**<<VOCABALARM>>**

**A Minor Project II**

Submitted in partial fulfillment of the requirements

for the degree of

**Bachelor of Engineering**

**(Computer Science & Engineering)**

*by*

**Shruti Kushwaha , Aditi Singh and Anshika Koshti**

**0225CS191058 , 0225CS191006 and 0225CS191017**

*Under the guidance of*

**Prof. Saurabh Sharma**

**Department of Computer Science & Engineering**



**Global Nature Care Sangathan’s Group of Institutions, Jabalpur (M.P.)**

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**Rajiv Gandhi Proudyogiki Vishwavidyalaya, Bhopal (M.P.)**

**Apr-2022**

**Global Nature Care Sangathan’s Group of Institutions, Jabalpur (M.P.)**

Department of Computer Science & Engineering

**Certificate**

This is to certify that the Minor Project report entitled “**Vocabalarm”** submitted by **Shruti Kushwaha** , **Aditi Singh** and **Anshika Koshti** has been carried out under my guidance & supervision. The project report is approved for submission towards partial fulfillment of the requirement for the award of degree of **Bachelor of Engineering** in **Computer Science & Engineering** from “**Rajiv Gandhi Proudyogiki Vishwavidyalaya, Bhopal (M.P).**

**Prof. Saurabh Sharma Prof. Saurabh Sharma**

Project Incharge HOD

Dept of CSE

**Global Nature Care Sangathan’s Group of Institutions, Jabalpur (M.P.)**

Department of Computer Science & Engineering

**Certificate**

This is to certify that the Major Project report entitled “**Vocabalarm**” is submitted by **Shruti Kushwaha** , **Aditi Singh** and **Anshika** **Koshti** for the partial fulfillment of the requirement for the award of degree of **Bachelor of Engineering** in **Computer Science & Engineering** from **Rajiv Gandhi Proudyogiki Vishwavidyalaya, Bhopal (M.P).**

Internal Examiner External Examiner

Date : Date :

**Declaration**

I / We hereby declare that the project entitled **“Vocabalarm”** which is being submitted in partial fulfillment of the requirement for award of the Degree of Bachelor of Engineering in Computer Science and Engineering to **“RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL (M.P.)”** is an authentic record of our own work done under the guidance of **Prof. Saurabh Sharma** , Department Computer Science & Engineering, **GLOBAL ENGINEERING COLLEGE, JABALPUR**..

The matter reported in this Project has not been submitted earlier for the award of any other degree.

**Dated : Students Name: Aditi Singh**

**Shruti Kushwaha**

**Anshika Koshti**

**Place :Jabalpur Enrollment No: 0225CS191006**

**0225CS191058**

**0225CS191017**

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We owe sincere thanks to all the lecturers in “Department of Computer Science & Engineering*”* for their advice and counseling time to time.

**Dated : Student Name: Aditi Singh**

**Shruti Kushwaha**

**Anshika Koshti**

**Place : Jabalpur Enrollment No:0225CS191058**

**0225CS191006**

**0225CS191017**

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11. **INTRODUCTION**
    1. **Objective**

Vocabulary is a fundamental aspect of language learning; certainly, words constitute the foundations of a language because they allow us to refer to objects actions, and ideas to convey meaning. Many researchers around the world have acknowledged the importance of vocabulary as an essential language component. Wilkins (1972, p. 111) states that “while without grammar very little can be conveyed, without vocabulary nothing can be conveyed”. Nation (2011) emphasizes that learning vocabulary items plays a vital role in speaking, reading, listening, and writing. Certainly, it is not possible to learn a language without lexical knowledge because it is the basis for the communication among human beings.

As lot of people want to have a good vocabulary but because of their busy schedule they are unable to take proper English or Vocabulary classes, So here we created a “VocabAlarm”. In this project a Vocabulary Alarm is developed in Python3.10.4. This project is created through Microsoft Visual studio. A GUI (Graphical User Interface) based alarm clock which notify an English word when the alarm run. The user only have to set the alarm whenever they want the pop up to show and then at that set time the alarm will send a notification containing an English word with their meaning and the system will pronounce that word for you. It will help you to remember atleast two or three words per day and that will help you to grow your vocabulary.

The objective of our project is to implement an alarm clock using Python. Python consists of some very innovative libraries such as datetime and tkinter which help us to build the project using the current date and time as well as to provide a user interface to set the alarm according to the requirement in 24-hour format. And to implement an notification bar which show a new word with its meaning and speak it. For this notification and pyttsx3 library will help us to build this.

