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TECHNOLOGY, RESEARCH, SOCIAL INNOVATION & PARTNERSHIPS

School of Computer Science and Engineering

Department of Computer Engineering and Technology

Third Year B. Tech. CSE (Cybersecurity and Forensics)

CSF3PM01A : Full Stack Development

Mini project Report

Project Title: Dripstream OTT Platform

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1. Abstract :

This mini project presents *DripStream*, a full-stack OTT subscription platform that simulates real-world payment workflows, email automation, and admin monitoring. The system integrates PayPal Sandbox for secure payment simulation, Nodemailer for transactional email delivery, and MongoDB for subscription tracking. Users can subscribe to plans, receive confirmation emails, and view movie posters with metadata. Admins can monitor subscriptions in real time via a responsive dashboard. The project demonstrates modular architecture, secure backend flows, and a cinematic frontend experience. Key findings include successful integration of payment and email systems, robust data logging, and scalable UI components.

DripStream leverages **PayPal Sandbox** to enable secure and seamless payment simulations, ensuring users can subscribe to various plans with authentic transactional flow. **Nodemailer** is employed to handle automated email delivery for subscription confirmations, payment receipts, and user notifications, enhancing the overall user experience through prompt and reliable communication. **MongoDB** serves as the central database for managing user data, subscription records, and activity logs, ensuring efficient data storage and retrieval.

From a user perspective, the platform provides a cinematic frontend experience where subscribers can explore and view **movie posters, metadata, and plan details** through an interactive and responsive interface. On the administrative side, a **real-time dashboard** enables system monitoring, subscription tracking, and management of user activities, ensuring transparency and control over the entire workflow.

The project demonstrates **modular system architecture, secure backend integration, and a scalable UI design**, reflecting industry practices in web-based subscription platforms. Key outcomes include successful integration of payment and email systems, robust data logging, enhanced security handling, and smooth synchronization between client and server components. Overall, DripStream showcases the implementation of a modern, data-driven OTT subscription system that combines technology, usability, and security in a single, cohesive solution.

2. Introduction:

Background and Motivation

OTT platforms have transformed digital entertainment, offering subscription-based access to movies and series. Managing subscriptions securely and efficiently is vital for user satisfaction and business operations. This project aims to simulate a real-world OTT subscription system using modern web technologies.

Problem Statement

Existing academic projects often lack real payment simulation, automated communication, and admin visibility. This project addresses these gaps by integrating payment, email, and dashboard functionalities.

3. Objectives

- Implement PayPal-based subscription flow
- Automate email notifications for users and admins
- Log subscriptions with validity tracking
- Display movie posters and metadata
- Provide a real-time admin dashboard

4. Scope and Limitations

Scope:

- Payment simulation using PayPal Sandbox
- Email automation via Nodemailer
- MongoDB-based subscription logging
- Admin dashboard and poster viewing

Limitations:

- No live payment credentials
- Limited user authentication
- No analytics or expiry alerts

5. Literature Review:

- Commercial OTT Platforms**

Netflix, Amazon Prime Video, and Disney+ Hotstar use proprietary subscription engines integrated with billing, analytics, and personalization. These systems support multi-tiered pricing, regional licensing, and fraud detection but are closed-source and inaccessible for prototyping.

- Open-Source Alternatives**

Ghost CMS and Strapi offer basic subscription models focused on content gating. They support Stripe or PayPal but lack real-time dashboards, dynamic metadata, and flexible subscription tracking.

- PayPal Sandbox**

PayPal Sandbox enables secure testing of payment flows with simulated checkout, approval, and redirect URLs. It supports parameterized metadata and is ideal for academic and prototype environments.

- Nodemailer**

Nodemailer is a Node.js library for sending transactional emails. It supports SMTP, OAuth2, HTML templating, and multiple recipients. It's widely used for password resets, confirmations, and alerts.

- MongoDB**

MongoDB is a document-based NoSQL database that supports dynamic schemas. It allows flexible storage of subscription data, easy querying, and scalable backend integration.

