Pinlearn

Self-hosted Online Tutoring Software with Live Classes & Self-paced Courses

Technical Documentation

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Pinlearn Edtech Company

Technical Aspects

System Overview

Pinlearn system comprises various modules / micro-services. Each service is responsible for providing APIs to help users execute use cases in a specific domain.

System & service	Description
Passport	Service provides APIs to execute all use-cases related to authentication and authorization such as Sign In, Sign Out, Access Token Verification and User's Roles and Permissions and etc.
User	Service provides APIs to execute all use-cases related to user domain such as Get, Edit Profile and etc.
Tutor	Service provides APIs to execute all use-cases related to tutor domain such as Get, Edit Tutor Profile,Manage tutor subjects.
Topic (Group classes)	Service provides APIs to execute all use-cases related to meeting domains such as Get, Create meeting, Schedule meeting, etc.
Review	Service provides APIs to execute all use-cases related to review for Course, tutor, group classes, etc.
Booking	Service provides APIs to execute all use-cases related to one-one meeting, zoom-us components.
Payment	Service provides APIs to execute all use-cases related to payment such as Stripe payment, payment history.
Payout	Service provides APIs to execute all use-cases related to payout requests.
Media	Service provides APIs to execute all use-cases related to files such asupload, convert file to mp4, resize image, etc.

Technologies

➤ Technologies are used to develop Pinlearn is as follows -

Backend

➤ Language / framework: Javascript (NodeJS)

