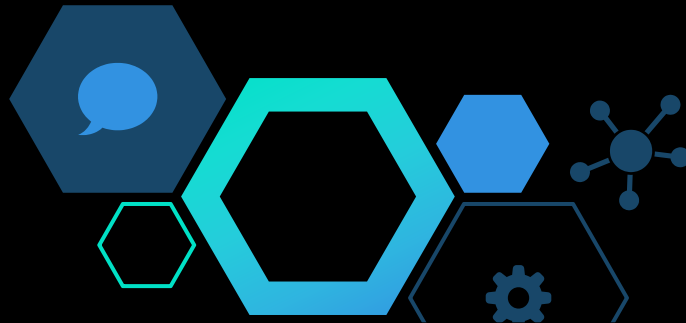# VdoFlix

Watching videos of your genre

Name: Pranav Raut

Student id: 10412854 / B00979654

Tutor/Supervisor: Alan Vallavaraj

Presentation Contents

Discussion of Problem:

- Vdoflix is video library like netflix where user can view videos, tv shows, web series, all regional contents.

- Vdoflix is CMS(Content Managment System) application developed on wordpress.

- Netflix uses its own technology stack to develop frontend with respect to react js, we can use CMS system to develop netflix in reduced efforts with great plugins and themes.

- Maintainability is easy with CMS and also we can follow cloud native architecture.

- Relatively low coupling and high coherance of features may reduce maintainability cost and increase flexibility for future developments using wordpress.

- Managing security perspectives by integrating into cloud service like Azure.

Issues with scalability

- Hosting websites with resource allocations
- Creation of HTML/CSS pages using code and embedding videos so for which we are using wordpress as content management system(CMS).
- Creation of CDN for websites and deploy/host on cloud
- Cost for database server to host website app database needed and resource allocation
- Video upload for website and embedding payment memberships separately
- Infrastructure setup with all resources.
- Time taken by static webpage designing and coding.
- Website traffic handling and spikes.

Technical Solution Developed

- Developing VdoFlix with wordpress CMS website building tool to design frontend.

- Deployed wordpress on Azure web app service which will host the website on azure cloud providing best latency and architecture.

- Developed mysql as database server integrated in azure which will maintain all the tables required to design and develop a wordpress application.

- Offloaded static content like images,videos, CSS files from php server, this optimizes the website's performance and reduce server load.

- Installing and creating a wordpress website on azure and allocating a app service name embeded as hosted website URL.

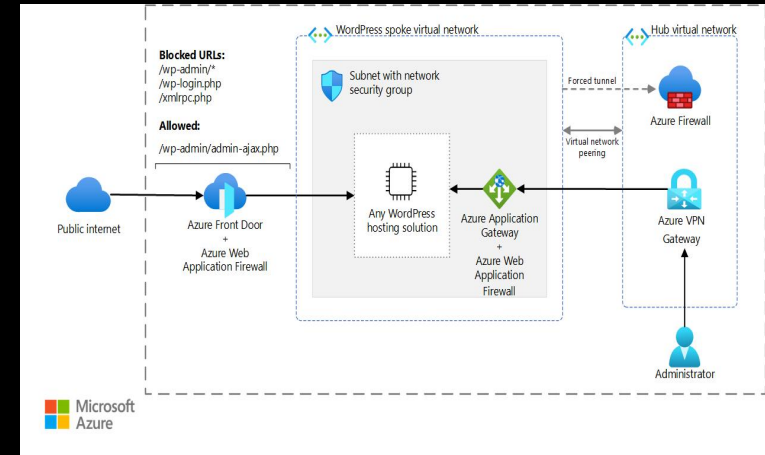- Use of multiple plugins to add videos, images, buttons, colors, fonts.