**1.2. Purpose, Scope and Applicability**

* + 1. **Purpose –** The main purpose of the project is to make vocabulary learning easy without taking any kind of course. Many researchers around the world have acknowledged the importance of vocabulary as an essential language component. It emphasizes that learning vocabulary items plays a vital role in speaking, reading, listening, and writing. Certainly, it is not possible to learn a language without lexical knowledge because it is the basis for the communication among human beings. Thus, a vast vocabulary would allow us to use the structures and functions for comprehensible communication.
    2. **Scope –** Having a rich knowledge in vocabulary is very important now a days. As emerging technologies are also playing crucial role in the field of education and learning. So from these keep of software will help you to easily learn some word very day, which can help use to enrich your vocabulary. As their can be more updates in future, which will make using the alarm and learning more interesting and easy with spending lots of time and money.
    3. **Applicability -**  Learning two or three words a day will definitely enrich your vocabulary. This alarm is very useful if you need to help with improving your vocabulary without enrolling in an paid course, It is very useful for the person who want to learn vocabulary but don’t have time to invest in any particular course. It is very easy to use , as you only have to set an alarm and it will automatically notify you with a word and it meaning. It takes only few seconds to learn a word even if you are busy. It works and looks like a simple alarm clock.

**1.3. Achievements**

The code for the project is written in python, while doing this project we gain knowledge about the alarm clock working process, how to make time options to set alarm, the working of an analog clock, the working of second, minute and hour needle, how to make the design of the clock, etc.

For making the project work we learn many libraries in python such as tkinter, for creating the GUI (graphical user interface). Notification library etc. We gain the knowledge about different functions in python.

Since Smart devices are very popular among everyone and almost used by everyone and alarm clock is so common that everyone use it in their everyday life. Therefore, we create it little innovative by using it for educational purpose. By adding vocabulary notification during the alarm run make it interesting and easy to use for everyone. It is just like using an alarm clock application in our mobile. Definitely learning vocabulary items plays a vital role in speaking, reading, listening, and writing. And this project make it more easier. This project contribute in the field of education as well as innovation, as we can add for feature in it in future.

1. **SURVEY OF TECHNOLOGIES**

This project is created in IDE – Microsoft Visual Studio - also commonly referred to as VS Code, is a source-code editor made by Microsoft for Windows, Linux and macOS. Features include support for debugging, syntax highlighting, intelligent code completion, snippets, code refactoring, and embedded Git. It is a streamlined code editor with support for development operations like debugging, task running, and version control. It aims to provide just the tools a developer needs for a quick code-build-debug cycle and leaves more complex workflows to fuller featured IDEs, such as Visual Studio IDE.

OS – Window 11

Language – Python3.10.4. – Python is a high-level, general-purpose programming language.

It is a computer programming language often used to build websites and software, automate tasks, and conduct data analysis. Python is a general-purpose language, meaning it can be used to create a variety of different programs and isn't specialized for any specific problems.

Frameworks – Tkinter – This framework provides Python users with a simple way to create GUI(Graphical User Interface) elements using the widgets found in the Tk toolkit. Tk widgets can be used to construct buttons, menus, data fields, etc. in a Python application. Once created, these graphical elements can be associated with or interact with features, functionality, methods, data or even other widgets. For example, a button widget can accept mouse clicks, and can also be programmed to perform some kind of action, such as exiting the application.

Libraries – pyttsx3, plyer, notification, threading etc.

This project requires knowledge of Python and GUI (Graphic User Interface). Python when combined with Tkinter provides a fast and easy way to create GUI applications. Tkinter provides a powerful object-oriented interface to the Tk GUI toolkit. All the modules used need not be downloaded beforehand like the other libraries like NumPy, thus this project will be user friendly and accessible in any virtual environment used for python programming.

1. **REQUIREMENTS AND ANALYSIS**

**3.1. Problem definition :**

We propose to build an alarm which we named as "VOCABALARM".Our ancestors have been using an alarm clock, going back to its 2,000 years long history but over time, the new advancements in technologies allow us to keep an alarm clock without it containing a dial, gear trains, etc. It is no doubt that an alarm clock is always hand to alert us whenever we sleep,take a short nap, or to remind us about the work,busy in our office works,we always get oblivious about.We did this because planning time is very crucial in this era. Identification of need : In this project we proposed a small change that is when the alarm rings,it displays an english word with its meaning.In this way the alarm that we have made is very informative for its users as the user get to know a new word with its meaning.

