PROJECT REPORT

ALARM TOOL USING PYTHON

Submitted By

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Course Code: INT 404

Under the Guidance of

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DECLARATION

This is to declare that this report has been written by me. No part of the report is copied from other sources. All information included from other sources have been duly acknowledged. I aver that if any part of the report is found to be copied, I/we are shall take full responsibility for it.

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CERTIFICATION

This is to certify that this project report “Alarm Tool using Python” made by this group of students is correct to the best of my knowledge and belief. They have completed this project under my guidance and supervision. The present work is the result of their original investigation, effort and study. No part of the work has ever been submitted for any other degree at any University.

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ACKNOWLEDGEMENT

We take this opportunity to present our votes of thanks to all the guidepost who really acted as lightening pillars to enlighten our way throughout this project that has led to successful and satisfactory completion of this study.

We are really grateful to Mrs. Upinder Kaur for providing me with an opportunity to undertake this project and providing me with all the facilities. We are highly thankful to mam for her active support, valuable time and advice, whole-hearted guidance, sincere-cooperation and pains-taking involvement during the study and in completing the assignment of preparing the said project within the time stipulated.

Lastly, I am thankful to all those, particularly the various friends and mainly our complete group who have been instrumental in creating proper, healthy and conductive environment and including new and fresh innovative ideas for us during the project, without their help, it would have been extremely difficult for us to prepare the project in a time bound framework.

Table of Contents

1. Introduction 6

1.1. Background of the Project 7

1.2. Motive of the Project 7

1.3. Objective of the Project 7

1.4. Outcome of the Project 7

2. Feasibility Analysis 8

2.1. Technical Feasibility 8

2.2. Risk Feasibility 8

2.3. Project Plan 9

3. Design 9

3.1. System Design 9

3.2. Design Notation 10

3.3. Detailed Design 11

3.4. Flowchart 12

4. Pseudo Code 13

5. Project Testing 14

6. Implementation 14

6.1. Implementation of the Project 14

6.2. Implementation of the Front End 14

6.3. Post Implementation and Software Management 14

7. Project Legacy 15

7.1. Current Status of the Project 15

7.2. Remaining Area of Concern 15

7.3. Technical and Managerial Lessons Learnt 15

8. System Snapshots 16

9. Bibliography 18

9.1. Other Sources 18

1. Introduction

An alarm clock (or sometimes just an alarm) is a clock that is designed to alert an individual or group of individuals at a specified time. The primary function of these clocks is to awaken people from their night's sleep or short naps; they are sometimes used for other reminders as well. Most use sound; some use light or vibration. Some have sensors to identify when a person is in a light stage of sleep, in order to avoid waking someone who is deeply asleep, which causes tiredness, even if the person has had adequate sleep. To turn off the sound or light, a button or handle on the clock is pressed; most clocks automatically turn off the alarm if left unattended long enough. A classic analog alarm clock has an extra hand or inset dial that is used to specify the time at which the alarm will ring. Alarm clocks are also used in mobile phones, watches, and computers.

Alarm clock software programs have been developed for personal computers. There are Web-based alarm clocks, some of which may allow a virtually unlimited number of alarm times (i.e. Personal information manager) and personalized tones.
Many modern mobile phones feature built-in alarm clocks that do not need the phone to be switched on for the alarm to ring off. Some of these mobile phones feature the ability for the user to set the alarm's ringtone, and in some case music can be downloaded to the phone and then chosen to play for waking.

Scientific studies on sleep having shown that sleep stage at awakening is an important factor in amplifying sleep inertia. Alarm clocks involving sleep stage monitoring appeared on the market in 2005. The alarm clocks use sensing technologies such as EEG electrodes and accelerometers to wake people from sleep. Dawn simulators are another technology meant to mediate these effects. Sleepers can become accustomed to the sound of their alarm clock if it has been used for a period of time, making it less effective. Due to progressive alarm clocks' complex waking procedure, they can deter this adaptation due to the body needing to adapt to more stimuli than just a simple sound alert.