Figure 1. Wordpress + Azure Architecture

Source:(Microsoft, 2024)

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Mysql PHP Admin

- Use of Mysql PHP admin is database server on which mysql database is deployed and accessed by wordpress website to store the data required by wp-admin to edit the website.
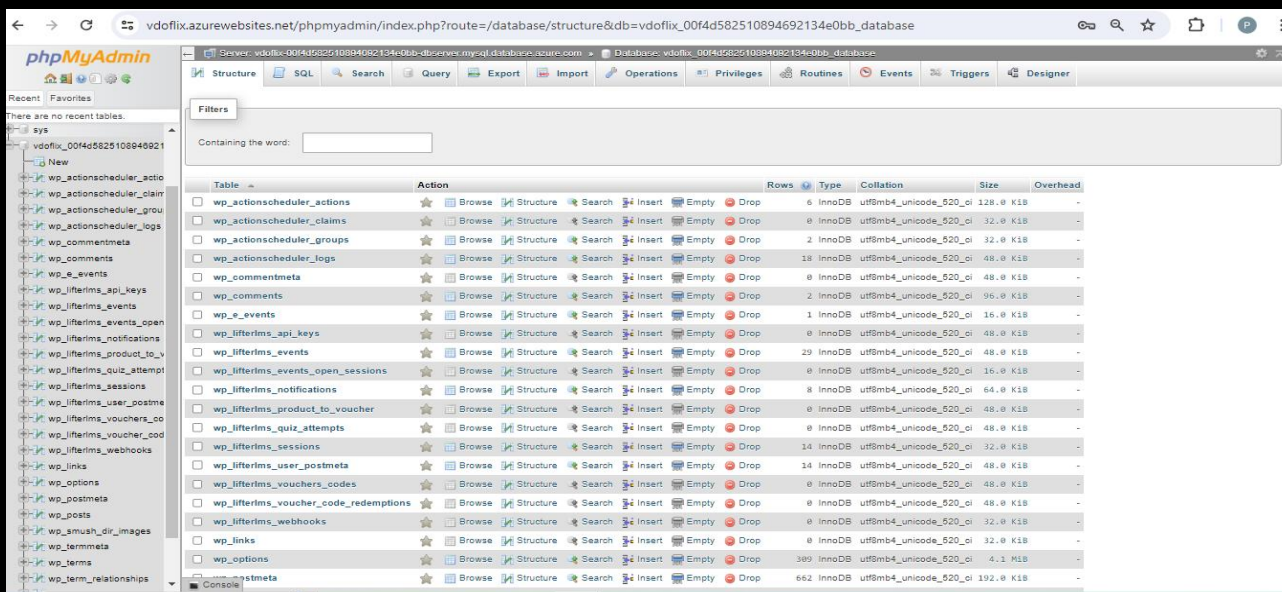
- Figure 2 shows php admin console.

Figure 2. Php Admin Mysql Console

Wordpress Admin Dashboard:

- Wordpress admin dashboard to customize the themes like fonts,colors, videos,images.

- Add new plugins to edit website pages, create menus, widgets, user module, edit memberships.

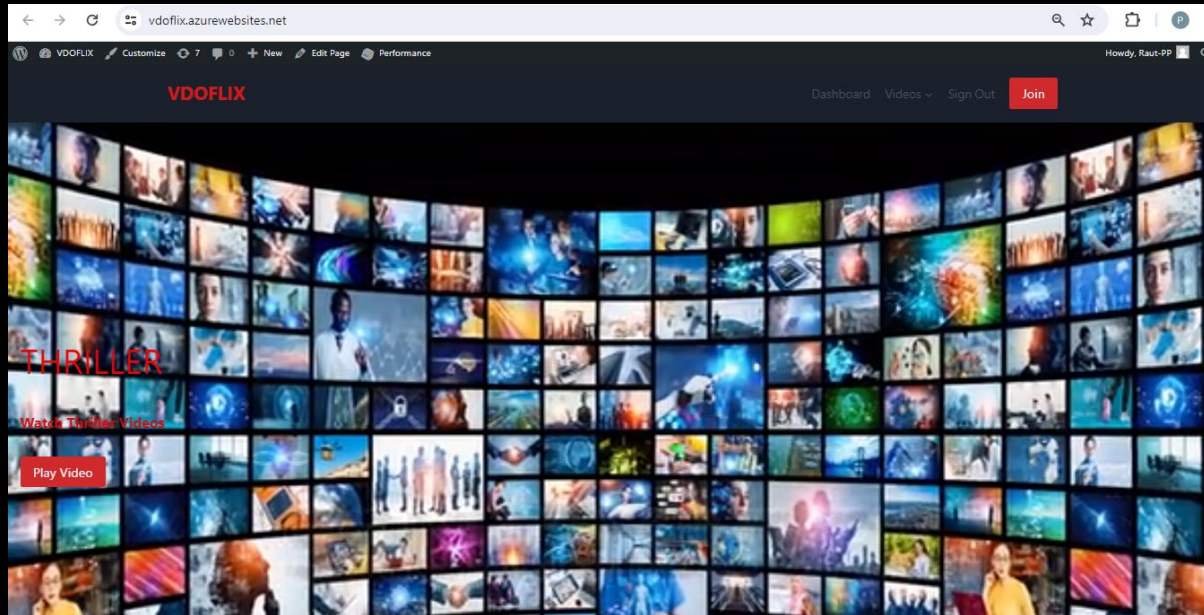- Figure 3 represents wordpress admin page for Vdoflix.