**3.2. Feasibility Study :**

A feasibility study is a high-level capsule version of the entire System analysis and Design Process. The study begins by classifying the problem definition. Feasibility is to determine if it’s worth doing. Once an acceptance problem definition has been generated, the analyst develops a logical model of the system. A search for alternatives is analyzed carefully. There are 3 parts in feasibility study.

**3.2.1.** **Operational Feasibility:**

Operational feasibility is the measure of how well a proposed system solves the problems, and takes advantage of the opportunities identified during scope definition and how it satisfies the requirements identified in the requirements analysis phase of system development. The operational feasibility assessment focuses on the degree to which the proposed development projects fits in with the existing business environment and objectives with regard to development schedule, delivery date, corporate culture and existing business processes. To ensure success, desired operational outcomes must be imparted during design and development.

**3.2.2.** **Technical Feasibility:**

This involves questions such as whether the technology needed for the system exists, how difficult it will be to build, and whether the firm has enough experience using that technology. The assessment is based on outline design of system requirements in terms of input, processes, output, fields, programs and procedures. This can be qualified in terms of volume of data, trends, frequency of updating in order to give an introduction to the technical system. The application is the fact that it has been developed on windows XP platform and a high configuration of 1GB RAM on Intel Pentium Dual core processor. This is technically feasible .The technical feasibility assessment is focused on gaining an understanding of the present technical resources of the organization and their applicability to the expected needs of the proposed system. It is an evaluation of the hardware and software and how it meets the need of the proposed system.

**3.2.3. Economical Feasibility:**

Establishing the cost-effectiveness of the proposed system i.e. if the benefits do not outweigh the costs then it is not worth going ahead. In the fast paced world today there is a great need of online social networking facilities. Thus the benefits of this project in the current scenario make it economically feasible. The purpose of the economic feasibility assessment is to determine the positive economic benefits to the organization that the proposed system will provide. It includes quantification and identification of all the benefits expected. This assessment typically involves a cost/benefits analysis.

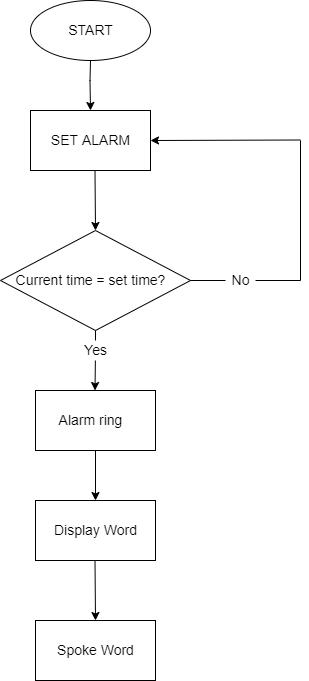
**3.3. Software Requirement Specification (SRS) :**

Software Requirements Specification (SRS) document outlines the functions and purpose of the future software product, what it will do and how it will perform. A software requirement can be of 3 types: 1. Functional requirements 2. Non-functional requirements 3. Domain requirements .

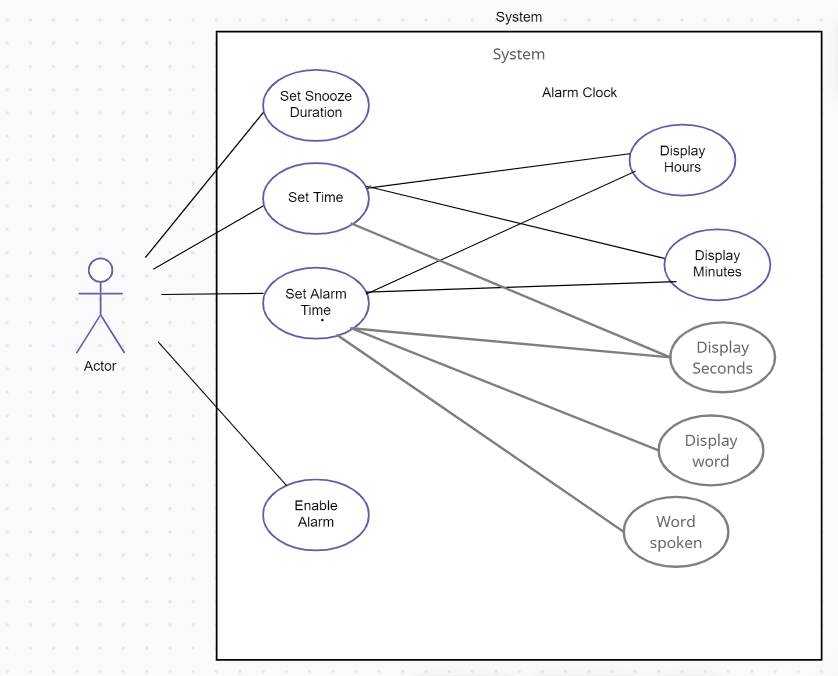
1. **Functional Requirements:** These are the requirements that the end user specifically demands as basic facilities that the system should offer. All these functionalities need to be necessarily incorporated into the system as a part of the contract. These are represented or stated in the form of input to be given to the system, the operation performed and the output expected.
2. **Non-functional requirements:** These are basically the quality constraints that the system must satisfy according to the project contract. The priority or extent to which these factors are implemented varies from one project to other. They are also called non-behavioral requirements. They basically deal with issues like:

Portability, Security, Maintainability, Reliability, Scalability.

1. **Domain requirements**: Domain requirements are the requirements which are characteristic of a particular category or domain of projects. The basic functions that a system of a specific domain must necessarily exhibit come under this category.
2. **SYSTEM DESIGNS**
   1. **Flow Diagram:**

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* 1. **Use – Case Diagram :**

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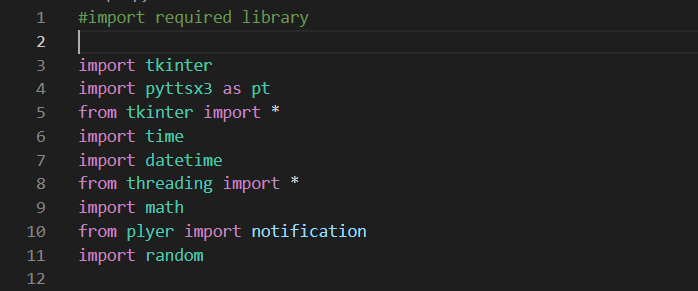
1. **IMPLEMENTATION**

**4.1. Implementation Approach :**

Implementation of the VOCABALARM have following steps:

1. Importing all the libraries and modules required
2. Putting forward a while loop which takes the argument of the time, the user wants to set the alarm on and automatically breaks when the time is up, with sound
3. Create a display window for user input.
4. Create an update clock function to update the analog clock in the display window every second.
5. Create a pop up notification bar to show the word meaning.
6. Create an assistance to pronounce the word and its meaning.
   1. **Coding Details :**

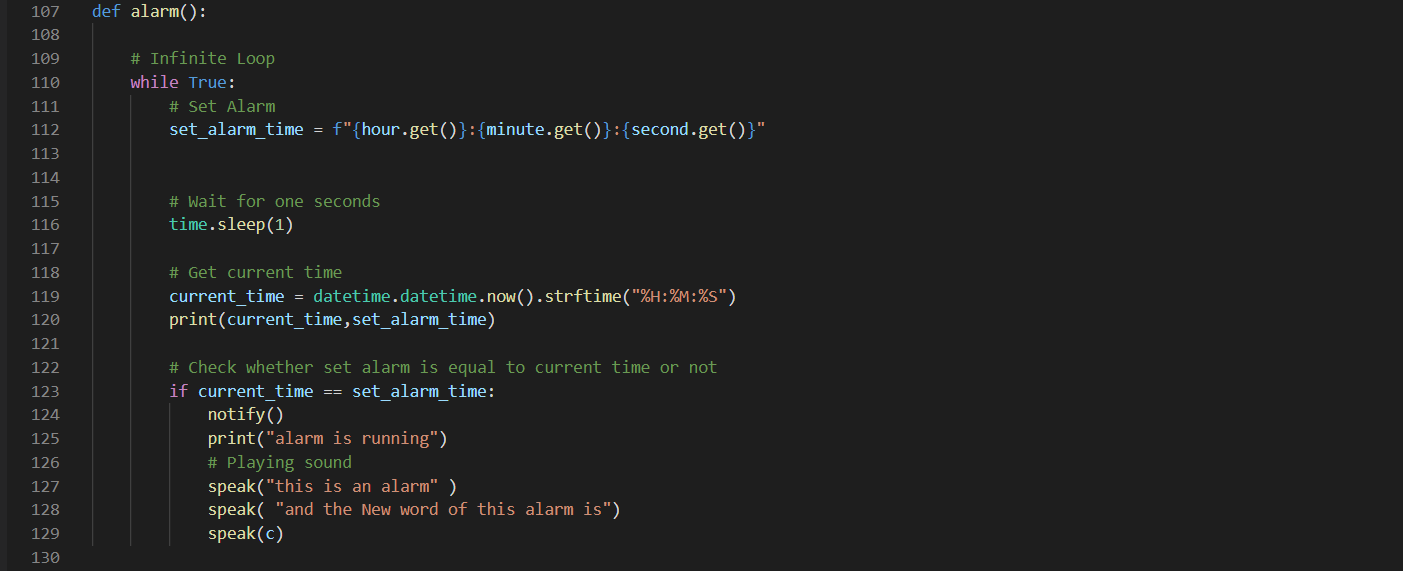
Step 1: Importing all the necessary libraries and modules:



**Explanation :**

* **Tkinter** module belongs to a standard library of GUI in Python. It helps us to create a dialog box with any information that we want to provide or get from the users.
* [**Datetime**](https://docs.python.org/3/library/datetime.html) and **time** modules in python help us to work with the dates and time of the current day when the user is operating python and to manipulate it too.
* **Pyttsx3** is a text to speech conversion library in python. Unlike alternative libraries, it works offline, and is compatible with both Python 2 and 3. It have two default voices one male and one female.
* **Threading –** The Python standard library provides threading , which contains most of the primitives you'll see in this article. Thread , in this module, nicely encapsulates threads, providing a clean interface to work with them. When you create a Thread , you pass it a function and a list containing the arguments to that function.
* **Math –** This python math library provides all the scientific tools for Python. It contains various models for mathematical optimization, linear algebra, Fourier Transforms, etc.
* **Plyer** – Plyer module is used to access the features of the hardware. This module does not comes built-in with Python. We need to install it externally.
* **Random** – Python Random module is an in-built module of Python which is used to generate random numbers.

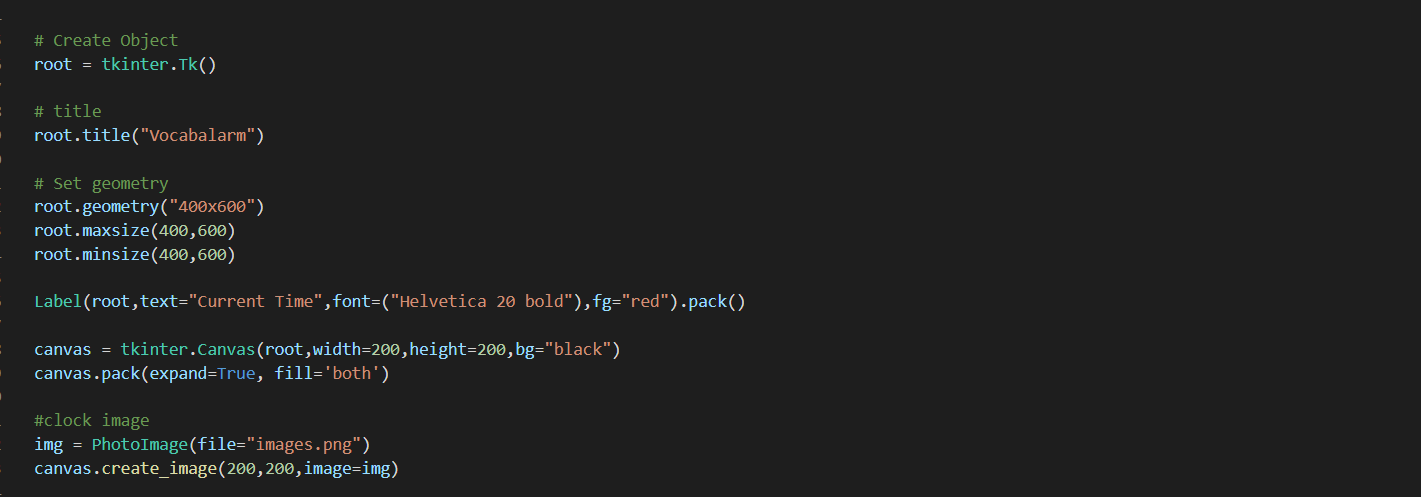
Step 2: Create a While loop :



