

# 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$ 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 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.

- Ideal project for showcasing embedded C-level understanding.

- A forward-thinking step toward mastering media file handling.