➤ Data storages: MongoDB, Redis

➤ Queue: Redis

➤ Cache: Redis

➤ Websocket: Socket.io

Frontend

➤ Architecture: Single Page Application

➤ Language / framework: Angular 10.x

➤ CSS framework: Bootstrap

Third Party Service for Meeting

➤ Zoom US Platform

Service Architecture

Pinlearn architecture style is applied for services that have simple domain logic and mainly focus on serving data querying for specific views and users. The image below illustrates all main components in the service architecture and the collaboration among them -
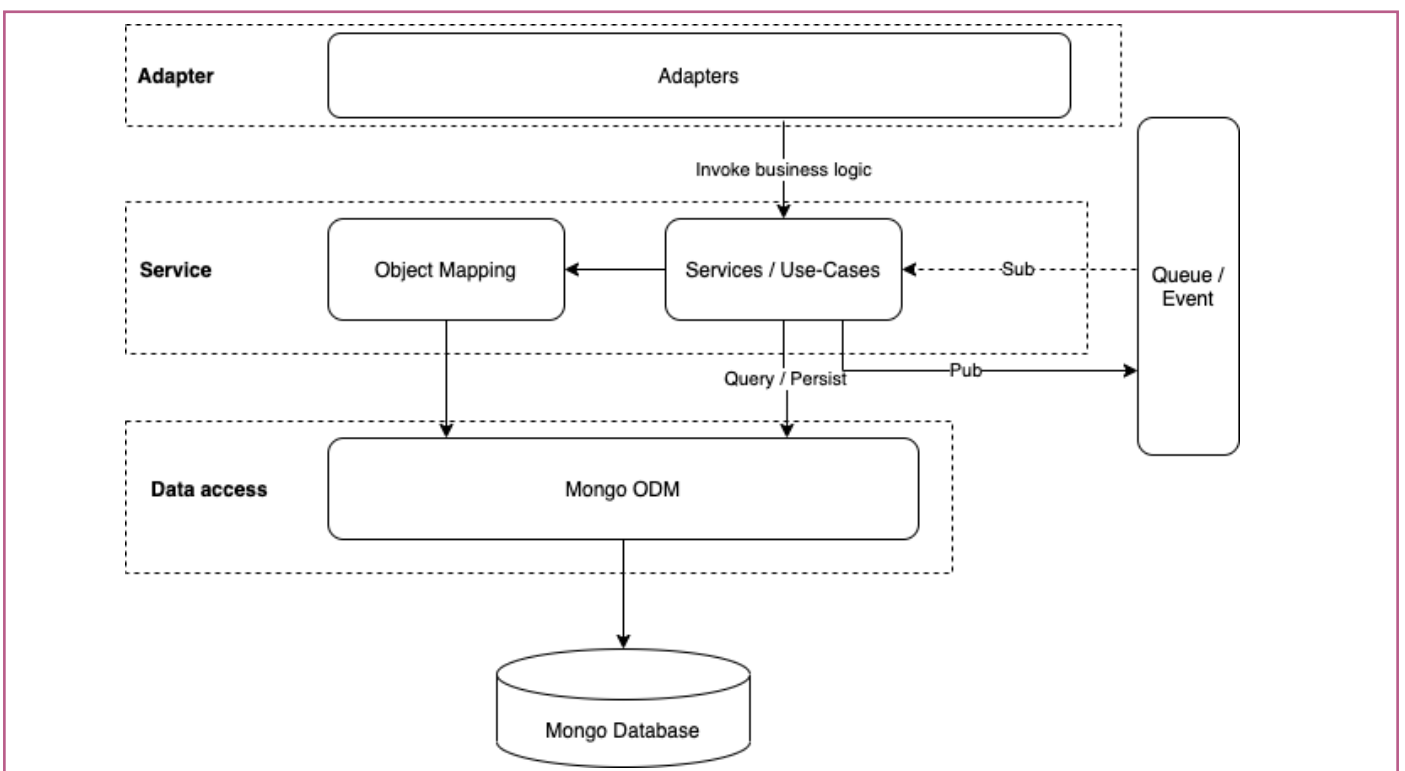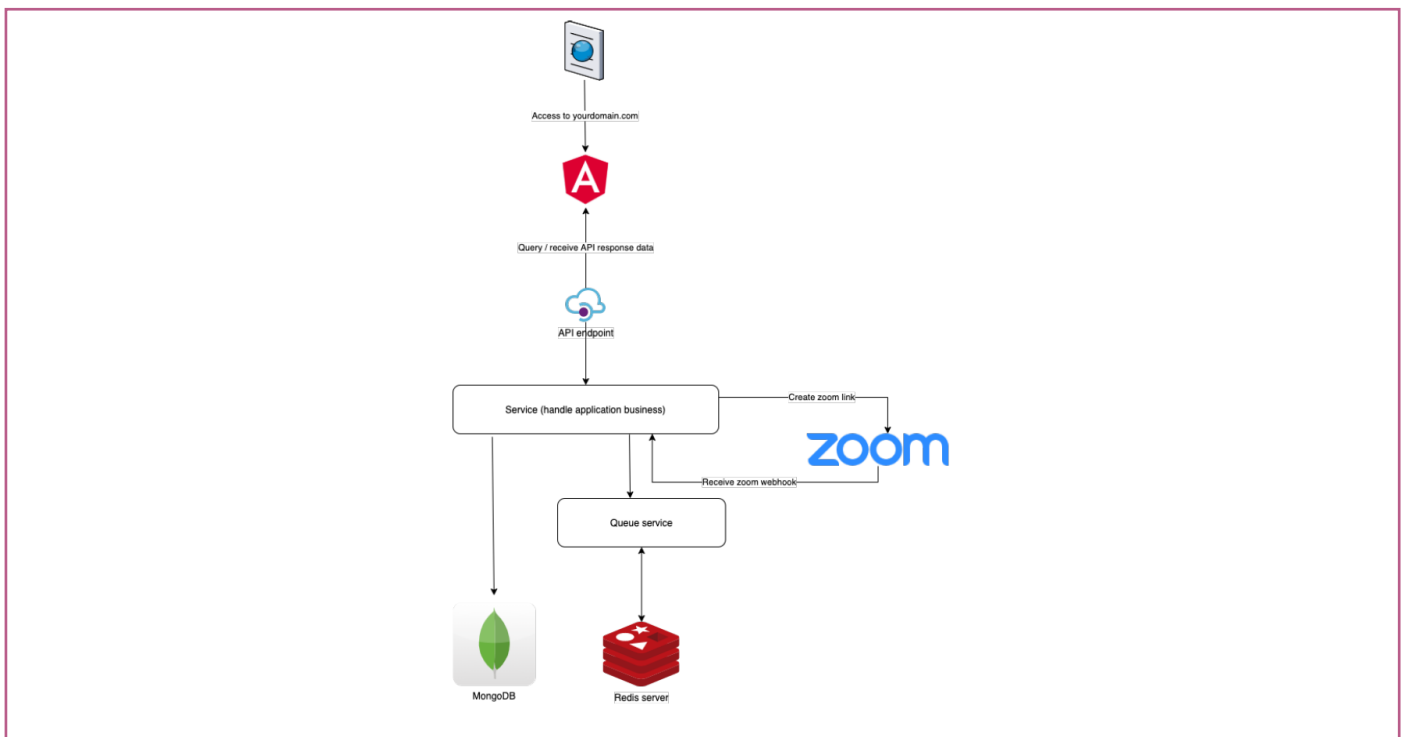
Figure: Pinlearn Service Architecture

