<E-LEARNING MANAGEMENT>

Technical Design Document

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1.0 Introduction

Purpose of this document

This document provides an overview about the business need and the solution that can be provided to fulfill the objective. The main objective of our project is to manage the details of an E-Learning platform. E-Learning management systems are designed to identify training and learning gaps, utilizing analytical data and reporting. The proposed System, will be implemented using Java for companies to enhance their support system.

Project overview

A learning system based on formalized teaching but with the help of electronic resources is known as E-learning. E-learning can also be termed as a network enabled transfer of skills and knowledge, and the delivery of education is made to a large number of recipients at the same or different times. Earlier, it was not accepted wholeheartedly as it was assumed that this system lacked the human element required in learning. E-Learning Management System enables the enterprises to deliver course for the learning to the Learners. E-Learning management system is a software application for the administration, documentation, tracking, reporting, automation and delivery of educational courses, training programs, or learning and development programs.

2.0 Solution Summary

Scope

1. User Signup, user login and admin login credential authentication.
2. User need to fill required attributes to create account.
3. Admin and User can update the credentials based upon the requirement.
4. Admin/Vendor can add and maintain Course details, Schedule and other information.
5. Admin/Vendor can activate/deactivate the User/Learner.
6. Admin/Vendor/User can see the list of available courses.
7. Learner can view and register for Courses.
8. Learner can register for a particular course.

9. Learner can see the Purchase History.

Assumptions

The E-Learning Management System can be accessed by three categories of users:

1. Admin
2. Vendor
3. Learner

Features for Customers and Administrators:

Learner can create a new account in order to log in.

Learner can search for available courses.

Learner can register for an available courses.

Vendor can add, delete and modify course details, and User list.

Admin manages the overall system.

Admin can also act as a Vendor.

Dependencies

Build Dependencies:

- MS SQL Server needed for the database operations.
- Eclipse software used to build and run the application.
- Spring Boot for backend.
- Angular for frontend.

Deployment Dependencies:

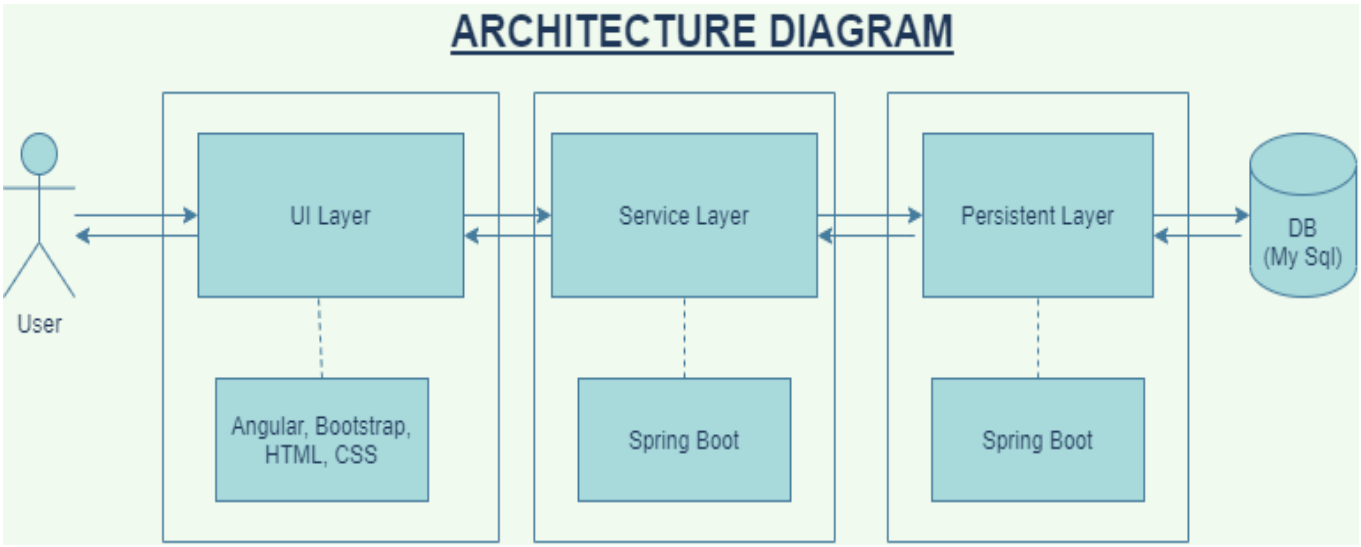
- Docker Platform
- AWS Subscription

Risk Factor

- Data Security

3.0 Architecture Diagram

An architectural diagram is a diagram of a system that is used to abstract the overall outline of the software system and the relationships, constraints, and boundaries between components. It is an important tool as it provides an overall view of the physical deployment of the software system and its evolution roadmap

