YouPlay

Software Requirement and Specifications Document

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CSE -1

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Software Engineering & Its Phases

Software is instructions (computer programs) that when executed provide desired function and performance. Software are data structures that enable the programs to adequately manipulate information. Software are documents that describe the operation and use of the programs.

The work associated with software engineering can be categorized into **three generic phases**, regardless of application area, project size, or complexity.

The **Definition Phase** focuses on *what.* That is, during definition, the software engineer attempts to identify what information is to be processed, what function and performance are desired, what system behavior can be expected, what interfaces are to be established, what design constraints exist, and what validation criteria are required to define a successful system. The key requirements of the system and the software are identified. Although the methods applied during the definition phase will vary depending on the software engineering paradigm (or combination of paradigms) that is applied, three major tasks will occur in some form: system or information engineering , software project planning, and requirements analysis.

The **Development Phase** focuses on *how*. That is, during development a software engineer attempts to define how data are to be structured, how function is to be implemented within a software architecture, how procedural details are to be implemented, how interfaces are to be characterized, how the design will be translated into a programming language (or nonprocedural language), and how testing will be performed. The methods applied during the development phase will vary, but three specific technical tasks should always occur: software design, code generation, and software testing.

The **Support Phase** focuses on *change* associated with error correction, adaptations required as the software's environment evolves, and changes due to enhancements brought about by changing customer requirements. The support phase reapplies the steps of the definition and development phases but does so in the context of existing software. Four types of change are encountered during the support phase:

Correction: Even with the best quality assurance activities, it is likely that the Customer will uncover defects in the software. *Corrective maintenance* changes the software to correct defects.

Adaptation: Over time, the original environment (e.g., CPU, operating system, Business rules, external product characteristics) for which the software was developed is likely to change. *Adaptive maintenance* results in modification to the software to accommodate changes to its external environment.

Enhancement: As software is used, the customer/user will recognize additional functions that will provide benefit. *Perfective maintenance* extends the software beyond its original functional requirements.

Prevention: Computer software deteriorates due to change, and because of this, *preventive maintenance,* often called *software reengineering,* must be conducted to enable the software to serve the needs of its end users. In essence, preventive maintenance makes changes to computer programs so that they can be more easily corrected, adapted, and enhanced.

Problem Statement & Description

"As the number of videos in a YouTube Playlist increases, downloading the whole playlist becomes cumbersome."

What does this mean?

YouTube is the most popular website for video sharing and is used by a wide number of individuals and media corporations .YouTube playlists come in handy while learning certain topic or concept. Videos are arranged according to the concept and are really helpful.

To download videos from YouTube, we have to either use a website as a plugin or a video grabber. Even though downloading a large number of videos is quite cumbersome as videos need to be manually grabbed. YouTube playlists come in handy while learning certain topic or concept. Videos are arranged according to the concept and are really helpful.

How can this problem be solved?

The answer is simple, by using a download manager. A download manager is a computer program dedicated to the task of downloadingpossibly unrelated stand-alone files from the Internet for storage.

How can such a Download Manager Developed?

This can be accomplished by developing a web-crawler and using the crawled links to download the videos. Python provides a large number of packages for this task. A web crawler can be build which accepts the watch URL of the first video of playlist and the number of videos of the playlist to be downloaded. From this link the downloadable link of the video can be generated and the watch URL of next video can be captured. This concept is implemented in YouPlay.

What is YouPlay?

YouPlay is a download manager written in python 3.0.It is designed to be used on windows operating system. It is a sort of web-crawler cum downloader. It can be used to download a stand-alone video to the whole playlist. It can be used to find the number of videos in a playlist to downloading only few of them.

YouPlay asks the user for the URL of playlist. It then shows the number of videos in the playlist and list of videos. User is supposed to enter the video number from which to begin the download & video number of last video. It also asks for the directory location in which the videos are supposed to be saved. It even creates the directory for you if it does not exist.