6. Methodology:

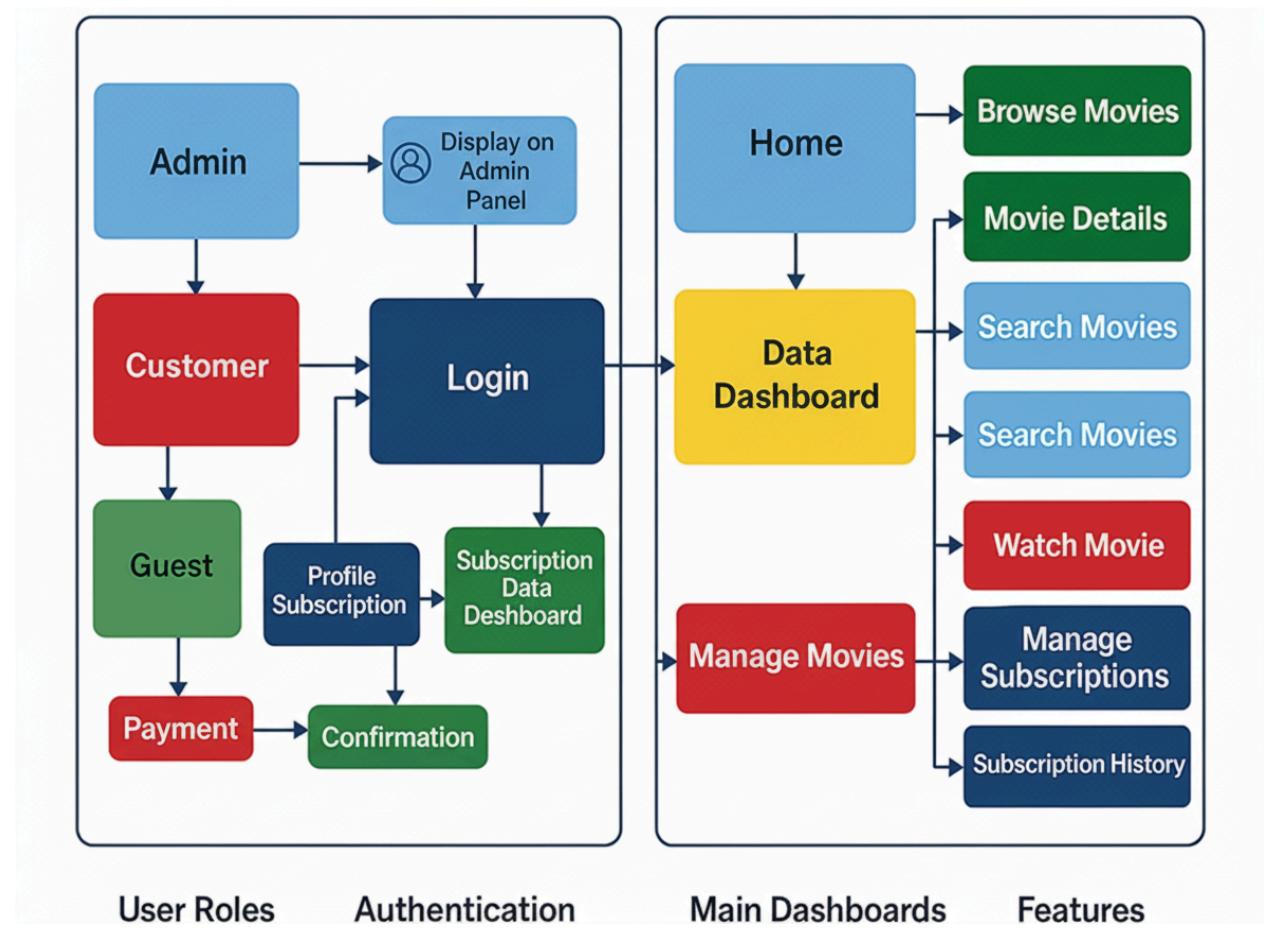
The project follows a modular architecture with separate routes for authentication, movies, PayPal, and subscriptions. Static files are served for frontend dashboards, and session-based access controls protect admin routes.