Components	Description
Adapters	API Layer is responsible for exposing all APIs to the outside world via protocols such as REST, gRPC, or GraphQL. This layer handles back compatibilities with frontend applications.
Object Mapping	Transfer Data Object models between DB and views
Event publisher	Event Publisher is responsible for publishing event, message arose from use-cases execution
Mongo ODM	Provides a straight-forward, schema-based solution to model application data using Mongoose plugin.

Secure Data

➤ Password

  ➤ PBKDF2 method (Password-Based Key Derivation Function 2) with salt is generated randomly for each user.

  ➤ Secret key might be provided from process environment

➤ Files

  ➤ Pinlearn uses nginx_http_auth_module to verify request access to protected files and allow/prevent access.
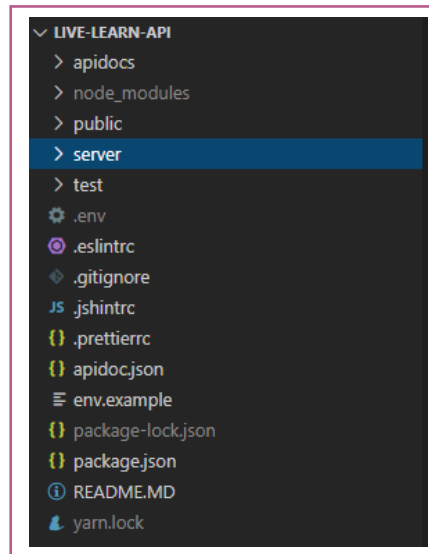
Pinlearn High-Level Architecture

Core API Structure
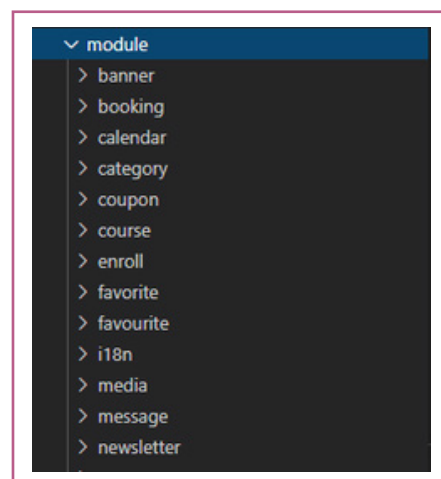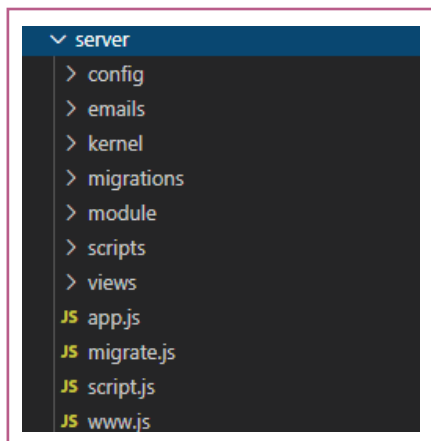
Setup and Test Project Locally