Alarm Tool using Python is desktop app which will let user to add alarm/multiple alarms at once along with different music options to be played. User can add alarm with corresponding time and choose which song to be played at that particular alarm time.

1.1. Background of the Project

We have seen various alarm clocks which works on the basic principle of setting time to the clock and clock will ring in order to wake up the user. The clock can be digital/analog according to user preference.
But nowadays where modern computer systems and mobile phones/tablets have taken the place of old clock system we can think of more advanced and reliable source to rely upon.

1.2. Motive of the Project

Motive of the project was to design an app which will let user to add number of alarms with choice of song played at the time of alarm ringing and if user forgets to add an alarm the system will remind them to add an alarm.
Having this motive in mind we will be designing the app using python and its libraries.

1.3. Objective of the Project

Our main objectives while developing this project are-

a) User can add an or multiple alarms
b) User can select one song to be played or multiple songs for multiple alarms
c) The app should have minimalistic design

1.4. Outcome of the Project

By the end of this project we will be having an advanced alarm tool powered by python which will help user a lot with simplicity in its GUI.

2. Feasibility Analysis

A feasibility study aims to objectively and rationally uncover the strengths and weaknesses of an existing business or proposed venture, opportunities and threats present in the natural environment, the resources required to carry through, and ultimately the prospects for success.

2.1. Technical Feasibility

This Project is a complete pc-based application. The main technologies that are associated with it are

- Python
- Tkinter
- Winsound
- Playsound
- Beeply

Each of the technologies are freely available and the technical skills required are manageable. Time limitations of the product development and the ease of implementing using these technologies are synchronized.

2.2. Risk Feasibility

Risk feasibility can be discussed under several types of contexts. Risk associated with size Estimated size of the product in line of codes: Being a desktop application with many numbers of stakeholders, this project will contain significant amount of code lines. As the system doesn't contain any multimedia aspect the file sizes and the complete project size will not exceed 100MB.

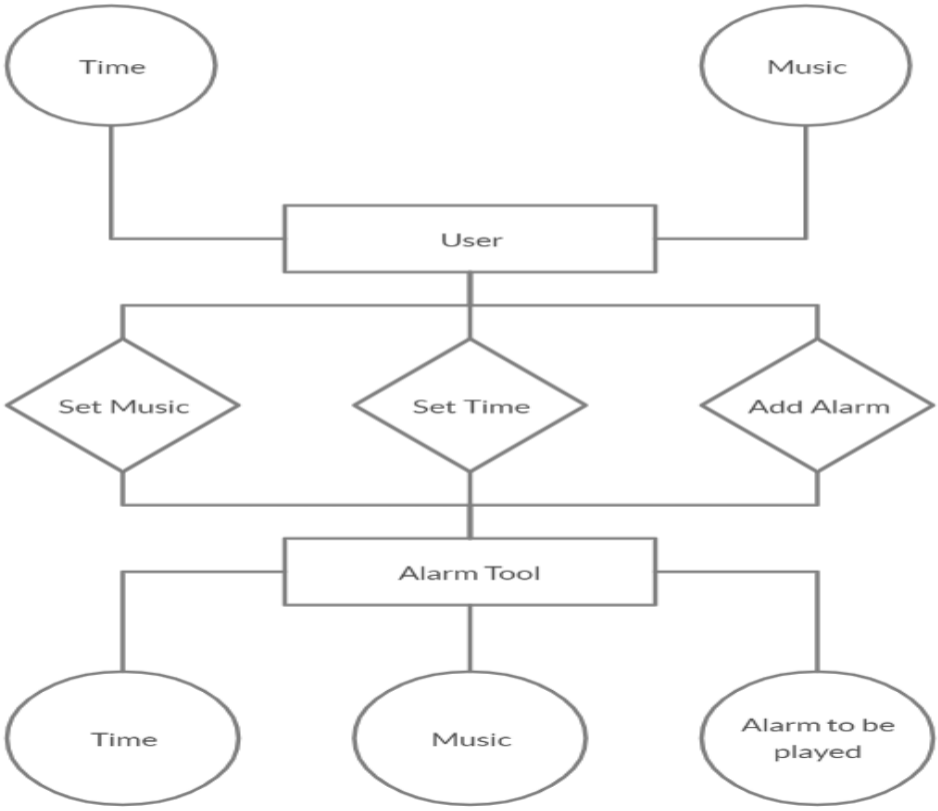
Estimated size of product in number of programs: Though the application supports many stakeholders. it will be constructed as a single desktop application with a single home page rather than having many numbers of interface for different users.