**Explanation :**

* Define a function named as alarm() which takes the argument of (set\_alarm\_timer).It contains a while loop with a Boolean function True which makes the program automatic to work.
* time.sleep**(**1**)** halts the execution of the further commands given until we get the time value from the user later in the code and returns the background thread of the clock time going on at a regular interval.
* Get the current time using current\_time which takes the argument of datetime.datetime.now().
* now is used to print the time and date is used to print the current date by stringconversion using strftime().
* Define another function here named current\_time() which takes in the user value for setting the alarm in the string format. The same argument of (set\_alarm\_timer) as alarm before to execute the while loop which we further use while making GUI.
* If loop suggests that if the user input  set\_alarm\_timer  matches with the while loop ongoing time now, the message is printed as “alarm is running”.

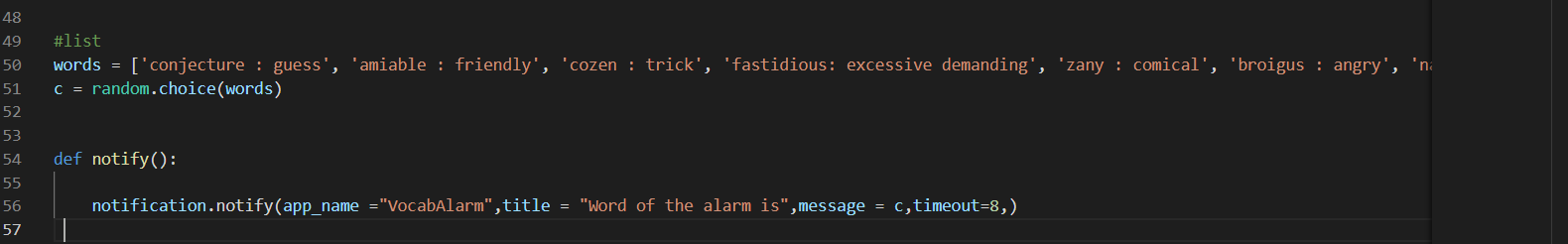
Step 3 : Creating GUI using Tkinter :



**Explanation:**

* To Initialize tkinter, we pass a command under the name clock as Tk().
* The dialog box has the title as Vocabalarm with a geometry of (400\*600).
* Maxsize(400,600) and minsize(400,600) is the maximum and minimum size of the window.
* Label() function is use to give the heading to the user window.
* Canvas can be used to draw in a window. Use this widget to draw graphs or plots. You can draw several widgets in the canvas: arc bitmap, images, lines, rectangles, text, ovals, polygons, and rectangles.
* Tkinter Photoimage is one of the built-in methods which has been used to add the user-defined images in the application.
* Frame() – Python Tkinter Frame widget is used to organize the group of widgets. It acts like a container which can be used to hold the other widgets. The rectangular areas of the screen are used to organize the widgets to the python application.
* The pack() fill option is used to make a widget fill the entire frame. The pack() expand option is used to expand the widget if the user expands the frame
* OptionMenu in Python Tkinter is used to create a drop-down menu in the application. It consumes less space and displays multiple options to the user. Users can select only one item out of the list of items.
* The Button widget is used to add buttons in a Python application. These buttons can display text or images that convey the purpose of the buttons. You can attach a function or a method to a button which is called automatically when you click the button.

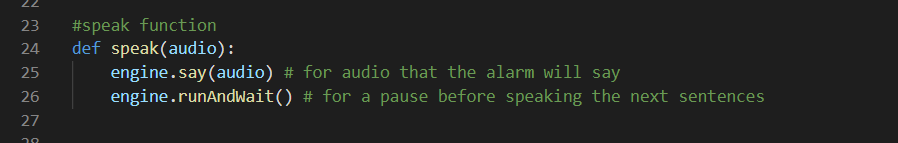
Step 4 : Create a pop up notification bar :



**Explanation :**

* “word” is the name of the list containing words and meanings.
* The choice() method returns a randomly selected element from the specified sequence. It will choose any random word and its meaning and then assign it to ‘c’.
* Notify() send the notification, containing Name of the app launching this notification (app\_name), Title of the notification (title), Message of the notification (message) and time to display the message for, defaults to 10 (timeout).