API

Application Structure

```
∨ LIVE-LEARN-API
  > apidocs
  > node_modules
  > public
  > server
  > test
  ⚙ .env
  ◉ .eslintrc
  ◈ .gitignore
  JS .jshintrc
  {} .prettierrc
  {} apidoc.json
  ≡ env.example
  {} package-lock.json
  {} package.json
  ① README.MD
  ⬦ yarn.lock
```

Under the project folder you can find the following:

➤ APIdocs folder: Define API docs

➤ Public folder: All files in this folder are served directly by just appending the path to the root

➤ Server folder: This folder includes some folders

➤ Config folder: config roles for project

➤ Emails folder: email service modules and email template.

➤ Kernel folder: config connection to mongodb

➤ Migrations folder: stores default values

➤ Module folder: contains all modules of application. All modules will be loaded in app.js which includes application configuration and initialization.

```
∨ server
  > config
  > emails
  > kernel
  > migrations
  > module
  > scripts
  > views
  JS app.js
  JS migrate.js
  JS script.js
  JS www.js
```

```
∨ module
  > banner
  > booking
  > calendar
  > category
  > coupon
  > course
  > enroll
  > favorite
  > favourite
  > i18n
  > media
  > message
  > newsletter
```

Each module includes controllers folder, models folder, services folder and index.js file.
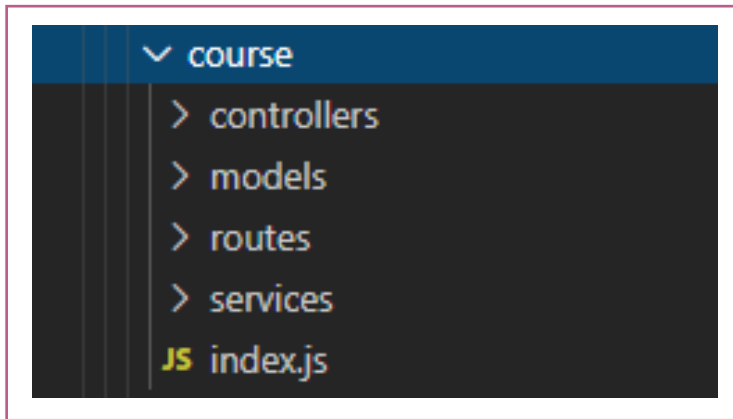

