Master Team Project Fall 2023

Fulda Hochschule Digital Bibliotheca

Team 3 - Dev Dragons
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Milestone 1

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Revision 1

Executive Summary

In today's fast-paced digital world, the use of physical media is becoming less and less popular; universities are seeking innovative solutions to enhance communication, collaboration, and resource sharing within their academic communities. To address these needs, we are proud to introduce our FHDB (Fulda Hochschule Digital Bibliotheca), a cutting-edge platform that facilitates seamless buying, selling, and sharing of digital media, including videos, images, audio files, and documents, exclusively designed for faculty and students.

Problem Statement:

- Universities and their academic communities lack a centralized and user-friendly platform to efficiently exchange digital media.

- Existing solutions are scattered and fail to provide an integrated ecosystem for faculty and students to meet their multimedia needs.

Solution:

Our University Student Media Exchange Application offers a comprehensive solution to these challenges, delivering the following key features:

- User-Friendly Interface: An intuitive and easy-to-navigate interface ensures that both faculty and students can effortlessly buy, sell, and share digital media, promoting a seamless user experience.

- Digital Media Exchange: Users can upload, buy, and sell a wide variety of digital content, including videos, images, audio files, and documents. This feature streamlines the acquisition of educational materials and promotes knowledge sharing.

- Communication Tools: Our application facilitates real-time communication between users, allowing for collaboration, inquiries, and discussions, all within a secure and controlled environment.

- Reviews and Ratings: Users can post reviews and ratings for purchased media, creating a transparent and reliable system for evaluating the quality of content, creating a sense of community and trust

Benefits:

- Enhances Academic Collaboration: Promotes interaction between faculty and students, leading to improved knowledge exchange.

- Streamlines Media Acquisition: Simplifies the process of buying and selling educational materials.

- Content Quality Assurance: Reviews and ratings help users identify high-quality resources and minimize the risk of acquiring subpar content.

- Centralized Ecosystem: Provides a single, integrated platform for all digital media needs within the university.

The Team:

We are a group of students in the Global Software Development Masters Degree programme in Fulda University of Applied Sciences with each of us having prior professional experience in the software engineering industry. With focus on the users' needs, we strive to deliver a robust, reliable, and easy-to-use product. Our goal is to promote academic collaboration in a digital environment.

Personae and Main Use Cases:

User Story 1: Media Creator

- Media creators can share or sell digital copies of study materials, quizzes past exams, and revision notes to help others prepare for exams, where students can monetize their well-prepared notes or access materials to aid others in their studies.
- The creator can post a link to online study sessions wherein they provide tutoring for a subject taught at the university
- Students can sell digital textbooks, e-books, and study materials specific to their courses.
- Students from various disciplines can collaborate on and sell digital storytelling projects, combining writing, art, music, and technology.
- Media creators can promote university events by uploading videos and pictures of previous events

User Story 2: The Media Seeker

- The Media Seeker can search for required textbooks based on the course, author, or title and then find a list of relevant items arranged so that the content with more upvotes will be displayed first. They can look for tutors or notes for any subject.
- The Media Seeker identifies a digital media item for sale, contacts the Media Creator, negotiates the terms of purchase, and only gains access to the full-resolution content after completing the transaction.
- The Media Seeker identifies a free digital media item, agrees to the terms set by the Media Creator, and downloads the material in full resolution directly from the platform.
- The Media Seeker can buy tickets for university events whose promotional content they find captivating related to campus activities.

User Story 3: The Creative Media Creator and Seeker

Searching for the Perfect Soundtrack

- The Media Seeker, working on a short film project, logs into the platform and uses the search feature to find suitable background music.
- They discover a Media Creator who has uploaded a captivating soundtrack and initiates contact through the platform's messaging system.
- The Media Seeker discusses the project's theme, mood, and specific requirements with the Media Creator to ensure a perfect match for their film.

Collaborative Decision and Further Collaboration

- Impressed with the music, the Media Seeker and Media Creator decided to collaborate further.
- They negotiate terms through the platform, agreeing on usage rights and other relevant details.
- The collaboration extends beyond the initial soundtrack, with the Media Seeker and Media Creator brainstorming ideas for additional sound effects and music cues to enhance the overall cinematic experience.
- The Media Seeker, satisfied with the collaboration, uploads the completed film to the platform.

