the internet.

It is the most often used programme for managing MySQL databases. Using this programme, we can create, update, drop, change, remove, import, and export MySQL database tables.Graphical user interface, application

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* **MySQL**

A relational database organizes data into one or more data tables where data types can be associated to one another, allowing the data to be structured. SQL is a programming language that allows programmers to build, change, and retrieve data from relational databases, as well as manage user access. An RDBMS like MySQL, in addition to relational databases and SQL, works with an operating system to implement a relational database in a computer's storage system, manages users, allows for network access, and makes database integrity testing and backup generation easier.

* **XAMPP**

XAMPP is a free open-source cross-platform web server solution stack package developed by Apache Friends, consisting primarily of Apache HTTP servers. MariaDB databases, and script interpreters written in the PHP and Perl programming languages increase. Most real web server deployments use the same components as XAMPP, so you can migrate from a local test server to a live server.Table

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* **Why used MySQL instead of Oracle/ Microsoft SQL?**

Compared to Oracle and SQL Server, MySQL has two other unique aspects, one is that it has not been released for commercial use and the other is that it is an open-source database. It has more than 10 million installs according to market reports, which means it is gaining popularity among several companies.

* **Features of MySQL:**
* Solutions to handle disaster recovery
* SQL Server Data Tools for business intelligence by various updated versions
* Support to OLTP or Online transaction processing and some embedded features to allow enhanced performance of the sophisticated database.

# ER DIAGRAMReferences

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- Sonoo Jaiswal