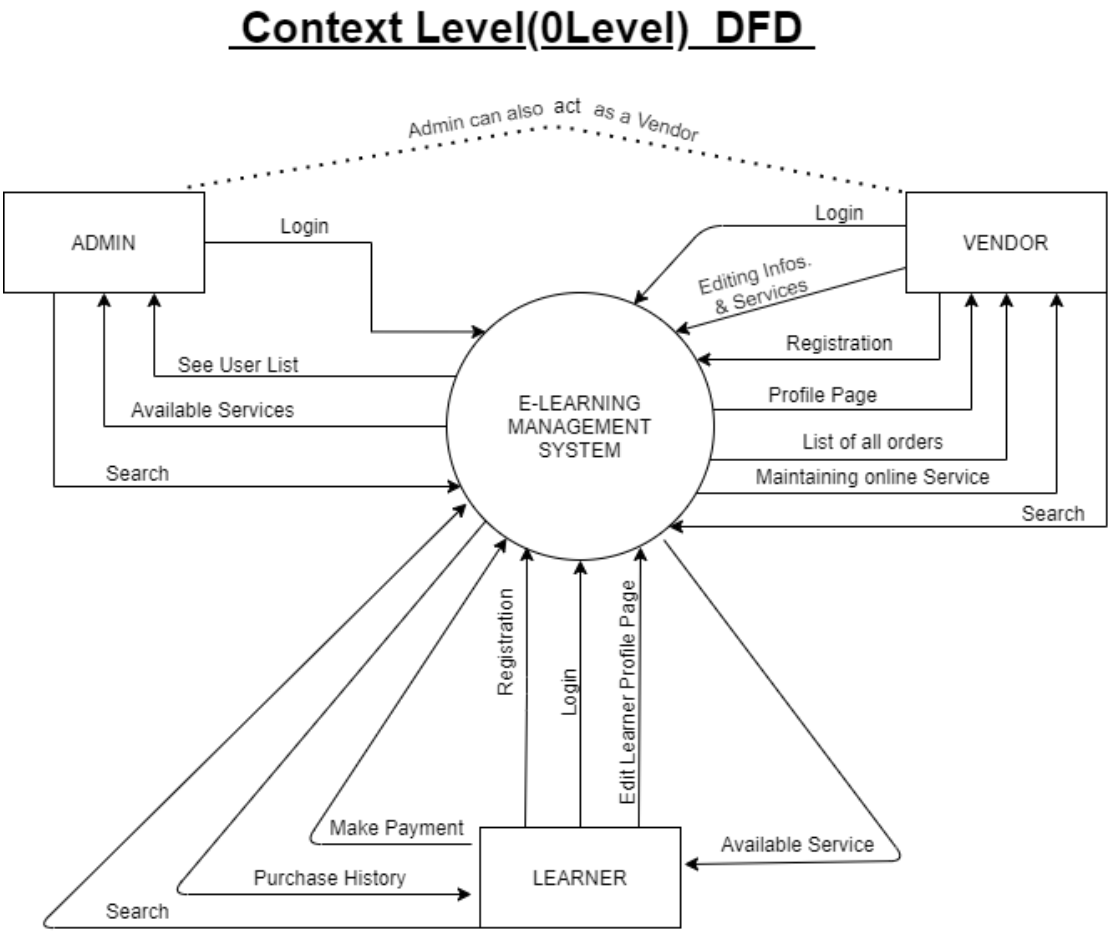


4.0 Data Flow Diagram (Context Level)

The Context Diagram shows the system under consideration as a single high-level process and then shows the relationship that the system has with other external entities