Step 5: Create an function to pronounce the word :



**Explanation :**

* Say() – There is a built-in say() function in the pyttsx3 package that takes a string value and speaks it out.
* runAndWait() – This function keeps track when the engine starts converting text to speech and waits for that much time, and do not allow the engine to close. If we don’t write this code, it may happen that the engine might not work properly as the processes will not be synchronized.

1. **TESTING**

**5.1. Testing strategy and Testing techniques:**

A test strategy is an outline that describes the testing approach of the software development cycle. The purpose of a test strategy is to provide a rational deduction from organizational, high-level objectives to actual test activities to meet those objectives from a quality assurance perspective. The creation and documentation of a test strategy should be done in a systematic way to ensure that all objectives are fully covered and understood by all stakeholders. It should also frequently be reviewed, challenged and updated as the organization and the product evolve over time. Furthermore, a test strategy should also aim to align different stakeholders of quality assurance in terms of terminology, test and integration levels, roles and responsibilities, traceability, planning of resources, etc.

The goal of utilizing numerous testing techniques in your development process is to make sure your software can successfully operate in multiple environments and across different platforms.

**5.1.1. Unity Testing :** Unit testing is the first level of testing and is often performed by the developers themselves. It is the process of ensuring individual components of a piece of software at the code level are functional and work as they were designed to. Developers in a test-driven environment will typically write and run the tests prior to the software or feature being passed over to the test team. Unit testing can be conducted anually, but automating the process will speed up delivery cycles and expand test coverage. Unit testing will also make debugging easier because finding issues earlier means they take less time to fix than if they were discovered later in the testing process. TestLeft is a tool that allows advanced testers and developers to shift left with the fastest test automation tool embedded in any IDE.

**5.1.2. Integration Testing :** After each unit is thoroughly tested, it is integrated with other units to create modules or components that are designed to perform specific tasks or activities. These are then tested as group through integration testing to ensure whole segments of an application behave as expected (i.e, the interactions between units are seamless). These tests are often framed by user scenarios, such as logging into an application or opening files. Integrated tests can be conducted by either developers or independent testers and are usually comprised of a combination of automated functional and manual tests.

* 1. **Test Cases:**

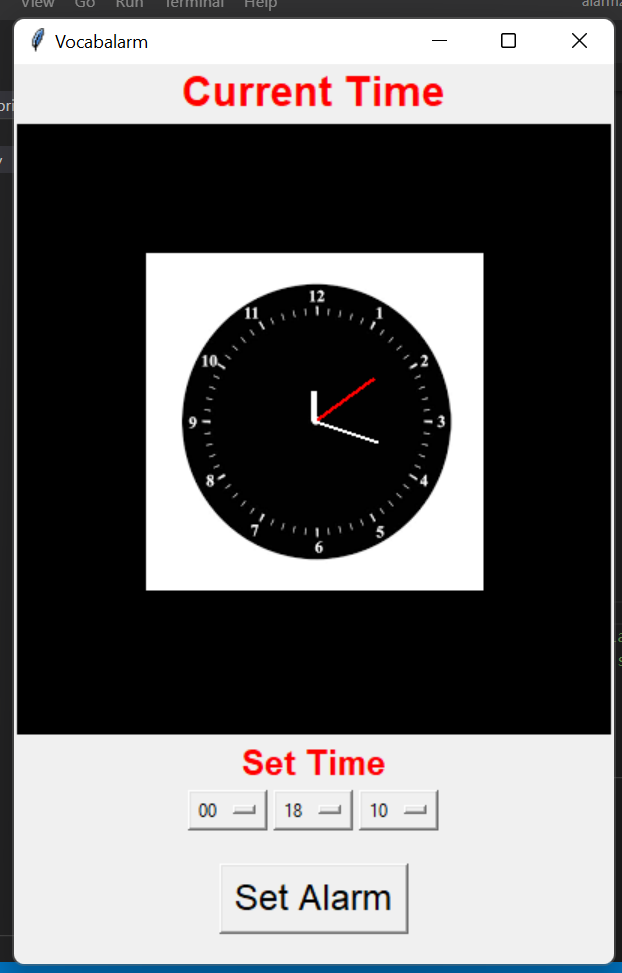
1. GUI testing – The purpose of this test is to check whether the GUI window is working or not as the GUI window is the most important part of this project. GUI is created using tkinter library. When the code runs it create a window show current time with the help of an analog clock and it also show an option menu to choose the second , minute and hour items and a button to set the alarm. The actual output and the expected output is very much similar.
2. Pop – up notification testing – The purpose of this test is to check whether the notify function is sending notification or not. The notification bar is created using the Plyer library. When the code run it sends an notification and wait till the set time.
3. Voice testing – the purpose of this test is to check that the assistance who is pronouncing the words will speak the correct statement given to the function at correct time. The voice is created using Pyttsx3 library. As the program runs it speak the statement given to the function.
4. Analog clock testing – This test check whether update function which updates the time very second is working and show right time or not. When the code runs, the seconds needle in the clock started moving.
5. Alarm testing – This test is perform to check that the alarm sets and ring correctly or not. When the code run it show the GUI in which we can set the alarm and when the current time and alarm time are equal the alarm started speaking. The actual output and the expected output of the test is equal.
6. **RESULT AND DISCUSSION**