Software Model Used: Agile Software Model

Technologies Used

- **Frontend:** HTML, CSS, JavaScript
- **Backend:** Node.js, Express
- **Database:** MongoDB
- **Email:** Nodemailer with Gmail App Password
- **Payment:** PayPal Sandbox

Architecture:



7. Results and Discussion:

Outcomes

- User can see movie poster info and check latest movie
- PayPal payment flow completes successfully
- Emails sent to users and admins
- Subscriptions logged in MongoDB
- Admin dashboard displays real-time data

Successes

- Seamless integration of PayPal and Nodemailer
- Clean UI for admin monitoring
- Secure backend with validation and error handling
- Achieved **real-time admin monitoring** of subscription activities through dynamic dashboard updates.
- Effective **data management** and **logging mechanisms** in MongoDB for accurate record keeping.

Challenges

- Ensuring query parameters persist across redirects
- Debugging empty MongoDB entries
- Integrating PayPal for Payment
- Handling **asynchronous functions** to ensure email notifications and database writes occur in the correct order.
- Designing **secure backend flows** to prevent data leakage and maintain transactional integrity.

The system meets its core objectives and simulates a real-world OTT subscription engine. Admins can monitor users, and users receive confirmation instantly. Poster viewing adds a cinematic touch to the platform. The inclusion of poster viewing and movie metadata adds a cinematic and engaging user experience. The project demonstrates a **scalable, modular, and secure architecture**, suitable for future expansion into a production-level OTT platform.

8. Conclusion:

DripStream successfully demonstrates a secure, modular OTT subscription platform with real-time admin visibility and automated email workflows. It integrates payment, email, and database systems in a full-stack web application.

Future Work

- Add live PayPal credentials for production
- Integrate analytics and subscription expiry alerts

9. References:

PayPal Developer Docs: <https://developer.paypal.com/docs>

Nodemailer Docs: <https://nodemailer.com/about/>

MongoDB Manual: <https://www.mongodb.com/docs/manual/>

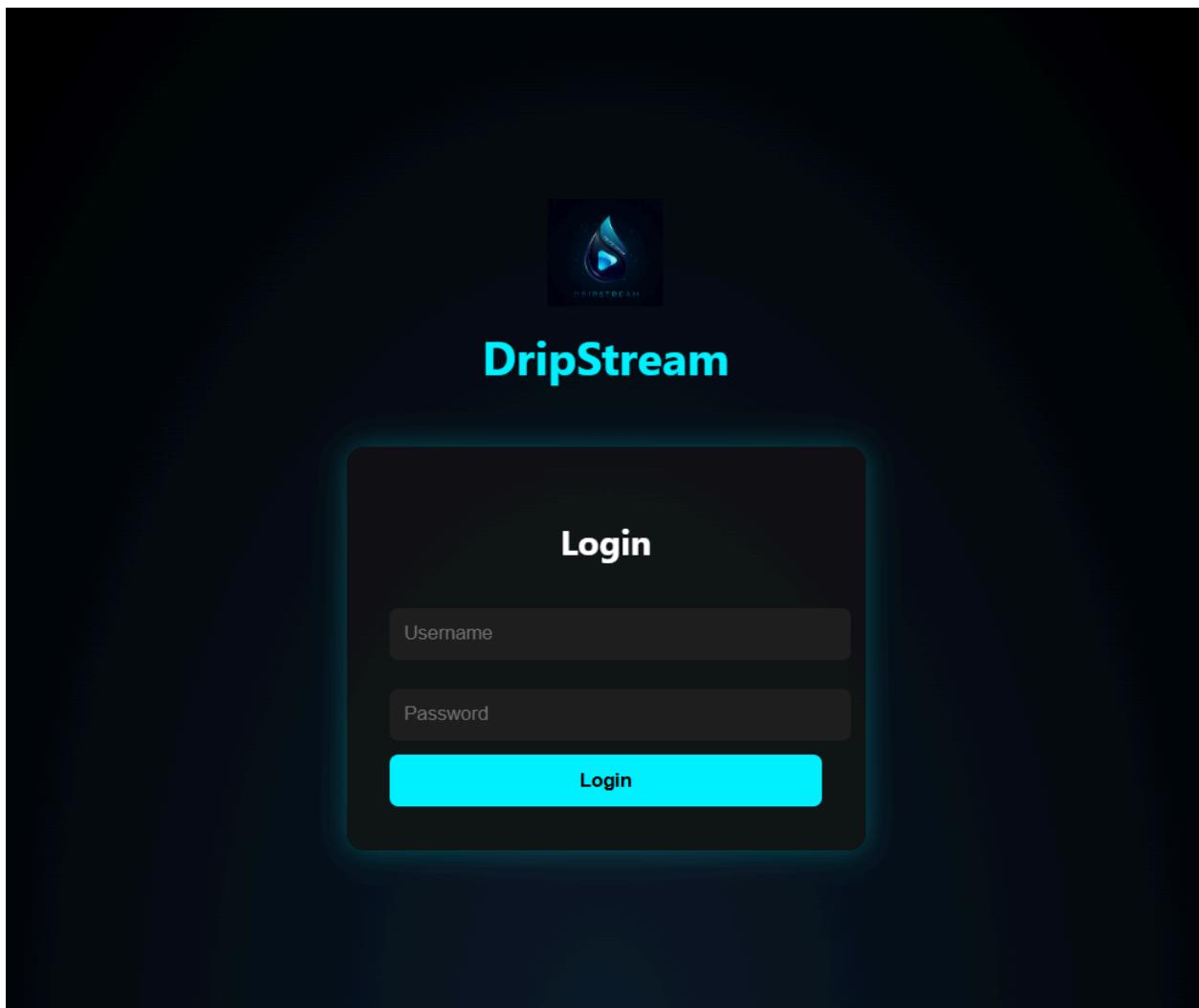
Express.js Guide: <https://expressjs.com/en/guide/routing.html>