- ➤ Controllers folder: Controllers for all routes (routes are defined in folder routers)
- ➤ Models folder: Models for all objects used by the application
- ➤ Routers folder: Config routers of controllers
- ➤ Service folder: Services for controllers
- ➤ Index.js: Exports models, services and routers
- ➤ .env: Environment configuration
- ➤ Package.json: Project configuration
- ➤ README.MD file: Contains project information. Can be read before set up and test
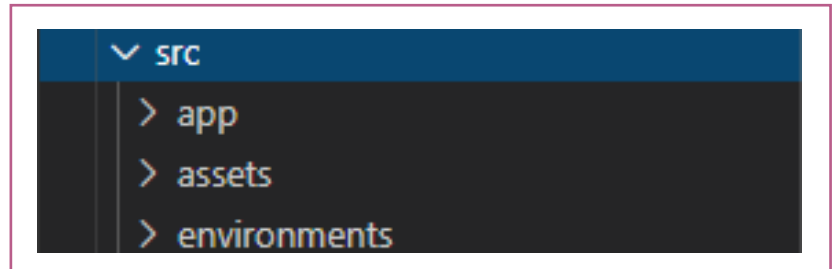
Client Set-Up and Access
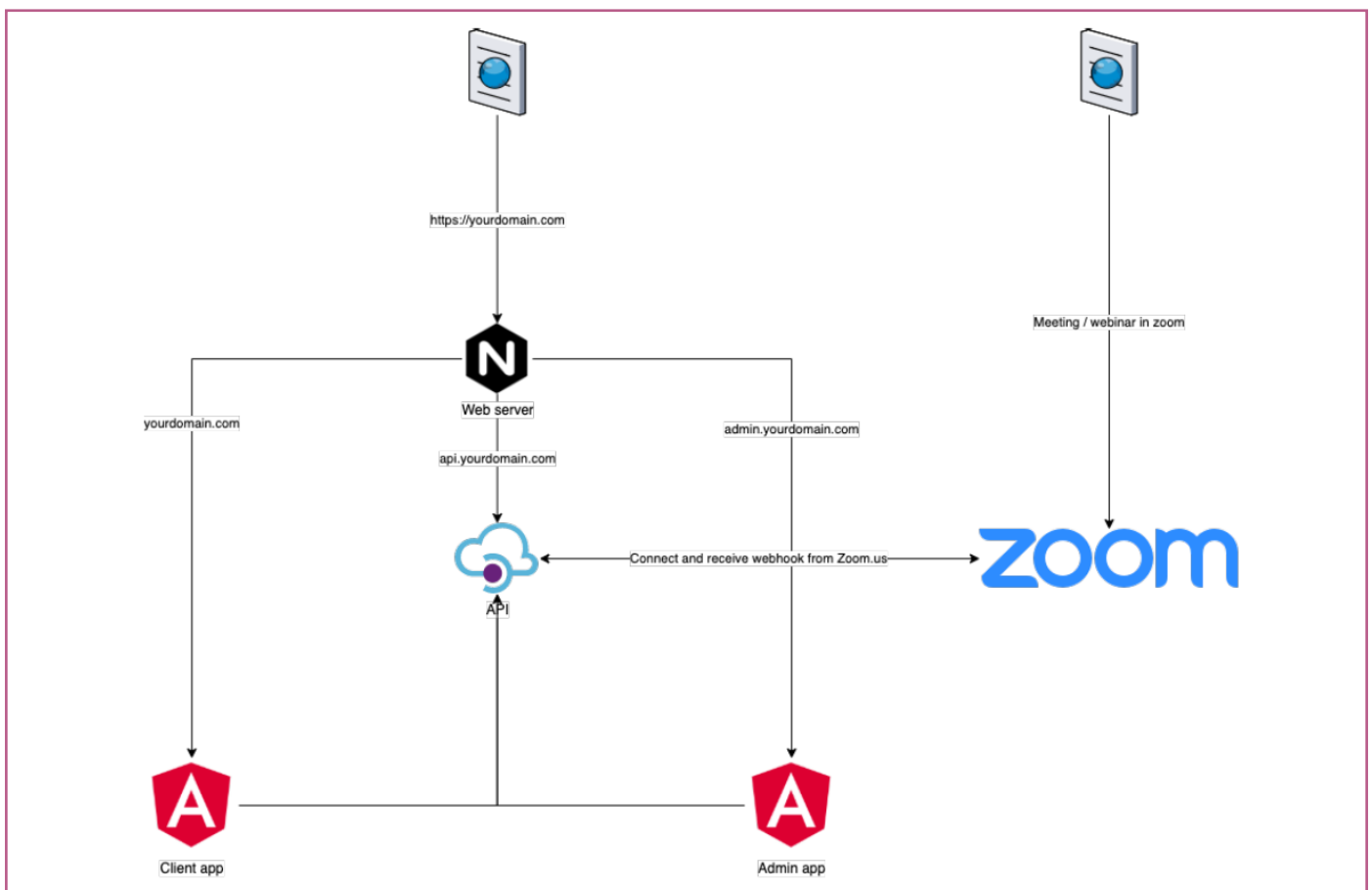
Front End Setup

