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| Javinator9889 – GitHub |
| YouTube MD Bot Downloader – SRS |
| *A Python 3 bot (design for working with Telegram) for downloading YouTube videos (preferably music ones) in multimedia formats such as MP3, MP4, OGG and more* |

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| *Javinator9889*  *June 16th, 2018* |

# Introduction

## Purpose

This SRS (*Software Requirement Specification*) aims to show the developer and the standard user how is this product going to be created and how it works, detailing its functionalities and restricting what is it able to achieve and what not.

Therefore, any developer that wants to create a Python application must read this guide and every user that has curiosity about the capabilities of the application itself.

## Scope

This SRS describes the process of creation, innovation and development of *YouTube MD Bot Downloader* (henceforth, YTMB), which is a *YouTube Bot* created for *Downloading Media* in *Multiple Formats* such as MP3, MP4, OGG and more.

As its name means, this app will allow Telegram users to download almost every YouTube video in a multimedia format, aiming principally music ones. When executing, you will be able to search for a song just by typing its name and for a better results adding the artist. In addition, you can share a YouTube link with the bot and it will start downloading it automatically.

Multiple user options and preferences will be able for customization such as the possibility for choosing the song quality, media format and the capacity for creating custom metadata for a video in which that information were not found. In addition, a user history is saved so he can see what he has downloaded and share it as fast as possible with his contacts.

In contrast to the previous, this app will only download media in any reproducible format such as MP3, MP4, OGG, etc. but will not download just videos and send them to the user, as it is not its purpose.

As there are many applications of the same style as the one we are describing here, this aims to be very user friendly and developer friendly, supporting the OpenSource1 project by making its code free for use, download and distribution, helping other developers by applying CleanCode principles2. In addition, the user must find this application easy to use and understand all its capabilities, which will improve the quantity of users that will use this bot.

Finally, here will be also described some system specifications needed in order to a better and correct working at the *Software system attributes* section.

1: see the appendix at section 1 for more information.

2: see the appendix at section 2 for more information.

## Definitions, acronyms and abbreviations

* Telegram: “*Telegram is a cloud-based instant messaging and voice over IP service developed by Telegram Messenger LLP, a privately held company registered in London, United Kingdom, founded by the Russian entrepreneur Pavel Durov.*” [1]
* Python: “*Python is a programming language that lets you work more quickly and integrate your systems more effectively.*” [2]
* Telegram bot: Telegram bots “*are simply Telegram accounts operated by software – not people – and they'll often have AI features. They can do anything – teach, play, search, broadcast, remind, connect, integrate with other services, or even pass commands to the Internet of Things.*” [3]
* API: “*an Application Programming Interface (API) is a set of subroutine definitions, protocols, and tools for building application software. In general terms, it is a set of clearly defined methods of communication between various software components. A good API makes it easier to develop a computer program by providing all the building blocks, which are then put together by the programmer.*” [4]
* YouTube: “*YouTube is an American video-sharing website headquartered in San Bruno, California. […] YouTube allows users to upload, view, rate, share, add to favorites, report, comment on videos, and subscribe to other users. It offers a wide variety of user-generated and corporate media videos. Available content includes video clips, TV show clips, music videos, short and documentary films, audio recordings, movie trailers, live streams, and other content such as video blogging, short original videos, and educational videos. Most of the content on YouTube is uploaded by individuals, but media corporations including CBS, the BBC, Vevo, and Hulu offer some of their material via YouTube as part of the YouTube partnership program.*” [5]
* YouTube-dl: “*youtube-dl is a command-line program to download videos from YouTube.com and a few more sites. It requires the Python interpreter (2.6, 2.7, or 3.2+), and it is not platform specific.*” [6]
* FFmpeg: “*FFmpeg is a free software project, the product of which is a vast software suite of libraries and programs for handling video, audio, and other multimedia files and streams. At its core is the FFmpeg program itself, designed for command-line-based processing of video and audio files*” [7]
* Docker: “*Docker is the company driving the container movement and the only container platform provider to address every application across the hybrid cloud.*” [8]
* TG: *Telegram.*
* YTMB: *YouTube MD Bot Downloader.*
* Py: *Python*.
* YT: *YouTube.*
* API: *Application Programming Interface.*
* YT-DL: *YouTube-dl.*
* MM: *MultiMedia*.
* HDD: *Hard Drive Disk*.
* OS: *Operative System*.

## References

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## Global vision

The following content will describe you at first the general factors that directly affect the product, its general requirements and some explanations in order to a better understanding of the specific requirements.