User Story 4: The Administrator

- The Administrator monitors content regularly, identifies inappropriate items or user behavior, and takes necessary actions such as content removal or user suspension to maintain a positive and safe environment on the platform.
- The Administrator reviews the submission, ensures it adheres to platform guidelines, and approves it for listing

List of Main Data Items and Entities

User:

Users are one of the key entities of the application. Users can upload, purchase, share, deactivate, approve, and disapprove media based on their roles. Users can be active or banned based on the decision of administrators.

- Users can be categorized as Customers and Administrator.
- Customers are designated as Media Creators/Consumers.
- Administrators have the privilege to Approve or Disapprove media.
- Administrators are responsible for banning customers that violate the policies.
- Creator/Consumer are students and faculty members of Hochschule Fulda.
- In order to be able to use the application, Creator/Consumer must have a Hochschule Fulda Email Address.

Media:

Media is the heart of the application. Uploaded by customers and approved by administrators, they will be available for purchase. Media has a delivery method of direct or contact-based. Free media always has the direct method of delivery.

- Media is uploaded by users with the role of customer.
- Media should be approved by an administrator to be visible to other customers.
- Media can be deactivated by its owner.
- A file is required for a media, but a demo version of it can also be added.
- Media is priced by its owner.
- The delivery method for a media can be instantaneous or contact-based.

Purchase:

Media purchased by users will be stored in the database in order to be available to the buyer at any given time. A delivery confirmation is included in the purchase.

- A purchased media is always available to the buyer.

- Based on the delivery method, a purchase will indicate whether it is delivered or not.

Message:

Users can send messages to sellers in case of any inquiry or if the delivery method is contact-based. Messages are only **text-based**.

- Interested customers can send a message to the owner of a media.
- Messages can be seen by both involved parties at any given time.

Initial List of functional requirements

1. There are two types of registered users on the website: user as a Media Creator/Consumer and Site Administrator.
2. Users will be able to sell, buy, or share media on the website.
3. Users must create their accounts using their Fulda email address.
4. The system must authenticate users securely before allowing access to any functionalities.
5. Users (students and faculty) should be able to upload digital media items (images, music, videos, graphics) to the platform.
6. Each media item should include details such as title, description, category.
7. Users should be able to search for media items based on categories, keywords, or user profiles.
8. The website will be mainly used by students and faculty members after being approved by the admin.
9. Free media items should be downloadable directly from the platform.
10. An administrator should review and approve each media item before it is published on the platform.
11. The admin should have the ability to delete inappropriate items or ban users violating platform policies.
12. Users should be able to edit and update their profiles, including profile pictures and contact information.
13. The administrator should have a dashboard for monitoring platform activities, managing user accounts, and handling reported issues.
14. Users should not be able to change their name, family name, and email address once their email address is verified.
15. Users should be able to deactivate the media put on sale by them.

16. Users should be able to keep their purchased media regardless of being deactivated.
17. Users should be able to upload a demo of the media they are going to sell.
18. The demo for all media should be available to everyone.
19. Users should be able to message a seller using the implemented messaging system on the website.
20. The delivery method for non-free media should either be instant or after contacting the seller.
21. In case of a contact-based delivery, the buyer should confirm the delivery of purchased media.
22. Owner of a media should be able to see the purchases on their product for delivery

List of non-functional requirements

1. Application shall be developed, tested and deployed using tools and servers approved by Class CTO and as agreed in Milestone 0. Application delivery shall be from chosen cloud server

2. Application shall be optimized for standard desktop/laptop browsers e.g. must render correctly on the two latest versions of two major browsers

3. All or selected application functions must render well on mobile devices

4. Data shall be stored in the database on the team's deployment cloud server.

5. Full resolution free media shall be downloadable directly, and full resolution media for selling shall be obtained after contacting the seller/owner.

