Web

Hypertube Project

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Summary: A web application for the 21st century.

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Chapter I

Preamble

The word "coffee machine" originally referred to the person who was where you could drink café.Une anecdote from Chamfort [1] does not doubt that the word existed in this sense in the eighteenth century since it shows us an old bishop rigorist consenting to give twenty-five louis to his nephew who wished to acquire a "Nice coffee maker", and who gets furious when he finds that the coffee maker petticoat.

When percolation of coffee is invented, the word "coffee maker" then refers to the utensil used to make coffee, as it is known nowadays.

The coffee makers, in the 1990s, have greatly contributed to the development of modern technologies.

For example, researchers at the University of Cambridge in England created, in 1991, the first prototype webcam, for the sole purpose of monitoring the level coffee left in the coffee machine of the "trojan room" [2] .

FiGURe I.1 - The Trojan Room coffee maker

In 1998, The Internet Society has published a reference document [3] on the mantion of connected objects of type "distributors of electronic hot drink" [4] , followed directly from the reference of the "Hyper Text Coffee Pot Control Protocol" (HTCPCP), defining a client-server communication protocol, extension of the HTTP protocol, allowing control, monitoring and diagnosis of coffee maker.

1. Characters and Trivia No. 1173
2. http://www.cl.cam.ac.uk/coffee/coffee.html
3. https://tools.ietf.org/html/rfc2325
4. More precisely: "Definitions of Managed Objects for Drip-Type Heated Beverage Hardware Devices using SMIv2 "

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The queries on a coffee maker are then identified by the URI scheme coffee: // (or the name of the café in any of the 29 languages listed in the RFC, including French), and support the following methods:

- GET retrieves the coffee from the coffee [5] .
- POST (or BREW) triggers the brewing of the coffee by the coffee maker.
- PROPFIND displays metadata on the coffee.
- WHEN notifies the coffee maker to stop the flow of milk into the coffee (if any).

Headers (header fields) Accept-Additions can be added to specify the type of milk, syrup, sweetener, spice or alcohol, think of the Irish. [6]

In order to avoid any stupid accident, a teapot must return an error code 418 "I'm a teapot". The absence of a well-defined protocol for the latter caused a lively controversy among tea lovers.

In 2014, Imran Nazar submits to the Internet Engineering Task Force the reference of "Hyper Text Coffee Pot Control Protocol for Tea efflux Appliances" (HTCPCP-TEA) [7] , a variant of the HTCPCP for teapots, putting an end to hostilities.

Although these RFCs are April Fools, they are adequately described to be implemented.

To date, no student of 42 has managed to create a coffee maker "HTCPCP compliant".

5. This item is subject to interpretation, see RFC
6. https://tools.ietf.org/html/rfc2324#section-2.2.2.1
7. https://tools.ietf.org/html/rfc7168

Chapter II

Introduction

This project proposes you to create a web application allowing a user to search and watch videos.

The player will be directly integrated into the site, and the videos will be downloaded through

BitTorrent protocol.

The search engine will query several external sources of your choice, such as for example http: //www.legittorrents.info, or https: //archive.org.

Once a selected item, it will be uploaded to the server and broadcast on the player web at the same time. In other words, the reader will not only display the video once the download completed, but will be able to stream directly the stream.

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Chapter III

General instructions

For this project, you are free to use the language of your choice.

All frameworks, micro-frameworks, libraries etc ... are allowed in the limit where they are not used to create a video stream from a torrent, thus limiting the interest of project logic. For example, libraries like webtorrent, pulsar or peerflix are prohibited.

You are free to use the web server of your choice, be it Apache, Nginx or even a built-in web server.

Your entire application must be at least compatible on Firefox (> = 41) and Chrome (> = 46).

Your site must have a decent layout: ie at least one header, one main section and a footer.

Your site should be presentable on mobile, and keep an acceptable layout on small resolutions.

All your forms must have validations, and all of your site will need to be secure. This point is MANDATORY and will be checked at length for nance. To give you an idea, here are some things that are not considered as secure:

- Have "clear" passwords in a database.
- Ability to inject HTML or JavaScript code "user" into bad variables protected.
- Ability to upload unwanted content.
- Can modify an SQL query.