# General description

## Product perspective

This product is an evolution of its previous version [*@dwnmp3bot*](https://t.me/dwnmp3bot) but with a redefined algorithm and logic, for a better performance and less errors. There are some similar bots, being the most significantly similar [*@YTAudioBot*](https://t.me/YTAudioBot).

As it is a Py application, this bot depends on the system that is executing it. Independently if it is Windows, Linux or MacOS, they need to have Py version 3 installed with the required dependencies. Those dependencies are automatically included if not present when installing the bot for its execution. In addition, in a future, a docker version will be available for downloading and installing, speeding-up all this process.

The product interface with the system is simple: a Py container/installation with a minimum hardware available (2 GB of RAM, at least dual-core processor higher than 1 GHz), and the user interface is provided by the TG application itself, so there is no need of developing a custom view for the user.

The required APIs and packages are provided at the [GitHub’s project web page](https://github.com/Javinator9889/YouTubeMDBot) with all the important information available on each ones sites (as it can change, here is not specified because today can be version 1.1.5. and in three days it is updated to 1.5.3., so it is better to include each package site at the [*README.md*](https://github.com/Javinator9889/YouTubeMDBot) file of the project).

In addition, as it is properly a web service listening to an URL, YTMB needs completely Internet access for listening to petitions, but it does not need access to any specific port at the running machine.

Finally, there is no song stored on the local machine because YTMB uses TG servers, which saves every file sent. But, as specified previously, at least 2 GB of RAM is required and enough space at the primary HDD in order to store and save the database data (with 10 GB or less may be enough for this purpose, but recommended having at least 20 GB).

## Product functions

Primarily, this product will have the capability for:

1. Downloading YT videos at the highest quality available, in order to get the best results while converting to MM format.
2. Converting downloaded videos to user specified MM format in a list of available ones.
3. Applying user chosen quality options, allowing the user to choose the bitrate of the MM file.
4. Obtain song metadata if available. Else, requesting it to the user so he can customize MM file.

## User characteristics

YTMB is designed for every user: there is not previously required experience or acknowledgment, just having a smartphone with TG app installed on it. Also, a little tutorial is added in order to help people that may have some troubles using the application.

## Restrictions

As this application is designed to work on each system, there may be some restrictions that will make the user experience worse. For example, if your system does not have enough memory or space in your HDD, very probably YTMB will crash or stop working.

Also, if the HDD speed is so low, there will be some timeout problems reading and sending files and maybe some users will not get the requested file.

## Supposals and dependencies

Continuing with what said at *Product perspective*, the OS is independent therefore it can run a Py application or a docker container. In addition, the required dependencies are installed when running setup of YTMB else, they are specified at the [GitHub project page](https://github.com/Javinator9889/YouTubeMDBot).

## Proposed requirements

There is only one proposed requirement that must be studied if it is possible to be included in future versions of the software: creating an inline mode for the bot with all user history for sending songs fastest from there.

# Specific requirements

## External interface requirements

### User interface

As said at *Product perspective* point, the user interface is provided by the TG application, so there is no need to create a GUI. When possible, friendly texts and emojis will be used for making the text easier to read.

### Hardware interface

### Software interface

### Communications interface

## Functional requirements

## Performance requirements

## Design restrictions

## Software system attributes

## Other attributes

# Appendix

Index

[1. Introduction 2](#_Toc516999292)

[1.1. Purpose 2](#_Toc516999293)

[1.2. Scope 2](#_Toc516999294)

[1.3. Definitions, acronyms and abbreviations 2](#_Toc516999295)

[1.4. References 2](#_Toc516999296)

[1.5. Global vision 2](#_Toc516999297)

[2. General Description 2](#_Toc516999298)

[2.1. Product perspective 2](#_Toc516999299)

[2.2. Product functions 2](#_Toc516999300)

[2.3. User characteristics 2](#_Toc516999301)

[2.4. Restrictions 2](#_Toc516999302)

[2.5. Supposals and dependencies 2](#_Toc516999303)

[2.6. Proposed requirements 2](#_Toc516999304)

[3. Specific requirements 2](#_Toc516999305)

[3.1. External interface requirements 2](#_Toc516999306)

[3.1.1. User interface 2](#_Toc516999307)

[3.1.2. Hardware interface 2](#_Toc516999308)

[3.1.3. Software interface 2](#_Toc516999309)

[3.1.4. Communications interface 2](#_Toc516999310)

[3.2. Functional requirements 2](#_Toc516999311)

[3.3. Performance requirements 2](#_Toc516999312)

[3.4. Design restrictions 2](#_Toc516999313)

[3.5. Software system attributes 2](#_Toc516999314)

[3.6. Other attributes 2](#_Toc516999315)

[Appendix 2](#_Toc516999316)