Figure 3. Dashboard

Pages & Users

- Created multiple pages and linked with each other for smooth transition.

- Pages like vdoflix(main page), dashboard, videos catalogue, membership catalogue from plugin. Figure 4 shows pages on dashboard.

- User module allows users to be added as per their roles like subscriber, author, admin.

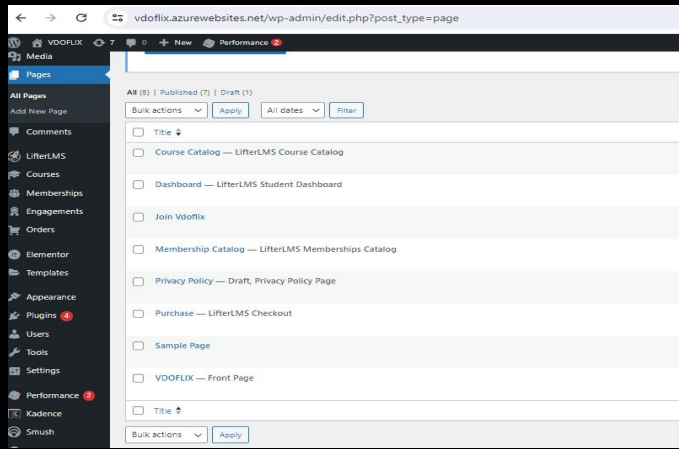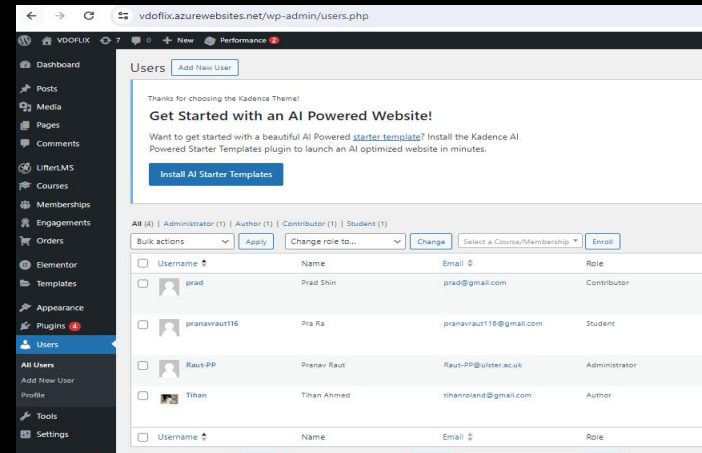- Figure 5 shows list of users added in vdoflix.

Figure 4. Pages

Figure 5. Users

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Video Catalogue & Memberships

- Different video catalogues like thriller, comedy, romance, horror, tv show and displayed them in popular, trending, recently added categories as shown in figure 6.

- Each catalogue can be viewed as per enrollment for membership and can be liked and comments can be added.