6. No more than 50 concurrent users shall be accessing the application at any time.

7. Privacy of users shall be protected, and all privacy policies will be appropriately communicated to the users.

8. The language used shall be English (no localization needed).

9. Application shall be very easy to use and intuitive.

10. Application should follow established architecture patterns.

11. Application code and its repository shall be easy to inspect and maintain.

12. No e-mail clients shall be allowed.

13. Pay functionality, if any (e.g. paying for goods and services) shall not be implemented nor simulated in UI.

14. Site security: basic best practices shall be applied (as covered in the class) for main data items

15. Application shall be media rich (images, video etc.). Media formats shall be standard as used in the market today

16. Modern SE processes and practices shall be used as specified in the class, including collaborative and continuous SW development

17. For code development and management, as well as documentation like formal milestones required in the class, each team shall use their own GitHub to be set-up by class instructors and started by each team during Milestone 0

18. The application UI (WWW and mobile) shall prominently display the following exact text on all pages "Fulda University of Applied Sciences Software Engineering Project, Fall 2023 For Demonstration Only" at the top of the WWW page.

Competitive Analysis

Features	Buying/Selling	Supports Watermark	Supports Documents Upload	Reviews/Comments	Save Posts
FHDB	Yes	Yes	Yes	Yes	Yes
Shutterstock	Yes	Yes	No	No	Yes
Freepik	Yes	Yes	No	No	Yes
Instagram	No	No	No	Yes	Yes
X	No	No	No	Yes	Yes
Pinterest	No	No	No	Yes	Yes
Dribble	Yes	No	No	Yes	Yes

FHDB not only brings the features of a digital media marketplace, but also the interactions of modern social media platforms, namely: Saving Posts, Commenting and Star reviews, as well as the ability to directly share the link of a media.We went through alot of digital media platforms but none of it offered a complete set of features which we believe are important, while Shutterstock and Freepik has a wide range of stock images, sounds, gifs, vector it lacked support for documents upload along with all the other apps.

High-level system architecture and technologies used:

1. **Frontend:**
    - Framework: ReactJS
    - UI Components: Material UI
    - Browser Compatibility:
        - Google Chrome (Latest Version)
        - Mozilla Firefox (Latest Version)
        - Microsoft Edge (Latest Version)
2. **Backend:**
    - Framework: NodeJS (ExpressJS)
    - Database: MySQL
    - Authentication: JSON Web Tokens (JWT)
3. **Communication:**
    - RESTful API: HTTP/HTTPS
    - WebSocket: Socket.io
4. **DevOps:**
    - Version Control: Git
    - Cloud Platform: Microsoft Azure
    - Web Server: Nginx

5. **Collaboration:**
    - Project Management: Jira
    - Communication: Discord & WhatsApp
6. **Other tools:**
    - Code Quality: ESLint (JavaScript/React)
    - Dependency Management: NPM (Node Package Manager)
    - Code Reviews: GitHub
    - Testing: Cypress

Team and roles

Our team consists of six talented software engineers. Based on two meetings that we had during the first two weeks, we got to know each other more and know our expertise, and decide which roles should be assigned to whom.

Here is a summary of the team members and their tasks during this project:

Team member	Email	Github Username	Role In Team
Rahul Patil	rahul-rohidas.patil@informatik.hs-fulda.de	RahulRohidasPatil	Backend Lead
MD Monorul Islam	md-monoanul.islam@informatik.hs-fulda.de	Monoarul2	Frontend Lead
Hauva Vali	hauva.vali@informatik.hs-fulda.de	hauvavali	Git Master
Amar Sharma	amar-kiram.sharma@informatik.hs-fulda.de	plasma31	Fullstack Developer
Parsa Rashidikia	parsa.rashidikia@informatik.hs-fulda.de	Parso0A	Team Leader
Omar Ojarov	omar.ojarov@informatik.hs-fulda.de	kakalygaday	Fullstack Developer

Checklist

Task	Status
Team found a time slot to meet (online) outside of the class.	Done
GitHub master chosen	Done
Team decided and agreed together on using the listed SW tools and deployment server	Done
Team ready and able to use the chosen back and front-end frameworks and those who need to learn are working on learning and practicing	Done
Team lead ensured that all team members read the final M1 and agree/understand it before submission.	Done
GitHub organized as discussed in class	Done