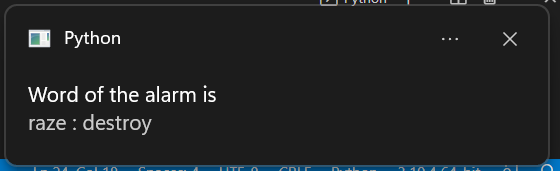
A GUI (Graphical User Interface) based alarm clock which notify an English word when the alarm run. The user only have to set the alarm whenever they want the pop up to show and then at that set time the alarm will send a notification containing an English word with their meaning and the system will pronounce that word for you. It will help you to remember atleast two or three words per day and that will help you to grow your vocabulary.

When the user open the alarm clock it looks like a normal alarm clock app of any android mobile phone. It show you three option menus to select hour , minute and second respectively.

There is a button ‘Set Alarm’, after selecting the time click on the button set alarm, it will set your alarm. Know user don’t have to do anything. When the current time and alarm time are equal the alarm send you a notification which contain a word and its meaning , the alarm also pronounce the word and it meaning for you.

**GUI window :**



 **Notification bar:**

1. **CONCLUSION**

To conclude , the project “Vocabalarm” is a very user friendly project but with a change that it displays an English word and its meaning which can be Informative for the user i.e. with each reminder or alarm you get to learn something. It will help you to remember atleast two or three words per day and that will help you to enrich your vocabulary.

**7.1. Future Enhancement of the project :**

The project can be updated in near future as and when required with a database to manage the various elements of a user so that the user will be able to manage and hence run the entire work in a much better , accurate and error free manner . The following are the future scope of the project.

* Connection with a database so the multiple alarms can be kept saved.
* Conversion to app based project so that users can use it on their cell phones.
* To add some choices for alarm ringing tone so that the user can select among them of own choice.
* To display antonyms and synonyms of the word.

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10. <https://www.google.com/search?q=tkinter+button&rlz=1C1ONGR_enIN970IN970&sxsrf=APq-WBsHyyWhon9x2vnLm3k0qwZTs9zC_w%3A1650726727105&ei=RxdkYs2JBqzZz7sP-MiHmAQ&oq=tkinter+butt&gs_lcp=Cgxnd3Mtd2l6LXNlcnAQARgAMgUIABCRAjIFCAAQkQIyBQgAEIAEMgUIABCABDIFCAAQgAQyBQgAEIAEMgUIABCABDIFCAAQgAQyBQgAEIAEMgUIABCABDoHCAAQRxCwAzoHCAAQsAMQQzoECCMQJzoKCAAQgAQQhwIQFDoECAAQQzoNCAAQgAQQhwIQsQMQFEoECEEYAEoECEYYAFDgAljjJmCvMmgBcAF4AIABwwGIAf4RkgEEMC4xM5gBAKABAcgBCsABAQ&sclient=gws-wiz-serp>
11. **APPENDICES**

**9.1. Lessons Learnt**

First of all we have learn that how to work in a team and the contribution of all the team member is must because by this he/she can gain the knowledge about that field. Also the proper planning is very essential because if we directly goes into the implementation phase, we can face so many problems and at that time it could be possible that we don’t have any type of solution to overcome those problem. The knowledge is also must because if we don’t have knowledge about that field we cannot contribute on that. There should be proper communication among all the team members.

* 1. **Minor Project Experience as a Team Member**

During the designing of minor project we have learn that the contribution of each and every team member is very profitable and we should think that the project is not for ourselves, infect the project is for our whole team. The contribution of a every team member is helpful in the planning of the project.