2.3. Project Plan

- At first I have designed the Tkinter module to hold all the functionalities into one frame
- Then I have designed drop down list for user to choose from available music options
- Then after the time module where user will enter the time at which he wants to wake up
- Then I have designed if user leaves system idle after opening the app it will remind him to add an alarm

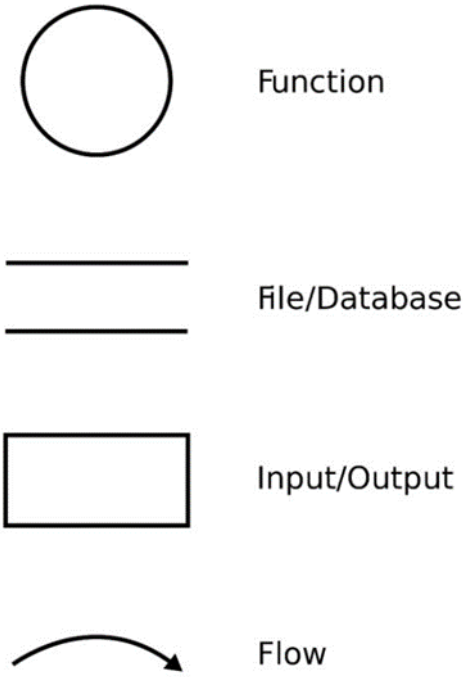
3. Design

3.1. System Design



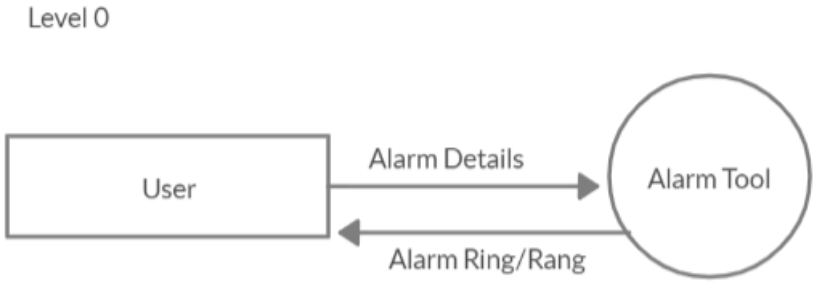
3.1.1 System Design of the Project

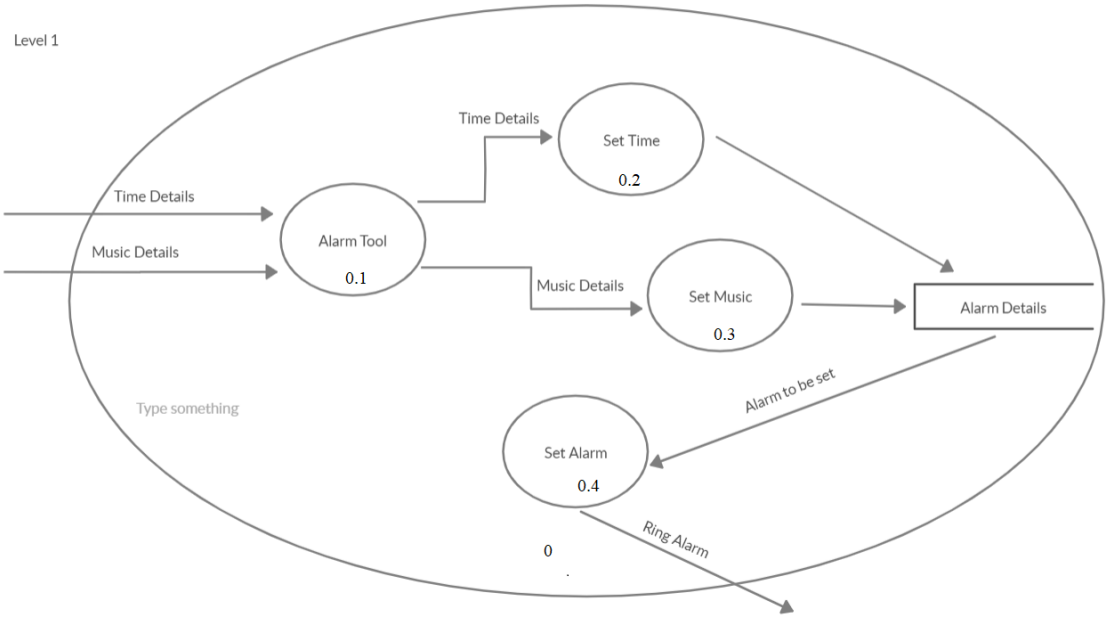
3.2. Design Notation



3.2.1 Design Notation for System Design

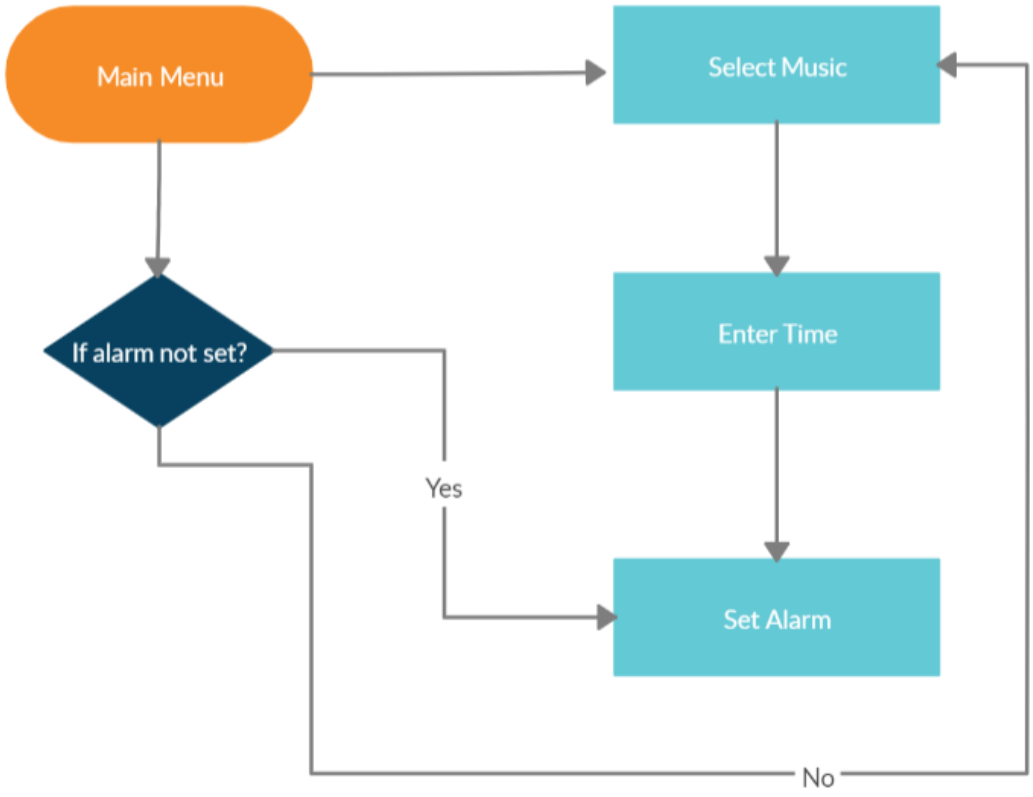
3.3. Detailed Design





3.3.1 Detailed DFD Design

3.4. Flowchart



3.4.1 Flowchart of the Project

4. Pseudo Code

Selecting a song

```
def show():
   songname = clicked.get()
   labl = ttk.Label(root,text=songname).pack()
   songs.append(songname)

options = [
       "music.mp3",
       "music(2).mp3",
       "music(3).mp3"]

clicked  = StringVar()
clicked.set("Select Alarm tone")

drop = ttk.OptionMenu(root,clicked,*options)
drop.pack()

