

A Miniproject-1B report on

UNIT CONVERTER

*submitted in partial fulfillment of the
requirements for the degree of*

**Bachelor of Engineering
in
Information Technology**

by

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.....

*under the guidance of
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April 2022

Certificate

This is to certify that the **Project-1B** titled "**Unit Converter**" is a bona-fide work of

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Date: 10/05/2022

Place: Information Technology Department Finolex Academy of Management and Technology, Ratnagiri.

ABSTRACT

Unit Converter is a Python program that can help us convert any conversion method for a certain value. The purpose of the system is to efficiently and conveniently convert a certain conversion value. The project is a simple GUI application that uses the tkinter module to create a user-friendly design. The project can be openly accessible without providing account information. The user can do multiple things, such as conversion temp, weight, etc.. The project uses well known python techniques in order for us to understand the coding structure. This simple project can provide a different variety of conversion that enables us to convert freely as what we need.

Building an initial version of your project that prints information in the console is a development strategy that you should use in later projects as well. Focusing on getting the logic of the program correct before trying to make it display the information in some “nice” way on the canvas usually saves lots of time since debugging logic errors in graphical output can be tricky.

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● **Chapter 1**

Project overview

1.1 Introduction and Motivation

A Unit Converter is a program that enables us to convert one unit to another. A unit is a measurement of a quantity that is defined or adopted by tradition or law. Other quantities can be expressed as a multiple of the unit.

In human history, various unit systems were developed and used in different regions and cultures. Currently, the global standard of measurement is the International System of Units (SI), which is a modern form of the metric system. Although SI is intended for global use, it has not been fully adopted, and some other systems of measurement are still used in parts of the world.

In order to have accuracy and avoid confusion in measurement, we need to convert one unit to another. For instance, we do not measure the length of a pencil in kilometers. In such a case, one has to convert kilometers (km) to centimeters (cm). In our field of studies we come across many sorts of units and also the problems of converting them from one unit to the other consuming a lot of time. To overcome this we have designed a GUI based unit converter that converts any desired value from one unit to the other within fractions of seconds.

The intent of this project is to provide a convenient means to convert between the various units of measurement within different systems, as well as to provide a basic understanding of the systems currently in use, and how they interact.

1.2 Problem Statement

In order to have accuracy and avoid confusion in measurement, we need to convert one unit to another. For instance, we do not measure the length of a pencil in kilometers. In such a case, one has to convert kilometers (km) to centimeters (cm). In our field of studies we come across many sorts of units and also the problems of converting them from one unit to the other consuming a lot of time. To overcome this we have designed a GUI based unit converter that converts any desired value from one unit to the other within fractions of seconds.

1.3 Requirement Analysis

Hardware Requirements

- Laptop (With Minimum 4GB RAM)
- 64-bit operating system, x64 based processor

Software Requirements

- Operating System - Windows 10
- Front End - Python
- IDLE (Python 3.10.4 64-bit)
- Tkinter is the standard GUI library for Python. When Python 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.