Application Structure
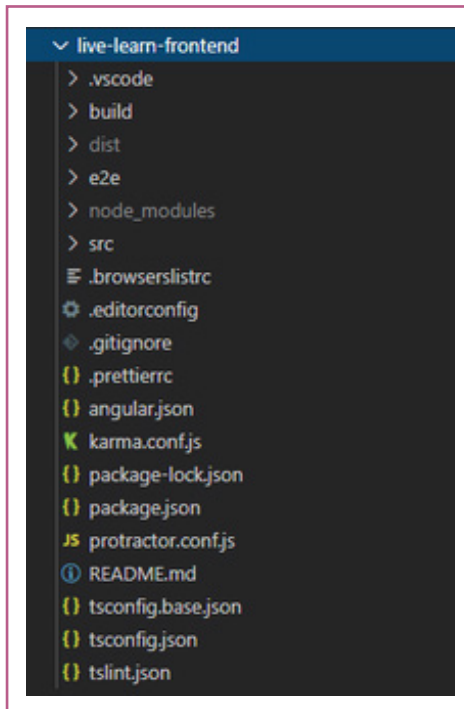
Under the project folder you can find the following:

➤ src

➤ app: Define all modules and routes of application. You can find some folders or file: components: Components are the main building block for Angular applications. Each component consists of:

  ➤ An HTML template that declares what renders on the page
  ➤ A Typescript class that defines behavior

➤ services folder: Calls back end api

➤ .module.ts file: Contain components, service providers, and other code files whose scope is defined by the containing

➤ module: All modules will be loaded in app-routing.module.ts file, this is the root module of the application.

➤ .routing.ts file: Enables navigation by interpreting a browser URL as an instruction to change the view.

➤ app.module.ts: Root module of application

➤ assets folder: contains static files as i18n, images, js, scss
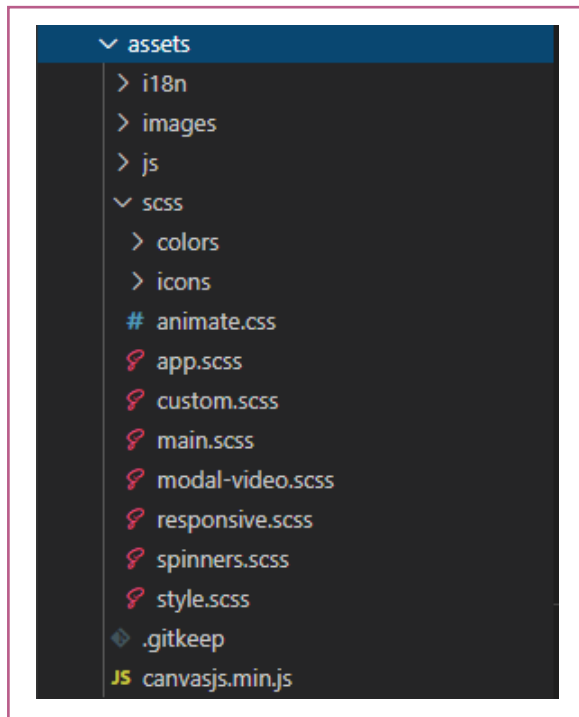
➤ environments: Environment configuration

Server Requirements

Pinlearn supports all platforms: Windows, MacOS, Linux. Pinlearn needs a VPS server with at least following specifications -

➤ 2GB of RAM - recommend 4GB

➤ 40GB of HDD

➤ 1 CPU core - we recommend 2 cores at least

  ➤ 3 Domains / Subdomains

  ➤ API.[your-domain] and point to server IP address

  ➤ Admin.[your-domain] and point to server IP address

  ➤ [your-domain] and point to server IP address

Software Requirements

Pinlearn architecture needs the following software specification -

➤ NodeJS >= v10

  ➤ We build api with NodeJS. NodeJS is an open source, cross-platform runtime environment for developing server-side and networking applications.

