

# MP3 TAG READER AND EDITOR

Organize Your Music Library with Precision



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# Project Introduction



- A CONSOLE-BASED C PROJECT TO READ AND EDIT ID3V1 TAGS IN MP3 FILES.



- DEMONSTRATES FILE HANDLING, STRUCTURES, POINTER LOGIC, AND HEX-LEVEL DATA PARSING.



- DESIGNED TO EXTRACT TITLE, ARTIST, ALBUM, YEAR, AND COMMENT METADATA.

# What is ID3v1?



- A METADATA FORMAT STORED IN THE LAST 128 BYTES OF AN MP3 FILE.



- BEGINS WITH THE HEADER 'TAG'.



- STORES FIXED-LENGTH FIELDS: TITLE (30), ARTIST (30), ALBUM (30), YEAR (4), COMMENT (30), GENRE (1).

# System Architecture



## Core Modules:



- reader.c – Handles reading the ID3v1 tag.



- editor.c – Handles editing metadata fields.

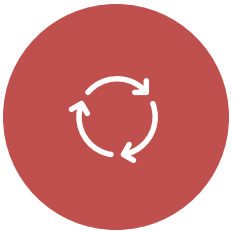


- id3.h – Structure definition for ID3v1.



- main.c – CLI interface for user commands.

# Key Functions



- `readTag()` – Extracts ID3v1 fields.



- `displayID3v1()` – Prints Title, Artist, Album, Year, Comment.



- `editTag()` – Updates fields and writes them back.



- `validateTag()` – Ensures 'TAG' exists.

# Sample Output

```
parth@DESKTOP-T9SJHD2:/mnt/c/Users/parth/Desktop/MP3 Tag Reader$ ./mp3reader song.mp3
```

```
MP3 TAG INSIGHT REPORT (ID3v1)
```

```
Title      : Yariyaan
Artist     : Arijit Singh
Album      : Yaariyaan
Year       : 2014
Comment    : Beautiful Track
Genre      : 255
```

```
Metadata extraction completed.
```

```
parth@DESKTOP-T9SJHD2:/mnt/c/Users/parth/Desktop/MP3 Tag Reader$
```

# Help Menu

```
parth@DESKTOP-T9SJHD2:/mnt/c/Users/parth/Desktop/MP3 Tag Reader$ ./a.out h
```

```
-----  
MP3 TAG EDITOR - HELP MENU  
-----
```

Usage:

```
./a.out <file.mp3>  
./a.out -e <option> <value> <file>
```

Edit Options:

```
-t  Edit Title  
-a  Edit Artist  
-A  Edit Album  
-y  Edit Year (4 digits)  
-c  Edit Comment  
-g  Edit Genre (0-255)
```

Interactive Mode:

```
./a.out -m  Start menu-based editing  
-----
```

# Metadata Extraction

```
parth@DESKTOP-T9SJHD2:/mnt/c/Users/parth/Desktop/MP3 Tag Reader$ ls -l song.mp3
-rw-rw-r-- 1 parth parth 128000 2023-10-10 10:10 song.mp3
parth@DESKTOP-T9SJHD2:/mnt/c/Users/parth/Desktop/MP3 Tag Reader$ tail -c 128 song.mp3 | hexdump -C
00000000  54 41 47 59 61 72 69 79  61 61 6e 00 00 00 00 00 |TAGYariyaan.....|
00000010  00 00 00 00 00 00 00 00  00 00 00 00 00 00 00 00 |.....|
00000020  00 41 72 69 6a 69 74 20  53 69 6e 67 68 00 00 00 |.Arijit Singh...|
00000030  00 00 00 00 00 00 00 00  00 00 00 00 00 00 00 59 |.....Y|
00000040  61 61 72 69 79 61 61 6e  00 00 00 00 00 00 00 00 |aariyaan.....|
00000050  00 00 00 00 00 00 00 00  00 00 00 00 00 32 30 31 |.....201|
00000060  34 00 00 00 00 00 00 00  00 00 00 00 00 00 00 00 |4.....|
00000070  00 00 00 00 00 00 00 00  00 00 00 00 00 00 00 ff |.....|
00000080
parth@DESKTOP-T9SJHD2:/mnt/c/Users/parth/Desktop/MP3 Tag Reader$ ./mp3reader song.mp3
```



# Future Enhancements



- SUPPORT FOR ID3V2 (MORE COMPLEX BUT POWERFUL).



- GUI INTERFACE FOR EDITING TAGS.



- BATCH PROCESSING FOR MULTIPLE MP3 FILES.



- ADD ALBUM ART EXTRACTION AND EMBEDDING.

# Conclusion

- Demonstrates strong foundation in file operations, structures, and parsing.
- 
- A red rectangular box with rounded corners containing a single bullet point. A light red arrow points downwards from the bottom right corner of the box towards the green box below.

- Ideal project for showcasing embedded C-level understanding.
- 
- A green rectangular box with rounded corners containing a single bullet point. A light green arrow points downwards from the bottom right corner of the box towards the purple box below.

- A forward-thinking step toward mastering media file handling.
- 
- A purple rectangular box with rounded corners containing a single bullet point. It is the bottom-most box in the sequence.