- Membership page shows membership added for enrollment for the videos based on the categories as shown in figure 7.
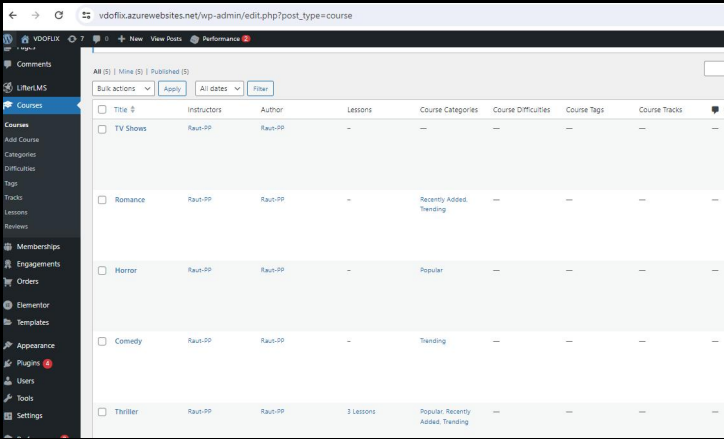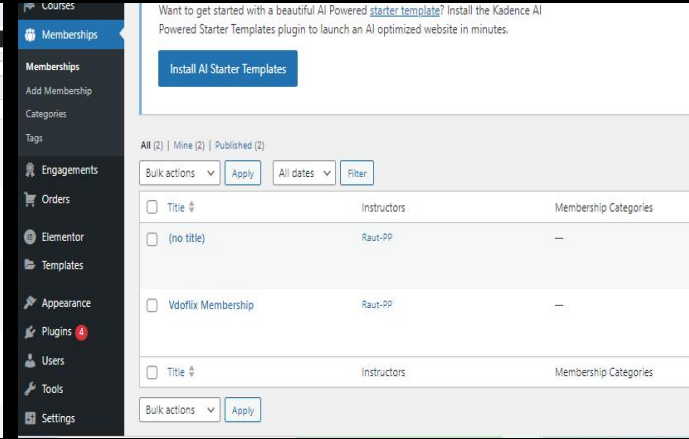

Figure 6. Video Catalogues

Figure 7. Membership

Advanced Features:

- Deployed wordpress on azure web app service with mysql database.

- Update mysql database from php admin panel.

- User management module

- Popular, trending, recently added sections with new video contents.

- Membership module to enroll for videos either for whole library or single video as well as mentioned in figure 8.

- Add comments on each video

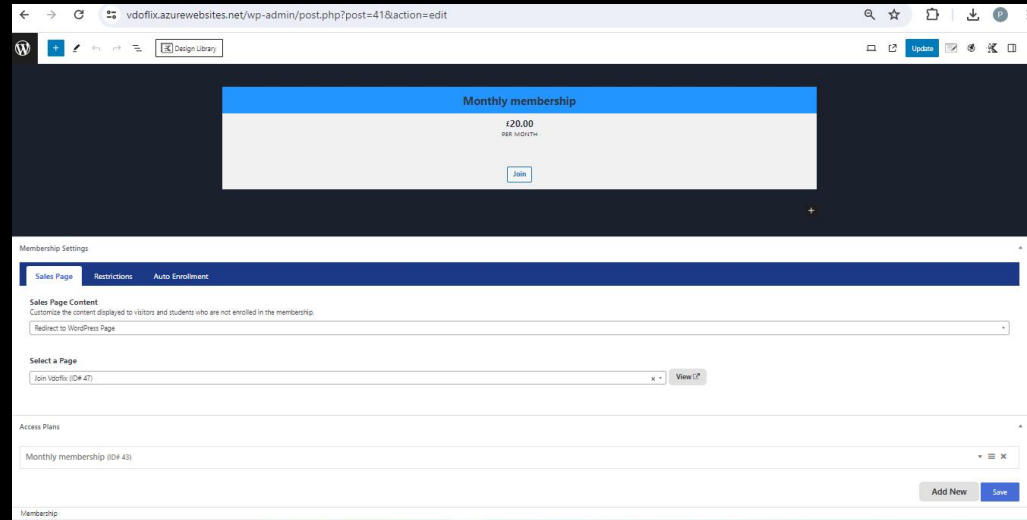- Edit memberships and enroll users as per demand.

Figure 8. Add membership feature

- Like each video and enable percentage for video completion and resume from there when we start.

- Like video with heart symbol.

- Created categories like popular, trending, recently added.

- Develop a responsive website on phone, laptop, tablet.

- add themes to enable best design module.