songs_button = ttk.Button(root,text="Alarm tone selected",command=show).pack()
```

Enter Time

```
def playalarm(t,ind):
   ent = True
   localtime = time.localtime()
   res = time.strftime('%H:%M',localtime)
   while res != t :
      localtime = time.localtime()
      res = time.strftime('%H:%M',localtime)
      time.sleep(1)
   playsound(options[ind])
```

Reminding User

```
def check():
   if ent == False:
      root.after(15000, lambda : _show('Title', 'Please enter alarm'))
```

5. Project Testing

- First User will select the number of music he wants to be played or only one music to be played to all of the alarms
- Then user will enter the time in 24 Hr format like HH:MM
- Then user will click at set alarm and alarm will be set for the user at his time
- If user leaves idle the system for more than 15 seconds it will prompt a alert box to add an alarm

6. Implementation

6.1. Implementation of the Project

We implemented our system using Python, Winsound, Tkinter, Playsound. Python made it easy to handle while developing the project.

6.2. Implementation of the Front End

The front end of our application includes, the select music option, enter time and set alarm option. The custom themes were used to change the way our application look, and behave. The custom themes consist of many tk libraries.
Since we are not dealing with back end the application will work only till it is open once it is closed the user will have to enter the alarm time and music again.

6.3. Post Implementation and Software Management

The main function after the implementation is to increase the user base and to involve more and more people into our project, since our project is product based it becomes very important to have good number of users of our website. For maintenance of the app, one of our team members checks the app on daily basis, our team members are admins, so any problem or issue arising in the app are examined and corrected there and then.

7. Project Legacy

7.1. Current Status of the Project

After performing testing phase, we found some bugs in the application. We fixed all the bugs after testing phase. Application performs well, the error in various part have been corrected.

We are currently focusing on making website more user friendly.