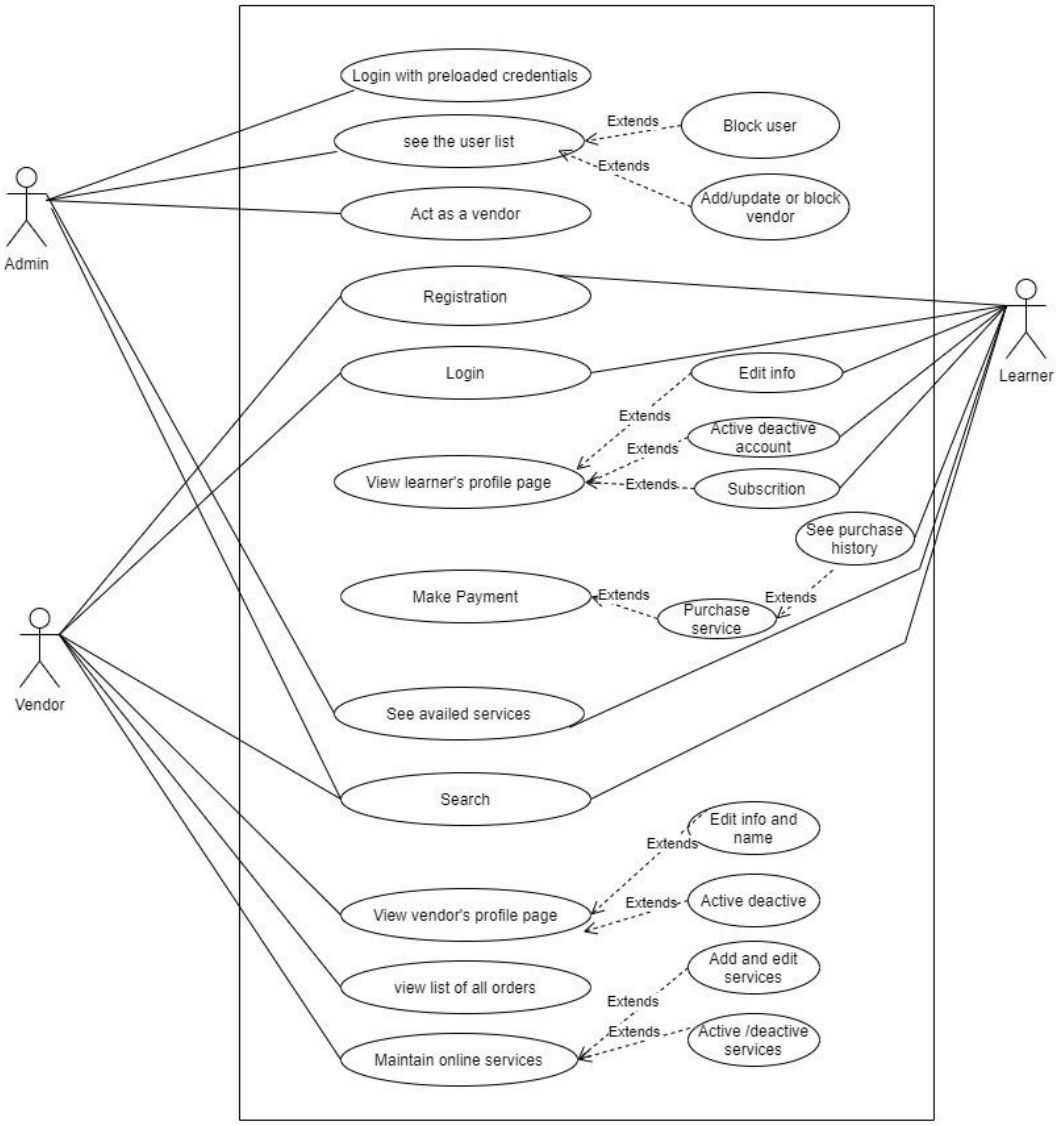
A Data-Flow Diagram (DFD) is a graphical visualization of the movement of data through an information system. DFDs are one of the three essential components of the structured-systems analysis and design method (SSADM). A DFD is process centric and depicts 4 main components.

- Processes (circle)
- External Entities (rectangle)
- Data Stores (two horizontal, parallel lines or sometimes and ellipse)
- Data Flows (curved or straight line with arrowhead indicating flow direction)