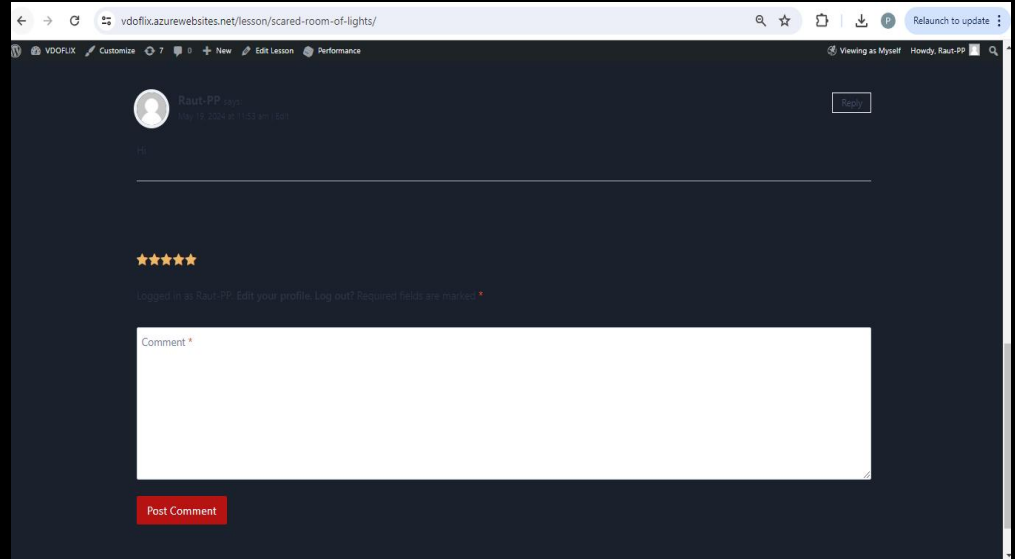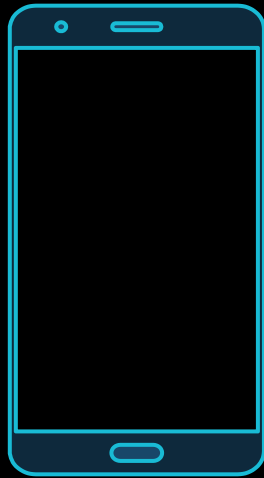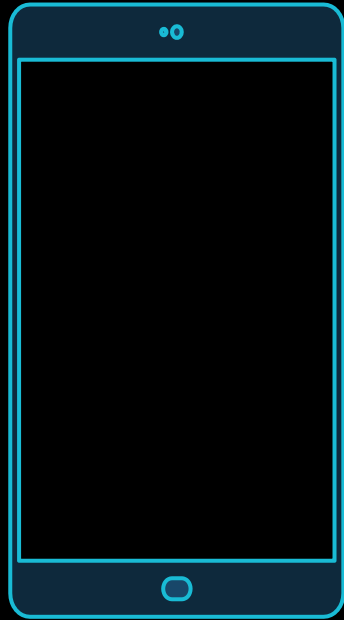- Post comment and ratings for videos on OTT platforms and give user a great experience.
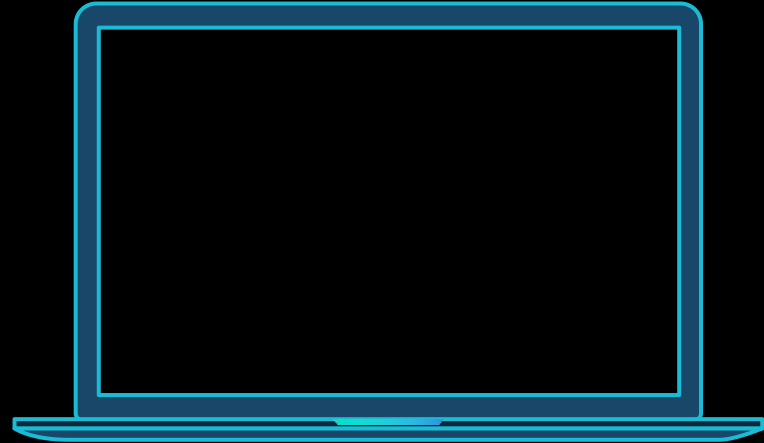

Figure 8. Star Ratings and comments block

VdoFlix Responsive on :

Phone

Tablet

Laptop/Desktop

Scalability

- Wordpress CMS is multilayered architecture based on PHP and MySQL, unlike using different frameworks and compilers we can use wordpress integrated plugins to design, develop and deploy the applications.

