

YouTube Playlists

You are assigned to design and implement an application for playlists containing YouTube videos. Users should be able to register into the application and create playlists.

Users have profiles with information about them – **first** and **last name**, **e-mail address**, a **profile image** and links to their **Facebook** and **YouTube** accounts. The profile image is optional and should have a default one, if such is not provided. Facebook and YouTube accounts are optional too. Additionally users have **rating** which is accumulated from their playlists.

Playlists can be created only by registered users. Each playlist should have **title**, **description**, **video URLs**, **category** ("Movies", "Hip-hop", "Chalgiika bace", etc. (choose them not so wisely)), **creator**, **creation date** and whether the playlist is **public** or **private**. Public playlists can be visible to anyone. Private playlists are visible only to their creator and people he/she chooses explicitly. Playlist categories are constant (the user cannot add, edit or delete them).

Each playlist can receive **rating** from 1 to 5. The total average rating is shown for each playlist. Additionally the users have rating – the average from their playlists. All users that can view the playlists can give rating. Anonymous users cannot give rating but can browse the playlists. All users that can view particular playlist can leave comments on it.

The system should be implemented as a server-side web application in Node.js using Jade view engine.

Data Layer (21 points)

- Use **Mongoose** as ODM engine and **MongoDB** as database storage engine. 2 points
- **Data layer abstraction** – the data layer should be implemented as an abstract module. 7 points

Design a simple data layer to hold **users** and **playlists**.

- Each **user** has **username**, **password** and all other fields to fulfil the above requirements.
 - The password should be stored in the DB encrypted (not as plain text)
 - Social accounts are optional3 points
- Use the **Passport** system to keep the users and their encrypted passwords. 2 points
- Each **playlist** should have all needed fields to fulfil the above requirements.
 - Categories must be predefined and not editable by users (choose them wisely)
 - Comments can be left only by users that can view the particular playlist. Additionally a user cannot add comments twice in a row.
 - Users can add rights to other users in order for them to view their videos.4 points
- Fill some **sample data** in the DB to simplify any further testing. 2 points

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- Your **project** should run after "copy/paste" deployment, with only changing server or database ports (if needed)

1 points

Node.js Application – Common Features (21 points)

- Use proper application architecture – separation of concerns and high quality code should be used
5 points
- **Layout** – design a layout page to reuse the common page elements like headers and footers and navigation in all other pages in the project.
2 points
- In the **navigation** when user is not authorized add link only to the all public parts.
For registered users add all other links
3 points
- **Configure the Passport module** to enable user management functionality (login / logout).
4 points
 - The username should be between 6 and 20 characters long and can contain **Latin letters**, **digits** and the symbols '_' (underscore), and '.' (dot)
2 points
- **Error handling** – in case of errors (e.g. DB connection lost, incorrect request, etc.), an appropriate error message should be displayed. You are free to decide how exactly.
3 points
- **User interface (UI)** – the user interface should be usable enough. It is not needed to be beautiful. Use Bootstrap if you want.
2 points

2 points

Node.js Application – Public Area (18 points)

- **Home page** – at the application start page display top 8 most popular playlists (only public) and their ratings
3 points
 - **Cache** the data for 10 minutes
5 points
- **Register** – registering new user
5 points
- **Login** – login a registered user
5 points

5 points

Node.js Application - User Area (40 points)

- **Registered users**
 - **List** the playlists (only the visible ones for the current user or only the public for anonymous)
4 points

4 points

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- Provide a way to sort the playlist by date or by rating (both in descending order)
2 points
- Provide a way to search by categories
2 points
- Provide a way to search the playlists by title and description (in one combined text input)
3 points
- Use server side paging (page size is 10)
3 points
- **Create** a playlist (video URLs can be added here, or you can make another page where the user can add them separately). Users that gave up to 10 ratings to other playlists can add only up to 10 videos per playlist. Users that gave more than 10 ratings can add unlimited videos to their playlists
4 points
- Validate the input
2 points
- **View** playlist details. Show everything and list all videos as links or iframe directly from YouTube.
5 points
- **Delete** videos from playlist or the whole playlist. Only the creator is allowed to do that.
3 points
- **Leave a comment and rating (1-5)** for a playlist. Only registered users are allowed to do that on videos they can view
8 points
- **Profile page** – registered users (after login) should be able to see their profile and change the information (without username)
5 points

Evaluation Criteria

The evaluation criteria include: correct and complete fulfillment of the requirements; good technical design and appropriate use of technologies; high-quality code (correctness, readability, maintainability).

Other Terms

During the exam you are allowed to use any teaching materials, lectures, books, existing source code, and other paper or Internet resources. Direct or indirect communication with anybody in class or outside is forbidden. This includes but does not limit to technical conversations with other students, using mobile phones, chat software (Skype, ICQ, etc.), email, forum posts, USB flash drives etc.

Exam Duration

Students are allowed to work up to **8 hours**.