Chapter IV

Mandatory part

You must therefore make a web application that has the following features:

IV.1 User part

- The application must allow a user to register, by requesting at least one nimum an email address, a username, a profile picture, a name, a first name and password a little secure.
- The user must be able to register and log in via Omniauth. So you have to to implement at least two strategies: strategy 42, and a strategy choose to choose.
- The user must then be able to login with his username and his password. It must also be able to receive a reset email of his password in case of forgetfulness.
- The user must be able to disconnect with one click from any page of the site.
- The user must be able to select a preferred language, which will be default English.

A user will also be able to:

- Change your email address, profile picture and information.
- View another user's profile. That is to say, to display his profile picture, his information. Email, however, must remain private.

IV.2 Library part

This part should only be accessible to connected users.

This part must have at least:

- A search field.
- A list of thumbnails.

IV.2.1 Research

The search engine will need to query at least two external sources of your choice [1] , and return all the results in the form of thumbnails.

You must limit the results to videos only.

IV.2.2 Thumbnails

If a search has been done, the results should be displayed as a list of thumbnails, sorted by name.

If no search has been done, you will need to view the most popular media from your external sources, sorted according to the criteria of your choice (downloads, peers, seeders, etc ...).

In addition to the name of the video, a thumbnail must be composed, if available, of its year of production, its IMDb rating and a cover image.

You will need to differentiate the videos viewed from the non-viewed videos, in the manner of your choice.

The list should be paginated, at the end of the page, the following must be automatic-loaded asynchronously. In other words, there must be no link for every page.

The list will have to be sortable and filterable according to criteria such as name, gender, IMDb note interval, production year interval, etc ...

1. such http://www.legittorrents.info , Or https://archive.org

IV.3 Video part

This part should only be accessible to connected users.

This section will have to present the detail of a video, ie to display the player of the video as well as - if available - the summary, the casting (at least producer, director, main actors, etc ...), the year of production, the duration, the IMDb rating, an image of cover and everything that seems relevant to you.

You must also give users the option to leave a comment on the video, and view the list of previous comments.

Launching the video on the browser should - if the file has not already been downloaded previously demment - launch the download of the associated torrent on the server, and stream the stream video from it as soon as enough data is downloaded to ensure the full playback of the video without interruption. Of course, all the treatment must be done in the background in a non-blocking way.

Once a movie has been downloaded in its entirety, it must be saved on the server, way not to re-download a movie multiple times. If a movie is not viewed during for a month, it will have to be deleted.

If English subtitles are available for this video, they will need to be downloaded and selectable on the video player. Similarly, if the language of the video does not match the user's preferred language, and that subtitles are available for this language, they will also need to be downloaded and selectable.

If the video is not natively readable for the browser [2] you will have to convert it on the fly in an acceptable format. The support of the mkv format is a minimum.

2. That is, it is neither mp4 nor webm.

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Chapter V

Bonus part

If the mandatory part has been completed completely and perfectly, you can add the bonuses you want; they will be evaluated at the discretion of your proofreaders. You Nevertheless, you must always respect the basic constraints. For example, the download-ment of a torrent will have to remain server side, in the background.

If you miss the inspiration, here are some tracks:

- Add additional Omniauth policies.
- Manage different video resolutions.
- Develop a RESTful API.
- Stream video via the MediaStream API.

Chapter VI

Rendering and peer-evaluation

The following instructions will be present in the defense schedule. Be very attentive when applying these because they will be sanctioned by a 0 without call.

VI.1 Elimination rules

- Your code must not produce any error, warning or notice, server side and side client, in the web console.
- Anything that is not explicitly allowed is forbidden.
- The slightest security breach will result in a 0. You must at least manage what is indicated in the general instructions, ie do not have a password in short, be protected against SQL injections, and have a validation of all input and upload forms.
- Finally, you must return, at the root of your rendering depot, an author file containing your logins, one per line, this way:

```
$> cat -e author
$ xlogin
$ ylogin
zlogin $
```

```
$>alogin
```

You can ask your questions on the forum, Jabber, Slack, etc ...

Good luck to all !