- We can have PHP in backend with wordpress to to maintain cloud native architecture like using Azure web app service which will give high resillence output and security needed for websites along with resource allocation for hosting needed.

- MySql provides high scalability in terms of multilayered architecture as each layer has its own software dependencies.

| Presentation (Wordpress themes & plugins) | ⟷ | Application (Business Layer PHP) | ⟷ | Database (MySql or PHP Admin) |

Source:(Ratnayake,2017)

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Scalability model depends on 3 D's **Design , Deployment and Database**

Design:

- Wordpress has many themes and plugins to develop, design website with drag and drop
- functionality.
- Wordpress has around 60000 plugin making easier to build websites.(Gupta, 2023)
- Design generates HTML and CSS code which can be used by user in different code base
- Wordpress immediately has view option which generates the code instantly to test.

Deployment:

- Azure provides wordpress app service integrated with azure services.
- Azure provides resource management for websites and deploy them with low cost
- Scale azure resource in horizontal and vertical aspects(Ahmed and Peddi, 2023).
- Azure integrated mysql database server with php admin
- Azure handles website traffic and spike in websites.

Database:

- Azure on mysql database is scalable by adding some new functionality to mysql

- Azure used php admin console to create database for wordpress.

- Mysql provides scalability to scale horizontally and vertically providing indexing,quering, and storing models into data.

- Wordpress themes are integrated and related data model.
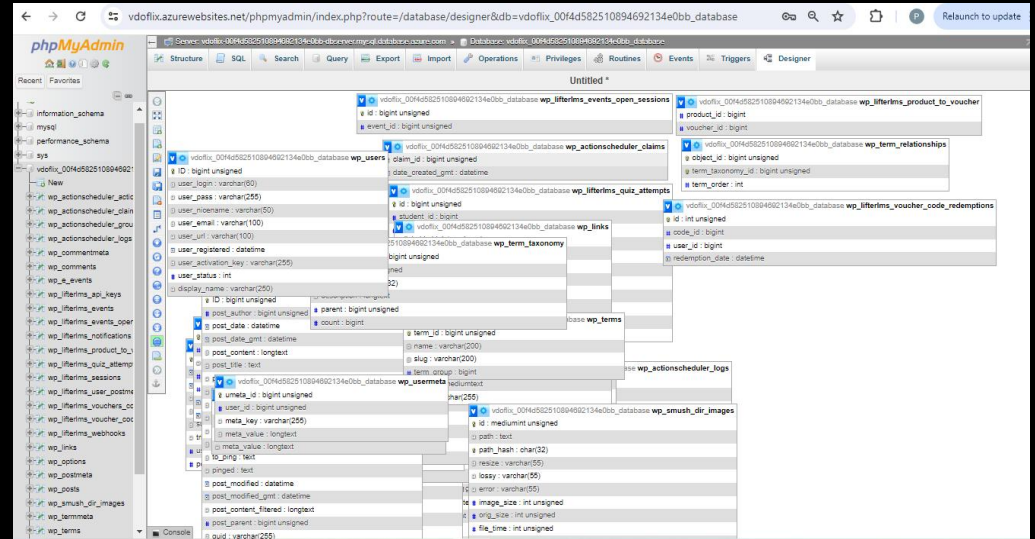
- Figure 9 shows entity relationship diagram for Vdoflix