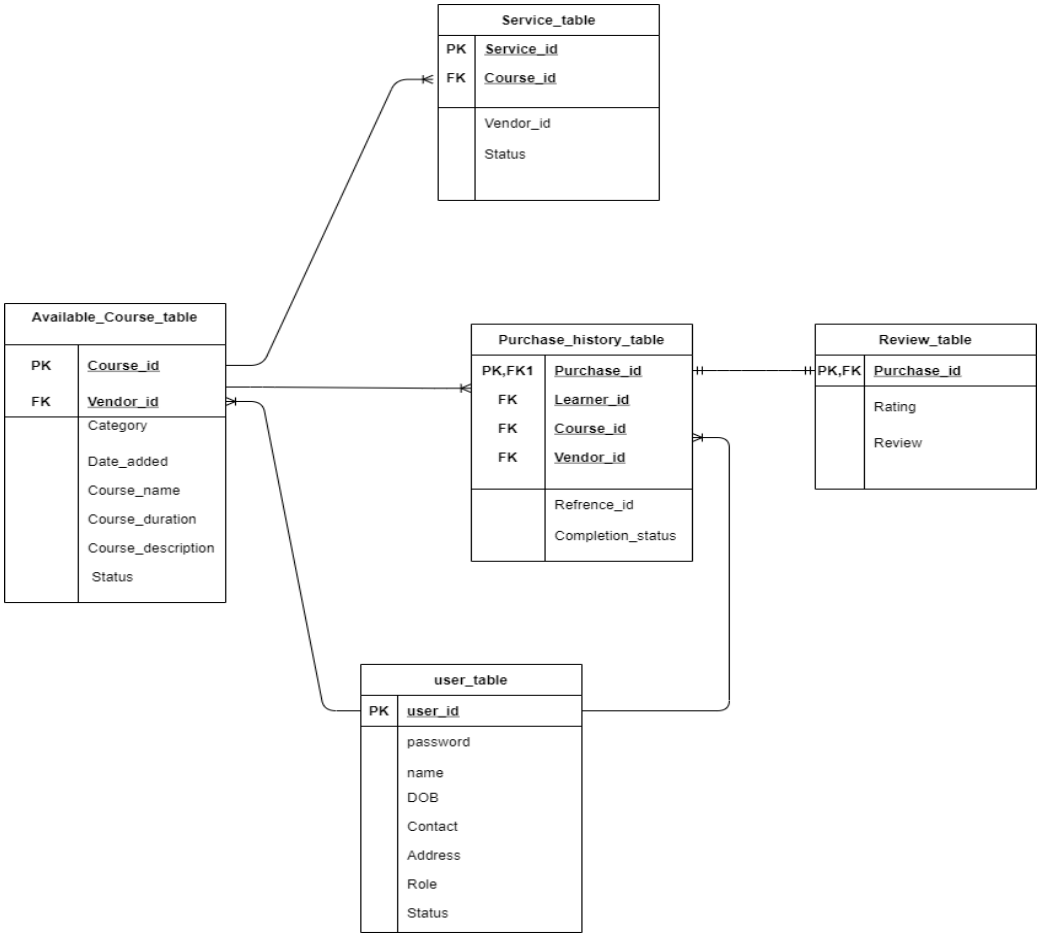
5.0 USE Case Diagram

A use case diagram is a graphical depiction of a user's possible interactions with a system. A use case diagram shows various use cases and different types of users the system has and will often be accompanied by other types of diagrams as well.



