# Thesis Proposal

## Gamified Media Consumption Tracking Web Application with a Blockchain-Based Reward System

### Introduction

Digital content consumption today is highly fragmented: users rely on multiple platforms and applications to watch movies, series, read books, play video games, or follow anime. This makes it difficult to track what they have already consumed and what they still want to watch or read. The situation is further complicated by the fact that most platforms focus on only one type of media (e.g., movies or books), resulting in the lack of a unified, customizable, and motivating interface capable of managing all content types.

The aim of this thesis is to develop a web application, that is using data from multiple open-source media APIs, provides a central place for users to manage their media content while incorporating a game-like reward system to encourage regular use. By leveraging blockchain technology, the reward mechanism becomes transparent and verifiable: users can earn tokens for their activities, which they can later spend on unlocking themes, color schemes, or other customization elements.

The project is designed for long-term expansion: initially, it will integrate one or two media sources (e.g., movies from the TMDb API and possibly books from OpenLibrary), and later additional sources—such as video games, anime, or TV series—can be added to transform the system into a full-featured media aggregator. The reward logic can also be extended: users may earn tokens for completing tasks, finishing media items, or maintaining daily activity streaks.

### Objectives

The thesis involves developing a full-stack web application consisting of the following main components:

#### *Media Aggregation System*

- Integration of multiple open-source APIs (initially movies, later books, games, anime, etc.).
- Browsing, searching, and viewing detailed information about media items.
- User watchlist and progress tracking (e.g., which movies they watched, which episode of a series they are on).
- Local caching of API data in a database for faster performance and avoiding API rate limits.

### *Gamification and Blockchain Integration*

- Token-based reward system: users earn **MEDIA** tokens based on their activity.
- Tokens follow the ERC-20 standard and are stored on an Ethereum-compatible test network (e.g., Polygon Amoy or Ethereum Sepolia).
- Tokens can be used to unlock various UI themes (e.g., dark, light, autumn, cyberpunk, etc.).
- Reward logic may include:
  - Completing tasks (e.g., “watch 10 fantasy movies”),
  - Consuming or finishing media items,
  - Maintaining daily streaks.
- The goal is to increase user engagement, provide structured content tracking, and support long-term motivation.

### *Frontend (Angular)*

- Single-page application (SPA) built with Angular.
- Responsive, modern UI that may later function as a PWA, enabling installation on mobile.
- Wallet connection (MetaMask or thirdweb SDK) for token management.
- Gamified elements (profile level, points, theme unlocking).

### *Backend and Database*

- Backend: Node.js + Express.js (or NestJS) REST API handling media data, user status, and gamification logic.
- Database: PostgreSQL for caching API data locally and storing user progress.
- The blockchain layer (smart contract) separately stores reward transactions and token balances.

## Work Plan

### ***Month 1 – Literature Review***

- Exploration of gamification models and user motivation systems.
- Examination of blockchain-based reward mechanisms.
- Analysis of open-source media APIs (TMDb, OpenLibrary, RAWG).

### ***Month 2 – Planning***

- Defining functional and non-functional requirements.
- Designing the database schema and system architecture (frontend, backend, blockchain components).
- Selecting technology stack (Ethereum test network, thirdweb SDK, Node.js).

### ***Month 3 – Development of Core Features (Milestone 1)***

- User registration, login, and profile management.

- TMDb API integration and cached movie display.
- Implementation of watchlist and “watched” status tracking.

### *Month 4 – Gamification and Blockchain Layer (Milestone 2)*

- Development and deployment of the MEDIA token ERC-20 smart contract on a test network.
- Token minting and wallet integration (MetaMask).
- Basic reward logic: earning tokens through tasks or activity.
- Unlocking themes using tokens.

### *Month 5 – Extension and Refinement (Milestone 3)*

- Integration of new API sources (e.g., books, TV series).
- Expansion of the scoring and challenge system (e.g., category-based challenges).
- PWA functionality (offline access, installability, push notifications).
- Testing, bug fixing, optimization.

### *Month 6 – Documentation and Thesis Writing*

- Documenting the development process and system architecture.
- Presenting results, evaluating the system, drawing conclusions.