  ➤ To install please download NodeJS here -

  https://nodejs.org/en/download.

- MongoDB >= v3.6
  - All data is stored in a MongoDB database. MongoDB is a document database, which means it stores data in JSON-like documents. We believe this is the most natural way to think about data, and is much more expressive and powerful than the traditional row/column model.
  - To install please download mongoDB - https://docs.mongodb.com/manual/installation.

- Redis server >= v2.8
  - Redis is an open source (BSD licensed), in-memory data structure store, used as a database, cache, and message broker. Redis provides data structures such as strings, hashes, lists, sets, sorted sets with range queries, bitmaps, hyperloglogs, geospatial indexes, and streams. Redis has built-in replication, Lua scripting, LRU eviction, transactions, and different levels of on-disk persistence, and provides high availability via Redis Sentinel and automatic partitioning with Redis Cluster.
  - To install please download and setup Redis - https://redis.io/download

- GraphicsMagick
  - GraphicsMagick provides a comprehensive collection of utilities, programming interfaces, and GUIs, to support file format conversion, image processing, and 2D vector rendering.
  - To install, please download GraphicsMagick - http://www.graphicsmagick.org/download.html

- FFMPEG
  - FFMPEG is a complete, cross-platform solution to record, convert and stream audio and video.
  - To install please download FFMPEG - https://ffmpeg.org/download.html

- Nginx

  - Nginx is open source software for web serving, reverse proxying, caching, load balancing, media streaming, and more. It started out as a web server designed for maximum performance and stability.

    In addition to its HTTP server capabilities, NGINX can also function as a proxy server for email (IMAP, POP3, and SMTP) and a reverse proxy and load balancer for HTTP, TCP, and UDP servers.

    - To install please download Nginx -
      http://nginx.org/en/docs/install.html

- PM2

  - PM2 is a daemon process manager that will help you manage and keep your application online 24/7.

  - PM2 is a daemon process manager that will help you manage and keep your application online 24/7.

    - To install please visit the link for PM2 -
      https://pm2.keymetrics.io/docs/usage/pm2-doc-single-page

Free Installation!

Pinlearn brings free installation service for which we may require the following:

- Domain name
- Positive Wildcard SSL that supports all sub-domains.
- Unmanaged VPS Server

  - Our server recommendation includes Digital Ocean, Amazon AWS EC2, Linode.com

- Sendgrid account
- Zoom PRO account
- Stripe / Paypal API keys

Pinlearn 3rd Party Services

➤ Mailing

Pinlearn Mailing now supports both Sendgrid and Sparkspot as mailing services provided by 3rd parties. Both have their pros and cons and that's why we have integrated them both to provide according to client requirements.

SparkPost delivers unmatched uptime and resilience, backed by SLAs. It also covers web app UI, data feeds, webhooks, and even business continuity.

On the other hand, Sendgrid offers incredible email analytics, 24/7 live support, easy integration with a dead simple API, and their reputation for having good deliverability rates.

➤ Stripe

Pinlearn comes with the ability to accept payment for courses by leveraging PayPal or Stripe. Using this add-on, you can quickly and easily accept payments using the Stripe payment gateway. After successful payment the customer receives a user account and is auto-enrolled into the course. You may activate both Paypal and Stripe to allow your customers to choose how they want to pay.

➤ Zoom US

Pinlearn integrates Zoom Meeting to make the most of its advanced video conferencing capabilities. We have utilized Zoom SDKs along with a subset of features that are available in the Zoom Client app. Zoom SDKs offer video-conferencing features that mirror the meeting experience in the Zoom Client and are compatible with various languages, platforms, and frameworks.

Zoom's Basic license gives you unlimited time for one-on-one meetings, but group meetings are limited to 40 minutes. With a Zoom Pro license, you can host unlimited group meetings with up to 100 people and can collaborate as long as you need, without worrying about time limits or having to start another meeting.