10. Appendices:

User Manual

1. Visit [/dashboard](#) to browse posters
2. Click a poster to view details
3. Choose a subscription plan
4. Complete payment via PayPal
5. Receive confirmation email
6. Admin can view subscriptions at [/admin](#)

Screenshots:



Drip Stream

Home Movies TV Shows My Stuff Subscription

Welcome, customer1!

Trending Now

Challengers

Child's Play 3

Drunken Master

F9

Kingsman: The Secret Service

Kungfu Hustle

Moonlight

Murder Mubarak

Oppenheimer

Snake in the Eagle's Shadow

Solaris

Spider-Man: Homecoming

Drip Stream

Home Movies TV Shows My Stuff Subscription

Movies

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Drip Stream

Home Movies TV Shows My Stuff Subscription

TV Shows

 Drip Stream

Home Movies TV Shows My Stuff Subscription

Logout

My Stuff

Your saved or favourite shows appear here.



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 Drip Stream

Home Movies TV Shows My Stuff Subscription

Logout

A Plan for Every Fan

Enter your email

Mobile	Basic	Standard	Premium
₹149/month	₹199/month	₹499/month	₹649/month
Video Quality: Fair Resolution: 480p Devices: Mobile only Screens: 1 Downloads: 1 device	Video Quality: Good Resolution: 720p Devices: TV, Computer, Mobile, Tablet Screens: 1 Downloads: 1 device	Video Quality: Better Resolution: 1080p Devices: TV, Computer, Mobile, Tablet Screens: 2 Downloads: 2 devices	Video Quality: Best Resolution: 4K + HDR Devices: TV, Computer, Mobile, Tablet Screens: 4 Downloads: 4 devices
Choose Mobile	Choose Basic	Choose Standard	Choose Premium

PayPal

With a PayPal account, you're eligible for Buyer Protection and Rewards.

Email or mobile number

Password

[Forgot password?](#)

Log In

or

[Pay with Credit or Debit Card](#)

[Cancel and return to Drip Stream](#)

JD

PayPal

\$ 149.00

Deliver to John Doe

Change

Flat no. 507 Wing A Raheja Residency, Film City Road, Goregaon
East, Mumbai, Maharashtra, 400097

Pay with



Visa

Credit ****6369

₹ 13,513.04



Make this my preferred way to pay

PayPal's conversion rate: 1 INR = 0.01103 USD

[See currency options](#)

+ Link debit or credit card

Complete Purchase

PayPal Services in India are provided by PayPal Payments Private Limited (CIN U74990MH2009PTC194653). Users are advised to read the [Terms and Conditions](#) carefully.

[Cancel and return to Drip Stream](#)

User Subscriptions

Email	Plan	Amount	Start Date	End Date
zilvia.gruver@mailmagnet.co	mobile	₹149.00	27/10/2025	26/11/2025



Drip Stream Subscription Confirmed



stavan5281@gmail.com

You subscribed to mobile plan.

Amount Paid: ₹149.00

Validity: 30 days