CS305 - Software Engineering

(Low level design document)

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YouTube API team

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1. Introduction

   a. Definitions :

      i. Django - Django is a Python-based free and open-source web framework that follows the model-template-views architectural pattern
      ii. YouTube API - The YouTube Application Programming Interface allows developers to access video statistics and YouTube channels data
      iii. HTML - Hypertext Markup Language is the standard markup language for documents designed to be displayed in a web browser.

2. General Description

   a. Tools used

      i. HTML for frontend - takes user input and provides results on the same page
      ii. Django in the backend runs this query in YouTube API and collects the required results and adds them to the HTML page.
      iii. YouTube API provides results from YouTube databases according to query.

   b. Product Perspective

      Initially, the User will land on the home page (HTML page) containing a search box where the user can enter the text related to which he wants videos.
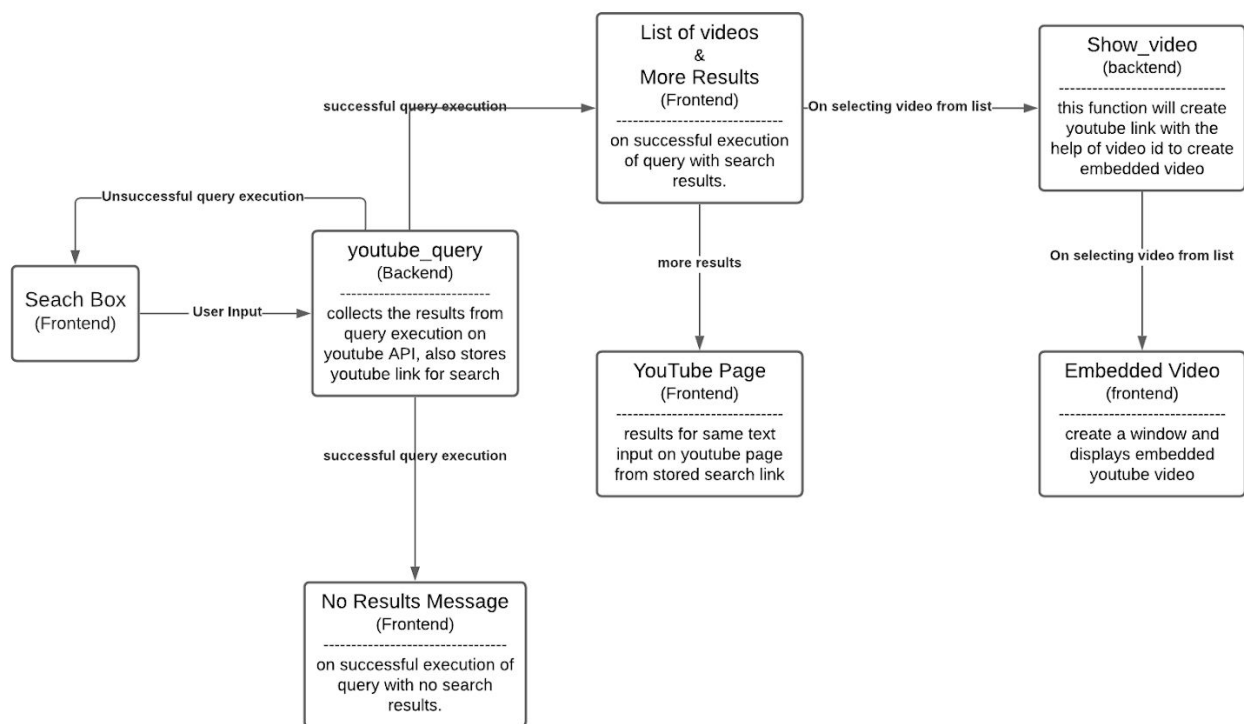
      On entering text-input, on the backend Django function will run a query related to this Input text on YouTube API. YouTube API will provide all related data from the YouTube database. Django will consider data of the best 5 results and it will be stored as a dictionary and will be forwarded to the HTML page.

HTML page will provide these best 5 results on the screen on selecting any one of the results on the same HTML page, Django will run a query on the YouTube API and provide the embedded youtube video corresponding result will be displayed.

HTML page will also provide the option for more results which will land on the YouTube page with the same user-input.

3. Design Details

a. Detail Design Diagram

b. Frontend Design

    1. HTML page (Frontend)

        a. Search Box : To add the text to search related results.
        b. Submit Button : On submission, this text input will be sent to the backend - Django
        c. List of Youtube videos : On successful execution of the query, the list of results (5 youtube videos) with thumbnails and titles will be displayed.
        d. No result : In the case of successful execution of the query with zero search result, no search result - message will be displayed.
        e. Embedded Youtube video : On selecting a particular video from the list, the embedded youtube video will be displayed.
        f. More results option : If the user wants more results than the displayed list, the user can be redirected to the youtube page with the same user-input

c. Backend Design

    1. View.py (backend)

        g. youtube_query function :

            For the given text input it will create a query for YouTube API (with a specified api key). On execution, The query will provide the requested number of results and consider execution successful. Or in case of no search results, it will add the successful execution of a query with zero results. Also creates & stores a link for youtube search of user input

        h. show_video function :

            For the selected video from the list displayed, with the help of video ID, it will create a link for the video and will provide to HTML page to display the embedded youtube video.