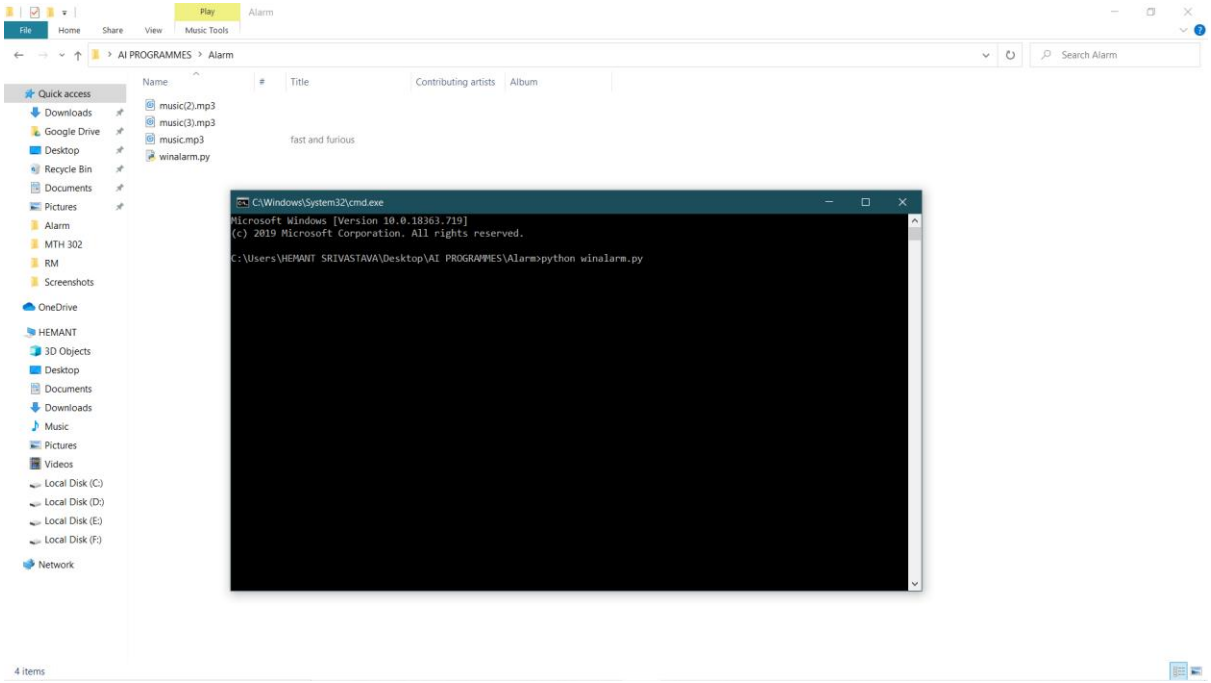
7.2. Remaining Area of Concern

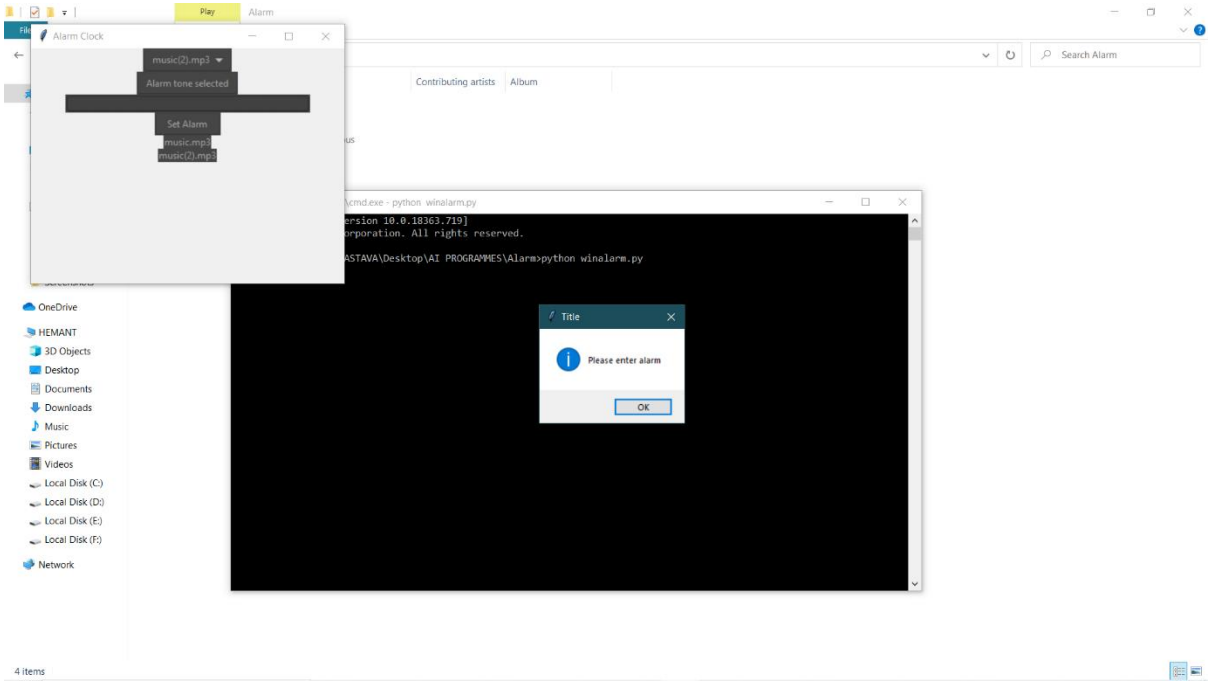
- Improved User Interface
- Increase the compatibility regarding different user
- Lightweight Environment