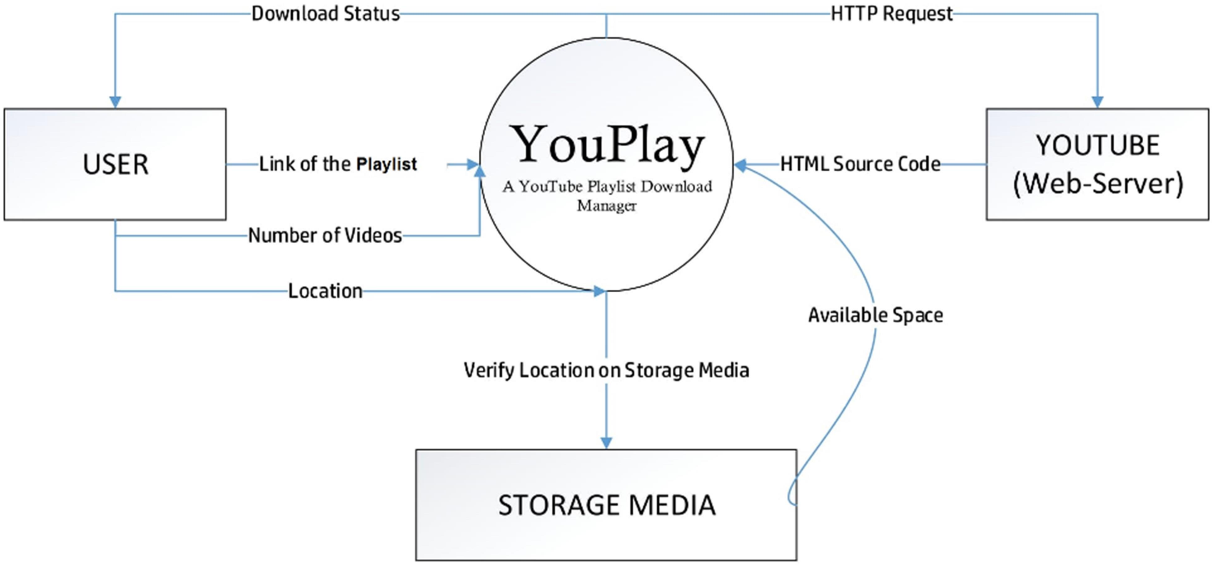
YouPlay works in the background and notifies the user on completion of the download by ringing an alert tone. YouPlay always downloads the videos in the best file format available.

Software Requirements

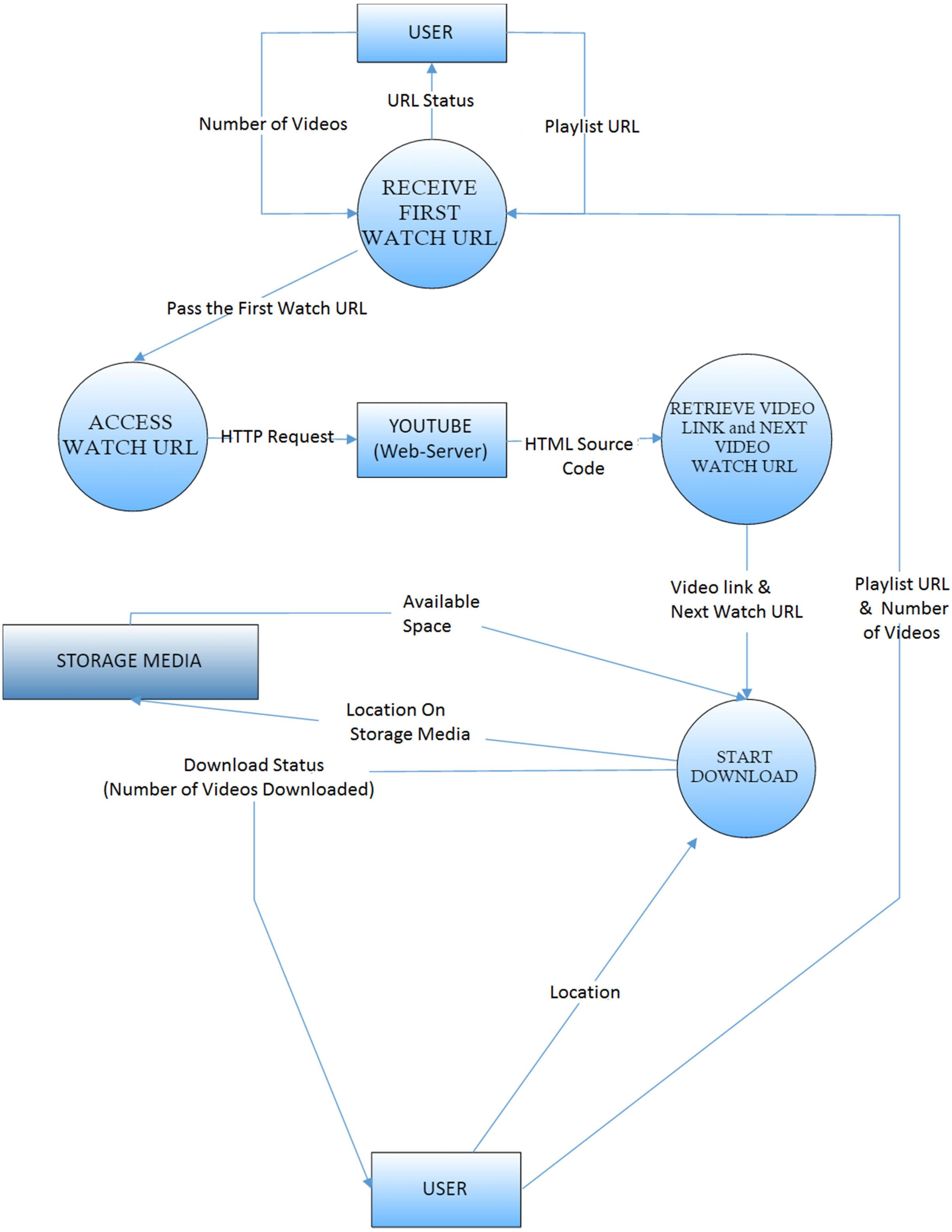
- Active Internet Connection
- Python 3.0 Interpreter
- Windows Operating System

