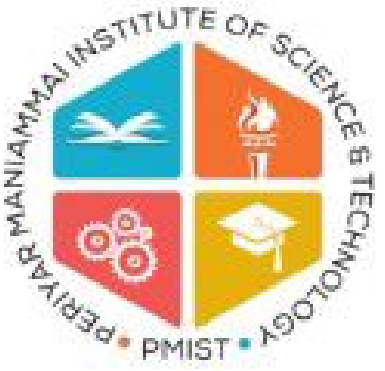

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PROJECT REPORT

TOPIC : COUNTDOWN TIMER

COURSE :B.TECH CSE WITH SPEC IN AIML

SUBJECT:INTRODUCTION TO ARTIFICIAL INTELLIGENCE

SUB CODE:XCSHA1

BY

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Project Title: Countdown Timer

Project Objective:

The objective of this project is to build a simple Python-based countdown timer application. The user can input a countdown time in seconds, and the program will display the countdown in real time, updating every second until it reaches zero.

Technologies Used:

Programming Language: Python

Libraries Used: time (for time-related functions)

Project Overview:

This countdown timer application accepts an input from the user for the number of seconds they want to countdown. It then continuously updates the display to show the remaining time in the format MM:SS until it reaches zero, at which point it prints "Time's up!" to indicate the completion of the countdown.

Program Design:

1. User Input:

The program asks the user to input a number representing the countdown time in seconds.

The input is then validated to ensure that it is a valid integer. If invalid input is provided, an error message is displayed.

2. Countdown Logic:

The program uses the time.sleep(1) function to pause for one second between each countdown step.

It uses the divmod(seconds, 60) function to break down the seconds into minutes and seconds.

The time is printed in the format MM:SS, updating every second.

3. Time Completion:

When the countdown reaches zero, the program prints "Time's up!" to notify the user that the countdown has finished.

4. Output Display:

The countdown is displayed on the same line in the terminal using the end="\r" argument in the print() function, which overwrites the previous output. This gives the illusion of a real-time countdown.

Code Explanation:

```
import time

# Function to start the countdown timer

def countdown_timer(seconds):

  while seconds > 0:

    mins, secs = divmod(seconds, 60)  # Convert seconds to
minutes and seconds

    time_format = f'{mins:02d}:{secs:02d}'

    print(time_format, end="\r")  # Display the time, overwriting
previous output

    time.sleep(1)  # Wait for 1 second

    seconds -= 1

  print("00:00\nTime's up!")

# Function to get input from user and start the timer

def main():

  try:

    # Get countdown time from user in seconds

    seconds = int(input("Enter the time in seconds: "))

    countdown_timer(seconds)

  except ValueError:

    print("Invalid input. Please enter an integer.")

# Run the program

if __name__ == "__main__":

  main()
```

Sample Input and Output:

Sample Input:

Enter the time in seconds: 10

Sample Output:

00:09

00:08

00:07

00:06

00:05

00:04

00:03

00:02

00:01

00:00

Time's up!

Conclusion:

This Countdown Timer program effectively demonstrates the use of basic Python features such as loops, user input handling, and time management. It serves as a foundation for building more advanced timing applications. The project can be enhanced with sound notifications, a more robust user interface, and advanced features to make it more versatile.