

**Project Proposal on**

**Digital Clock using Python**

**Submitted by**

**NAME: K ABINAYA**

**INTERN ID: VC0N1005651297 - 0276**

**DEPARTMENT: MACHINE LEARNING**

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**1.Project Title:**

Digital Clock using Python

**2.Objective:**

To design and develop a real-time digital clock using Python’s GUI library, Tkinter, that displays the current time and updates every second.

**3.Tools & Technologies Used:**

* Programming Language: Python 3.x
* Library: Tkinter (built-in Python library for GUI applications)
* Platform: Windows/Linux/Mac

**4.Introduction:**

This mini project is a simple application that demonstrates the use of Python in developing desktop GUI applications. The main purpose of the project is to show real-time clock functionality using the Tkinter library, which is used to build the graphical user interface.

**5.System Requirements:**

* Python 3.x installed
* Tkinter (comes with Python by default)
* Any text editor or Python IDE (e.g., VS Code, IDLE, PyCharm)

**6.Project Description:**

* The digital clock continuously displays the current system time in HH:MM: SS AM/PM format. The time updates every second using the after () method of Tkinter. The graphical layout is designed with simple labels and appropriate font styling.

**7.Features:**

* Displays real-time system time
* Time updates automatically every second
* User-friendly interface
* Lightweight and easy to run

**8.Source Code:**

from tkinter import \*

from time import strftime

root = Tk()

root.title("Digital Clock")

root.geometry("400x200")

root.configure(bg='black')

def time():

string = strftime ('%H: %M: %S %p')

label.config(text=string)

label. After (1000, time)

label = Label (root, font= ('Arial', 50), background='black', foreground='cyan')

label. pack(anchor='center')

time()

root.mainloop()

**8.1 Code Explanation:**

from tkinter import \*

(This imports all the classes and functions from the tkinter module, which is used to create GUI applications in Python)

from time import strftime

(Imports the strftime function from the time module. It formats the current time as a string in the desired format.)

root = Tk()

(Creates the main application window (a GUI window object called root).)

root.title("Digital Clock")

(Sets the title of the window to “Digital Clock”.)

root.geometry("400x200")

(Defines the size of the window: width = 400 pixels, height = 200 pixels.)

root.configure(bg='black')

(Sets the background color of the window to black.)

def time():

string = strftime ('%H: %M: %S %p')

label.config(text=string)

label.after(1000, time)

(Gets the current time formatted as: Hours:Minutes:Seconds AM/PM

Updates the text of the label widget with the current time.

Calls itself again after 1000 milliseconds (1 second) using after() so the time keeps updating.)

**9.Output:**

When the program is run, a window appears displaying the current time, which updates every second in real time.

**10.Conclusion:**

This project helped understand the basics of GUI development in Python using Tkinter. It also demonstrated how real-time data (like system time) can be displayed dynamically in an application**.**

**11.Future Enhancements:**

* Add date along with time
* Add alarm functionality
* Customize with different fonts and themes

**12.References:**

1. Python Software Foundation. (2024). *Python 3 Documentation*. Retrieved from: <https://docs.python.org/3/>
2. Tkinter Documentation. (2024). *Tkinter — Python Interface to TclS/Tk*. Retrieved from: <https://docs.python.org/3/library/tkinter.html>