Figure 9: ERD for VdoFlix

Limitations

- High Cost utlization
- Themes may be availble with less security
- High vulnerability issues with wordpress plugins
- Security in payment integration with wocommerce plugins like stripe
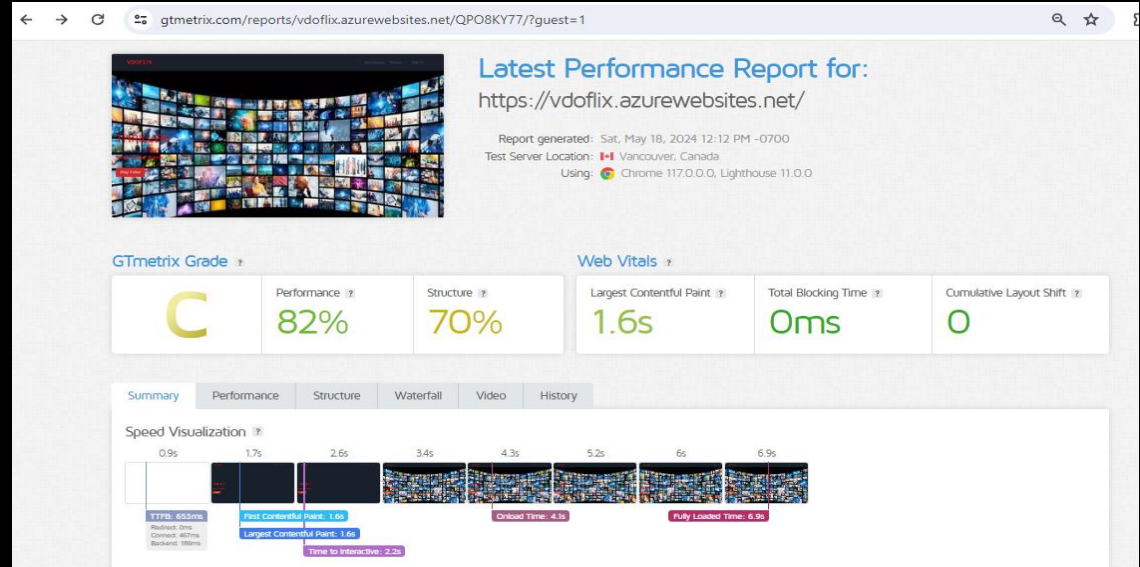- Figure 10 shows performance of website measure on GTMetrix.

Figure 10. Performance of Vdoflix

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Video vodcast of Vdoflix:

Conclusion:

- Vdoflix is streaming website designed to view entertainment videos like thriller, romance, comedy, tv shows, horrors and many more regional contents.
- Vdoflix has membership portal login to purchase and view the videos.
- To implement future enhancements will be providing security to access wordpress login portal.
- Provide Security patch for mysql php admin so that database wouldn't be vulnerable in future.

References:

1. Ahmed, B. and Peddi, D.P., 2023, Microsoft Azure Cloud Based Services Based On Service Level Agreement And Quality Of Services

2. Camilleri, M.A. and Falzon, L., 2021. Understanding motivations to use online streaming services: integrating the technology acceptance model (TAM) and the uses and gratifications theory (UGT). Spanish Journal of Marketing-ESIC, 25(2), pp.217-238.

3. Gupta, D., 2023. A Critical Review of WordPress Security Scanning Tools and the Development of a Next-Generation Solution.

4. https://learn.microsoft.com/en-us/azure/architecture/guide/infrastructure/wordpress-overview

5. Kazemi, A., Boyd, M., Choi, F., Tai, A.M.Y., Tsang, V.W., To, T., Kim, J., Jang, K., Shams, F., Schreiter, S. and Cabanis, M., 2024. Architecture and development framework for a web-based risk assessment and management platform developed on WordPress to address opioid overdose. JMIR formative research, 8, p.e49759.

6. Khalil, M.M., Ghazi, H.M., Habib, M.I., Shahzad, F. and Elahi, A.I., 2024. Guideline for Selecting the Right Content Management System (RCMS) for Web Development: A Comprehensive Approach. Journal of Computing & Biomedical Informatics.

7. Miryala, N.K., 2022, Evolving Trends in Open-Source RDBMS: Performance, Scalability and Security Insights.

8. Ratnayake, R.N., 2017. Wordpress Web Application Development: Building robust web apps easily and efficiently. Packt Publishing Ltd.

9. Singh, K.K., Makhania, J. and Mahapatra, M., 2024. Impact of ratings of content on OTT platforms and prediction of its success rate. Multimedia Tools and Applications, 83(2), pp.4791-4808.

10. Stoyanov, G., Aleksieva-Petrova, A. and Petrov, M., 2024, February. Analysis of modern security plugins for wordpress. In AIP Conference Proceedings (Vol. 3084, No. 1). AIP Publishing.

Thanks!