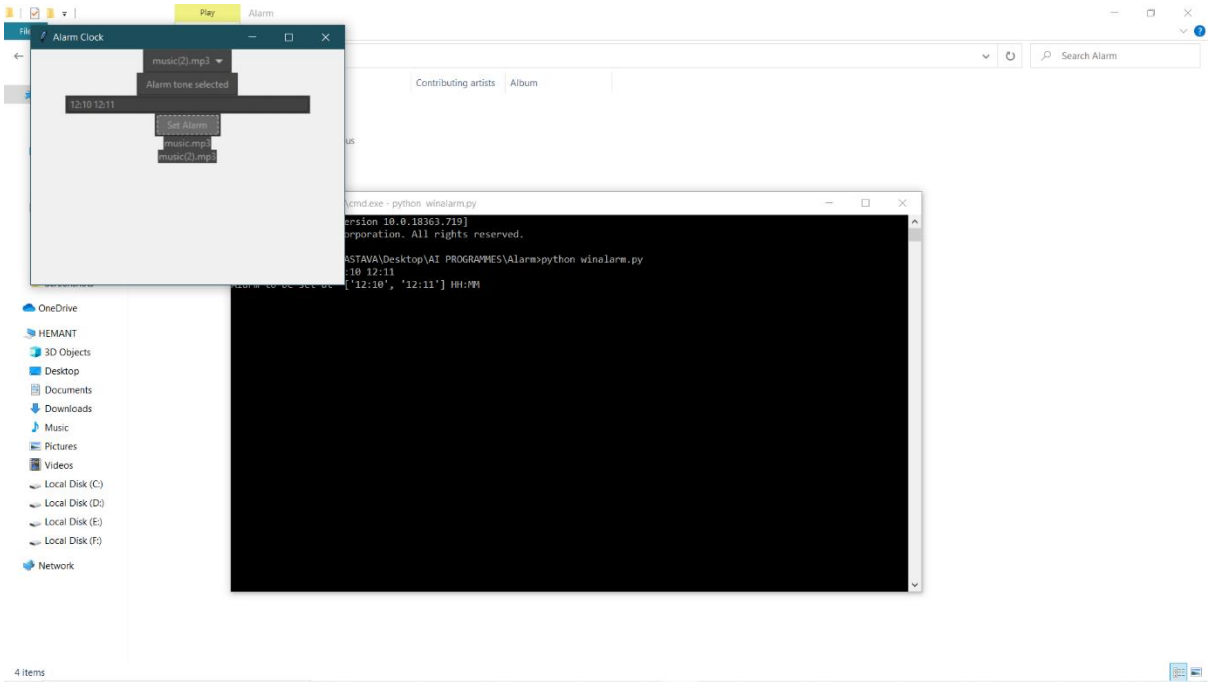
7.3. Technical and Managerial Lessons Learnt