By default, the application comes with Zoom API integrated. But if you're looking to integrate any other third-party providers like BigBlueButton or Jitsi – we can customize at an additional cost.

Answers to Frequently Asked Questions

General

1. Is Pinlearn a Wordpress Theme or Plugin?

Answer: It's neither a Wordpress theme nor a plugin. It's not compatible with WordPress. It's a business-ready turnkey application that lets you set up and run an Edutech startup in the lines of Outschool, Varsity tutors, Takelessons, Verbling, etc. Pinlearn is a Self-hosted eLearning live tutoring software with interactive live video classes and courses.

2. Can it be integrated with Wix or any third party companies?

Answer: Pinlearn cannot be integrated with Wix or any other third party website builder.

3. Is there any limitation on the number of tutors, students, sessions, classes or courses etc?

Answer: There is no limitation on the software for creating group classes sessions. In case a session crosses the given time limit, students will not be charged extra. Students can enroll till 30 minutes before the class starts. If your tutor needs to make a group classes class, she needs to have a zoom PRO account if more than two students attend the group classes. It's a limitation on the Zoom, not with our software.

4. Will I get an open source code for the price with full IP rights?

Answer: Yes, you will get 100% unencrypted open source-code along with your purchase. You will get Full IP rights and ownership of the source code.

5. Do you have any hidden charges apart from the one-off payment?

Answer: We offer our script at a simple one-time purchase model (no recurring fee at all). Our script can be self-hosted a web server of your choice. We will be helping you with your installation and setup on the web-hosting server. Pinlearn will provide a 100% unencrypted source-code along with your purchase.

6. Does it support RTL Arabic language?

Answer: Pinlearn comes with a sophisticated Multi-language feature. You can add any language in the world and translate the whole platform into the preferred language. Students and tutors can choose the language they prefer to access the platform.

7. Can I customize the source code by myself?

Answer: When you purchase Pinlearn, you become the owner of the source code. So, you are free to modify & customize it as you like.

8. Can I hire your developers to customize my website?

Answer: Yes, we do offer custom development services. You shall reach out to us to know our prices on custom software development.

9. What skills should I look for in hiring a developer to customize Pinlearn?

Answer: Pinlearn a business-ready application that is custom built on MEAN stack technology. For live video sessions, it uses Zoom API. For payment gateway, it uses Stripe. While hiring a developer, you shall keep this technology stack in mind.

10. What is your development charge?

Answer: Our standard hourly development charges start from $25 per hour. If your project requires more than 400 hours of work, we are open to negotiation. You can also hire our developer resource (full-stack engineer) at a fixed monthly cost of USD 3000.

Project Management

Two of the following tools were utilized for Project Management -

1. Jira

Using Jira for our agile project management solution, it allowed us to track tasks using the Kanban method. It's structure forced our teams to work on one ticket at a time, because pushing a ticket from "Backlog" or "In Progress" to "Done" is the metric of progress.

2. Trello

Trello was used to follow our production workflow and management of development schedules. It's dedicated board will show you what needs to be done, the status of all tasks, and where potential bottlenecks are. The option of Trello recurring tasks made it a tool capable of managing workflows across industries and sectors.

Source Code Management

To manage source code, Pinlearn used the following tools -

1. Github

Github being a free and open source distributed version control system allowed us to develop Pinlearn with speed and efficiency. During the development we used Git features like cheap local branching, convenient staging areas, and multiple workflows.

2. Bitbucket

In case of code review, some of our development tasks utilized Bitbucket to review and approve code efficiently with pull requests. We created a merge checklist with designated approvers and hold discussions right in the source code with inline comments. We also used Bitbucket Pipelines with Deployments which let us build, test and deploy with integrated CI/CD benefitting from configuration as code and fast feedback loops.

Pinlearn

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