Data Flow Diagram

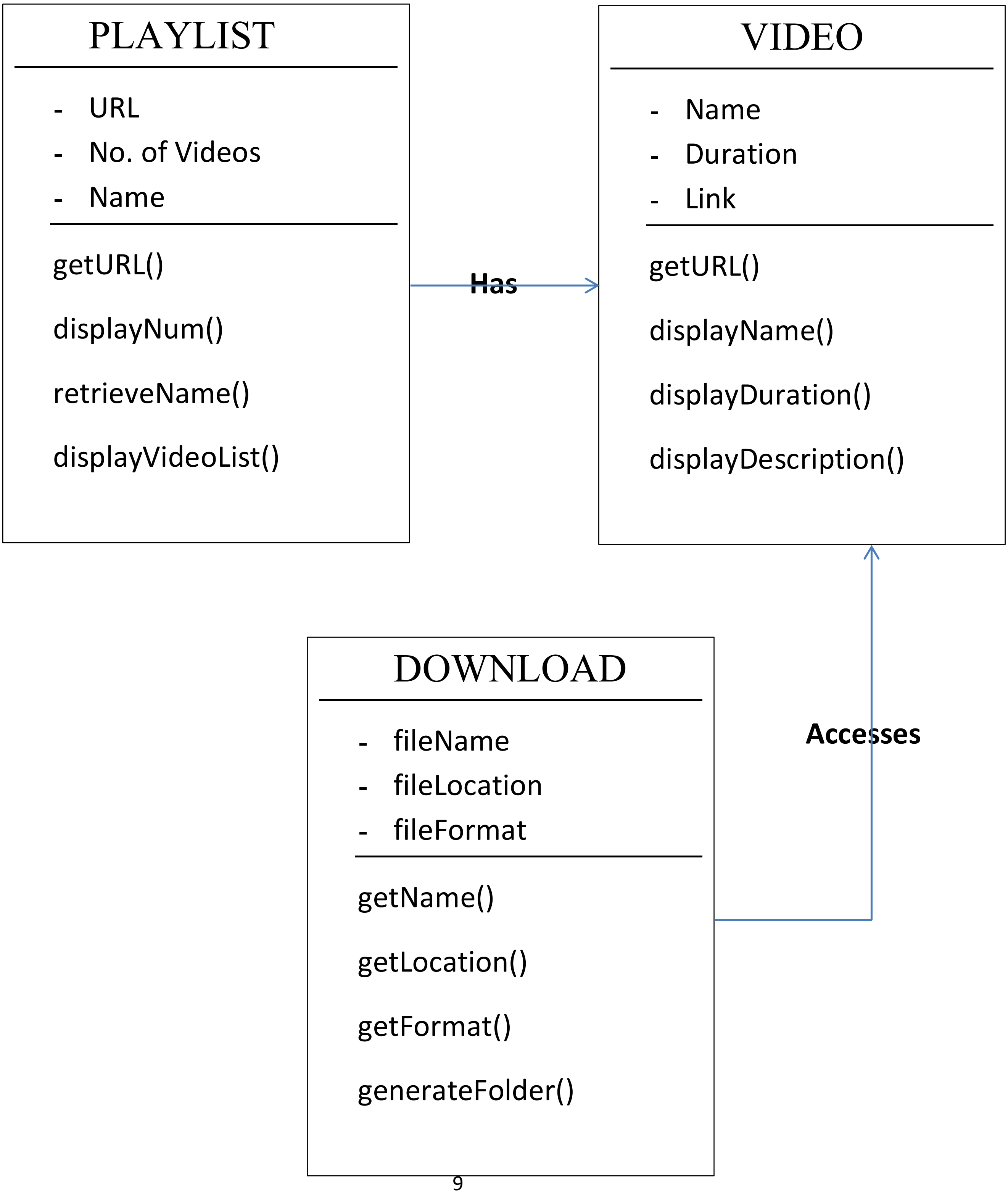
Context Free Diagram



Logical Data Flow Diagram



Class Diagram


PLAYLIST
- URL
- No. of Videos
- Name
getURL()
displayNum()
retrieveName()
displayVideoList()
Has
VIDEO
- Name
- Duration
- Link
getURL()
displayName()
displayDuration()
displayDescription()
Accesses
DOWNLOAD
- fileName
- fileLocation
- fileFormat
getName()
getLocation()
getFormat()
generateFolder()