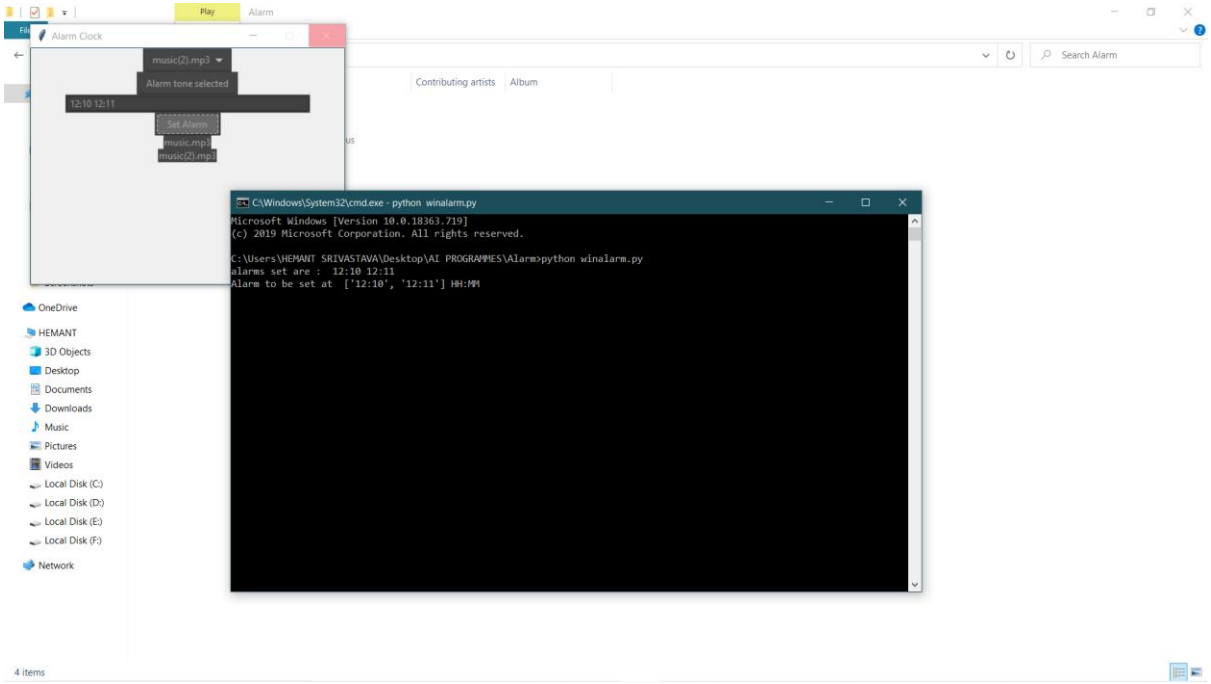
- Better understanding of the Python along with its libraries like Tkinter and windsound etc.
- In testing, how to test the project and correct the errors occurred.
- I learnt how to manage time and design the module in decided time frame.
- Last but not the least, how to manage and maintain the project? How can we make it to durable for future?

8. System Snapshots






Alarm Clock
music(2).mp3
Alarm tone selected
12:10 12:11
Set Alarm
music.mp3
music(2).mp3
cmd.exe - python winalarm.py
ersion 10.0.18363.719]
orporation. All rights reserved.
ASTAVA\Desktop\AI PROGRAMMES\Alarm>python winalarm.py
:10 12:11
['12:10', '12:11'] HH:MM
Play
Alarm
Search Alarm
Contributing artists
Album
OneDrive
HEMANT
3D Objects
Desktop
Documents
Downloads
Music
Pictures
Videos
Local Disk (C:)
Local Disk (D:)
Local Disk (E:)
Local Disk (F:)
Network
4 items


Alarm Clock
music(2).mp3
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12:10 12:11
Set Alarm
music.mp3
music(2).mp3
C:\Windows\System32\cmd.exe - python winalarm.py
Microsoft Windows [Version 10.0.18363.719]
(c) 2019 Microsoft Corporation. All rights reserved.
C:\Users\HEMANT SRIVASTAVA\Desktop\AI PROGRAMMES\Alarm>python winalarm.py
alarms set are : 12:10 12:11
Alarm to be set at ['12:10', '12:11'] HH:MM
Play
Alarm
Search Alarm
Contributing artists
Album
OneDrive
HEMANT
3D Objects
Desktop
Documents
Downloads
Music
Pictures
Videos
Local Disk (C:)
Local Disk (D:)
Local Disk (E:)
Local Disk (F:)
Network
4 items

9. Bibliography

- https://stackoverflow.com/questions/17466561/best-way-to-structure-a-tkinter-application/17470842
- https://stackoverflow.com/questions/43183103/simple-gui-in-python-using-tkinter?rq=1
- https://stackoverflow.com/questions/tagged/winsound
- youtube.com/watch?v=bm8bgb_3OX8

9.1. Other Sources

- Automate the Boring Stuff with Python: Practical Programming for Total Beginners
- Python Crash Course, Project-Based Introduction to Programming
- Python Tricks: A Buffet of Awesome Python Features