Master 203 - Paris Dauphine University
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C++ Class - Project Zip File Reader

Pre-requisites

Use C++ 11 version or above.
We managed to compile and run the program on MacOSX, Linux and Windows operating systems. Please let us know if you have any difficulty running the Zip File Reader on your machine.

Motivation

The goal of this project is to decode a flat ZIP file, read the file directory, and read the file contents.
We developed a user-friendly interface in the form of a menu in order to smooth the navigation within our program.
We decided to structure our code within different files to ensure it is easily understandable. Each structure has a own hpp and cpp file which contain the relevant attributes and functions. We also set up "Tool" files which include the useful functions of our code, mainly the search_magic_number() in order to navigate easily through the ZipFile. You will find below in Appendix the blueprint of our code infrastructure.

Main difficulties we faced

1°) Where is the EOCD starting?
We went through the memblock in order to locate the magic numbers.
Define the structure by allocating the resources with respect to the elements it will contain.

2°) Padding
Our computer was allocating more memory when creating copying the CDFH from the memblock, attribute by attribute. We overcame this by setting up a temporary CDFH structure.

3°) MS-DOS date format management
In order to preserve the "Last Modified" and "Created" dates when extracting a file, we had to conserve and convert the zip date format. We found online example of conversion and then used a structure to implement it in our program.

Attached

We enclosed with our program a ZipFile.zip containing different file formats in order to put our Zip File Reader in practice:

- PDF: Geopolitics-Adel-JuliaPresentation.pdf
- Image: Lenna.png
- Music: French Montana - Off The Rip ft. Chinx.mp3
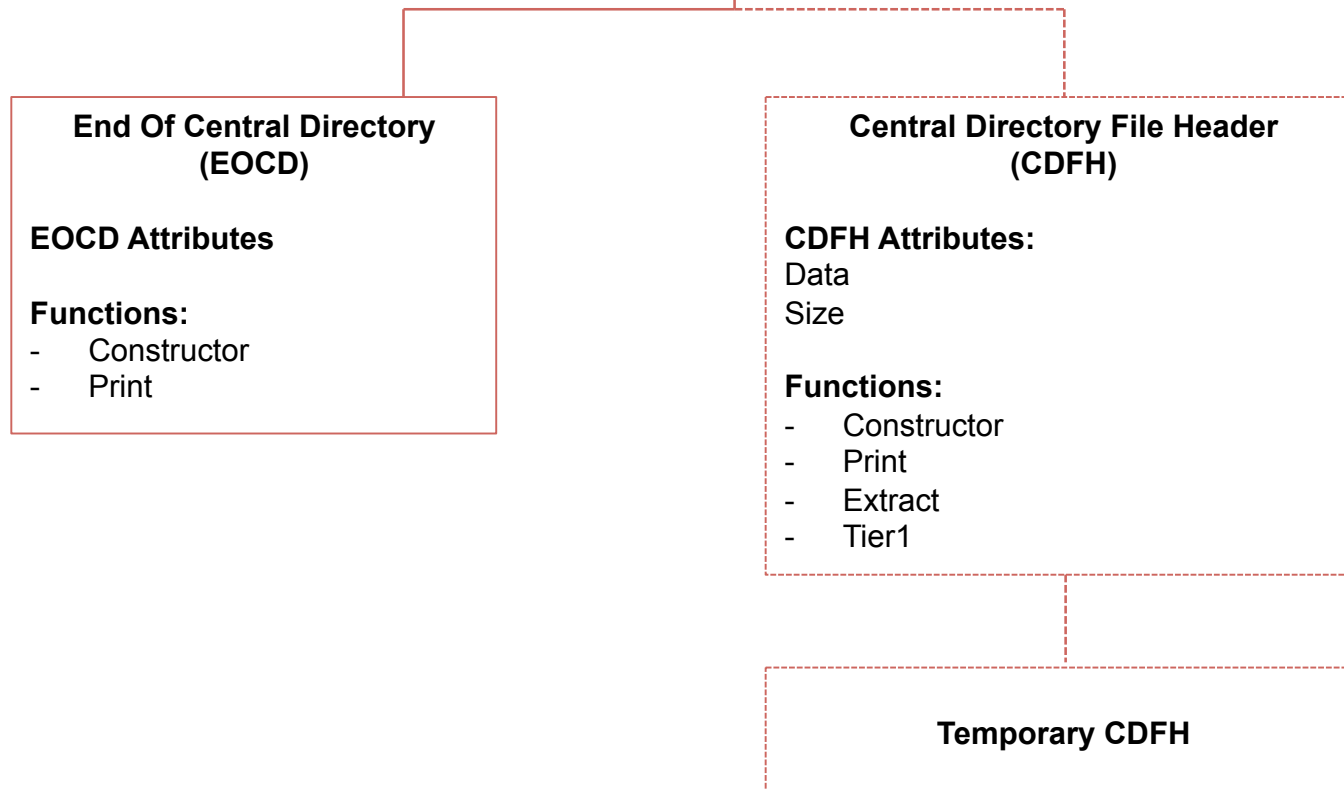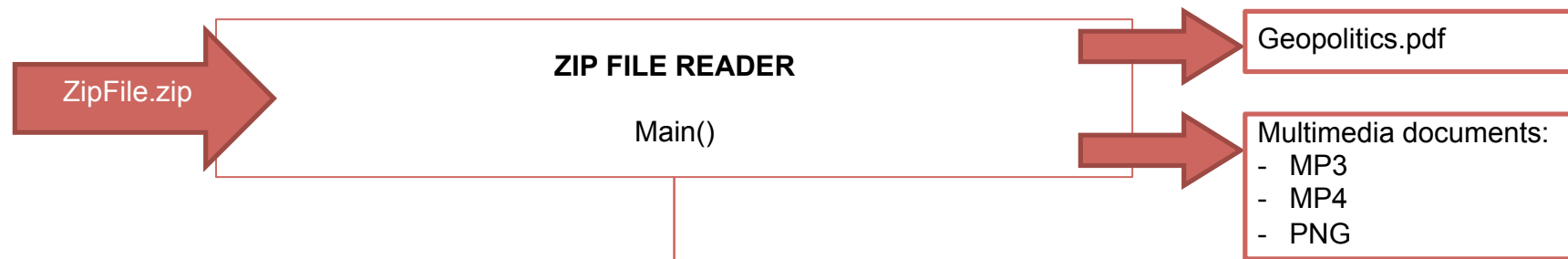- Vidéos: Klopp Celebrates.mp4

Additional feedbacks on the C++ Class

The class was a very good introduction to C++.

Positive points:
- Teacher very patient, available to answer any question and willing to make us understand.
- Good practice in class - nice last 2 sessions when we are totally left and have to figure out by ourselves the solutions.
- Very high-level projects which help us go through the concepts seen in class, but very demanding both in terms of time and IT skills. It really helped us grasp the complexity and power of the C++ language.

Possible areas of Improvements:
- Write more organized TD Sessions with clear steps to follow in order to complete the session

ZIP FILE READER

Main()

ZipFile.zip →

→ Geopolitics.pdf

→ Multimedia documents:
- MP3
- MP4
- PNG

**End Of Central Directory
(EOCD)**

EOCD Attributes

Functions:
- Constructor
- Print

**Central Directory File Header
(CDFH)**

CDFH Attributes:
Data
Size

Functions:
- Constructor
- Print
- Extract
- Tier1

Temporary CDFH

- - - - - - -   At least 1, possible several
CDFH / ZipFile

─────────   Only one 1 EOCD / ZipFile