6.0 System Design

Proposed design



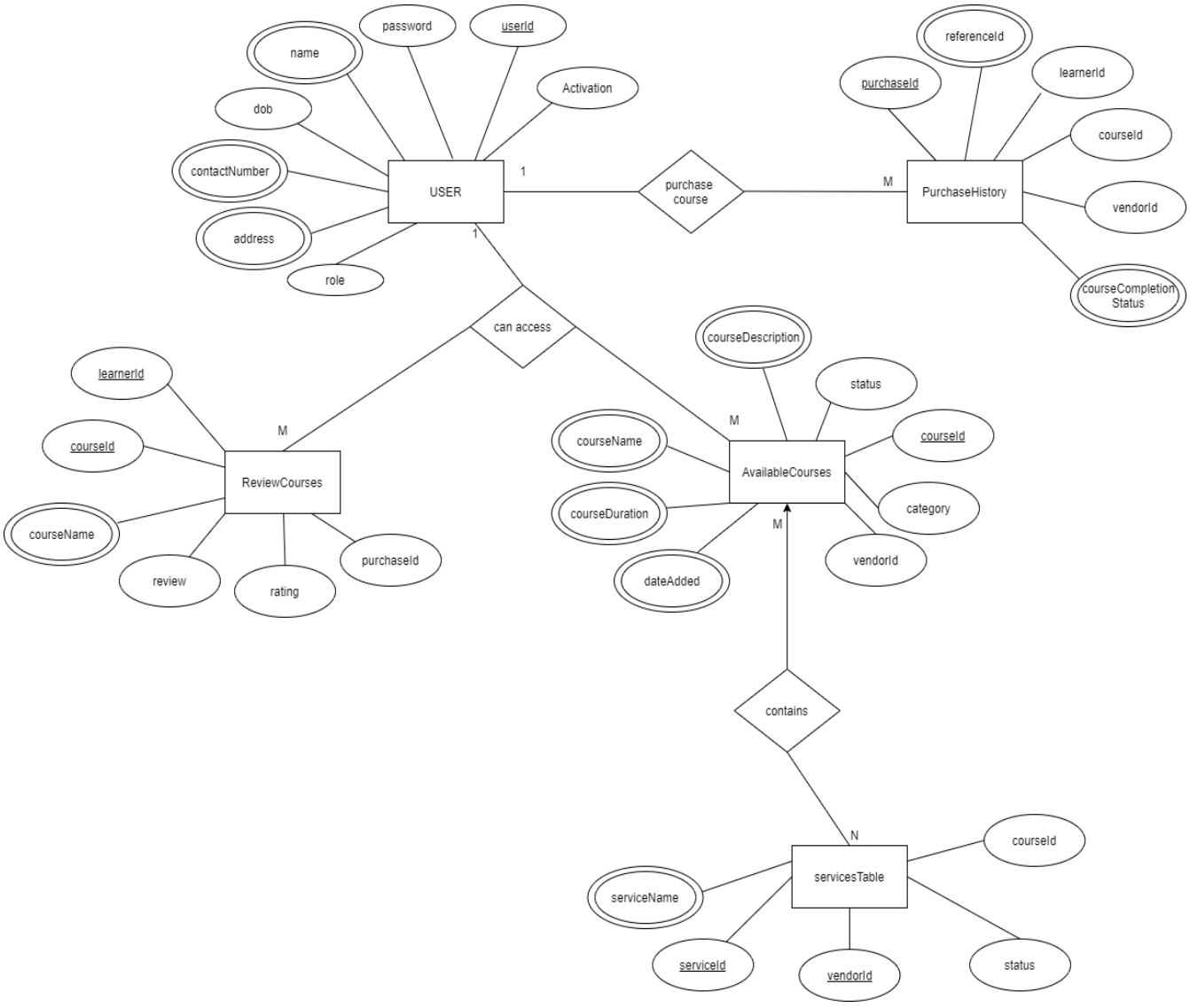
Component inventory

1) UI Layer – HTML, JS
2) Rest Controllers
3) Service Classes
4) JPA Repository Classes
5) Utility Classes

7.0 Database Design

ER Diagram

An entity–relationship model describes interrelated things of interest in a specific domain of knowledge. A basic ER model is composed of entity types and specifies relationships that can exist between entities.



Tables Structure

User_table

Field	Type	Key	Null	Default	User_input
user_id	Varchar(10)	pk	NO		NO
password	Varchar(50)		NO		YES
name	Varchar(50)		NO		YES
dob	date		NO		YES
contact	Int(10)		NO		YES
address	Varchar(100)		NO		YES
role	Varchar(7)		NO		YES
activation_status	Varchar(10)		NO	active	NO

Available_course_table

Field	Type	Key	Null	Default	User_input
course_id	Varhcar(10)	pk	NO		NO
category	Varchar(15)		NO		YES
vendor_id	Varchar(10)	fk	NO		NO
Course_name	Varchar(50)		NO		YES
Course_duration	int		NO		YES
Course_description	blob		NO		YES
Date_added	date		NO		NO
Course_status	Varchar(20)		NO	active	NO

Purchase_history_table

Field	Type	Key	Null	Default	User_input
Purchase_id	Varchar(20)	pk	NO		NO
reference_id	Varchar(20)		NO		NO
learner_id	Varchar(10)	fk	NO		NO
course_id	Varchar(10)	fk	NO		NO
vendor_id	Varchar(10)	fk	NO		NO
completion_status	Varchar(20)		NO	not_completed	NO

Review_table

Field	Type	Key	Null	Default	User_input
Purchase_id	Varchar(20)	pk/fk	NO		NO
rating	int		YES	NULL	YES
review	blob		YES	NULL	YES

Services_table

Field	Type	Key	Null	Default	User_input
Service_id	Varchar(20)	pk	NO		NO
Course_id	Varchar(10)	fk	NO		NO
Service_name	Varchar(50)		NO		YES
Vendor_id	Varchar(10)		NO		NO
status	Varchar(20)		NO	active	NO

8.0 Appendices

Glossary

Acronyms	Definitions
ELM	E-Learning Management
DFD	Data Flow Diagram
ER	Entity Relation
HLD	High Level Diagram

9.0 Terms & Conditions

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10.0 Change Log

Please note that this table needs to be maintained even if a Configuration Management tool is used.

Version Number	**Changes made**
V<n.n>	*<If the change details are not explicitly documented in the table below, reference should be provided here>*

	Page no	Changed by	Effective date	Changes effected