1.4 Project Design

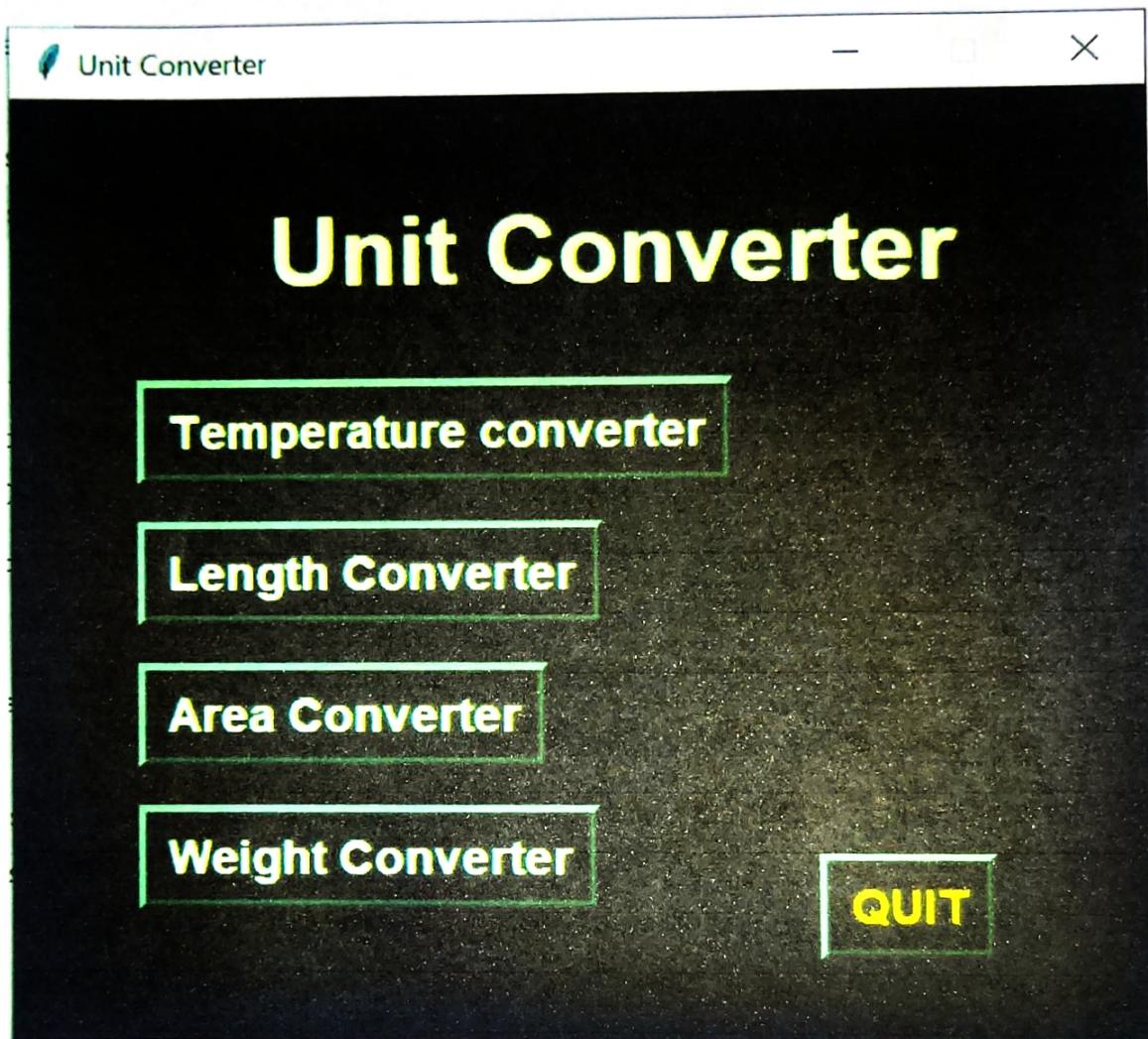


Fig.1.4 1-Main Window

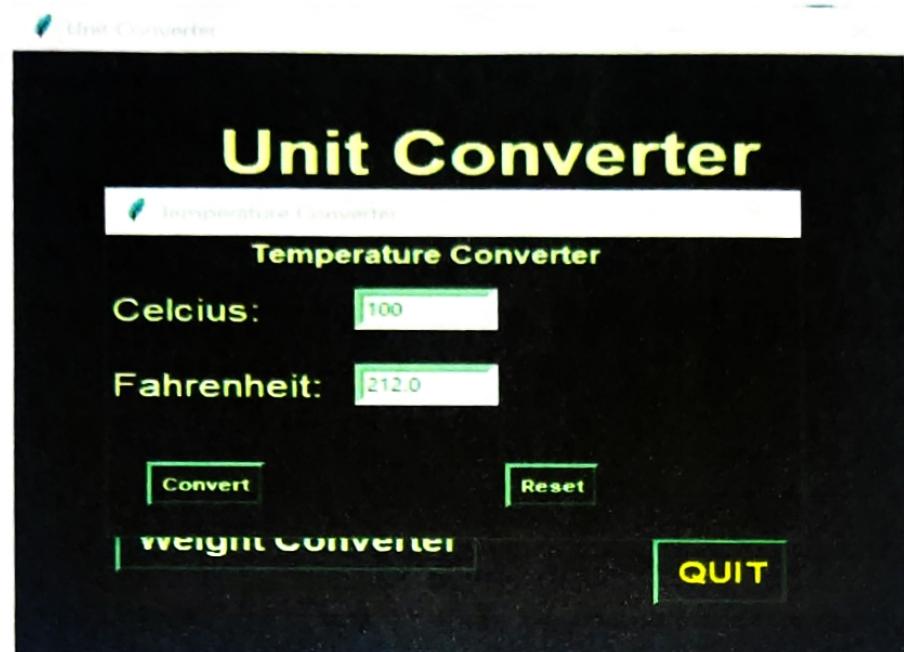


Fig.1.4 2-Conversion of Temperature from Celcius to Fahrenheit

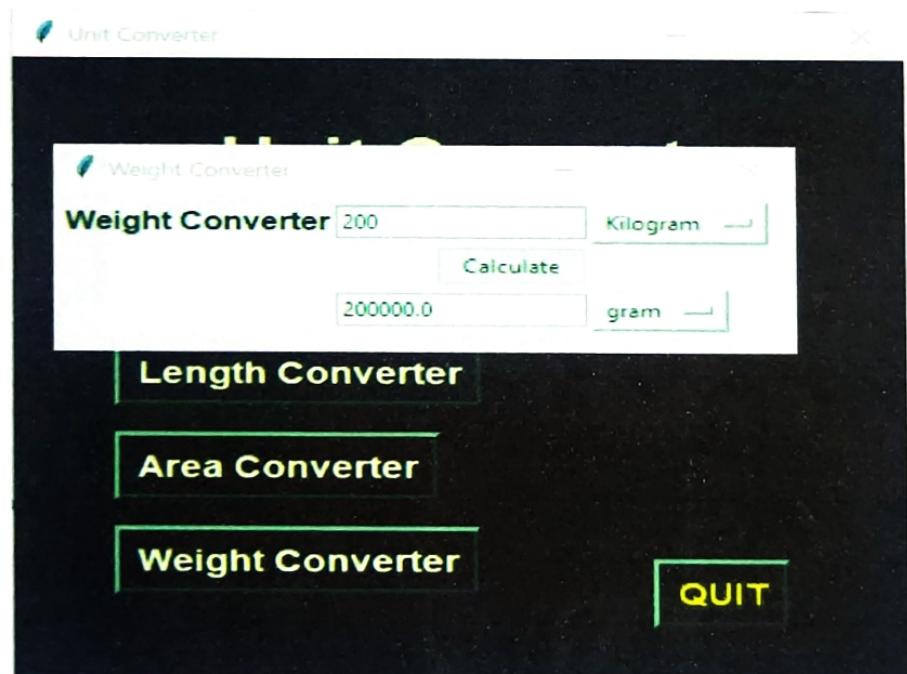


Fig.1.4 3-Conversion of Weight from Kilogram to Gram



Fig.1.4 4-Conversion of Area from Square kilometer to Square meter

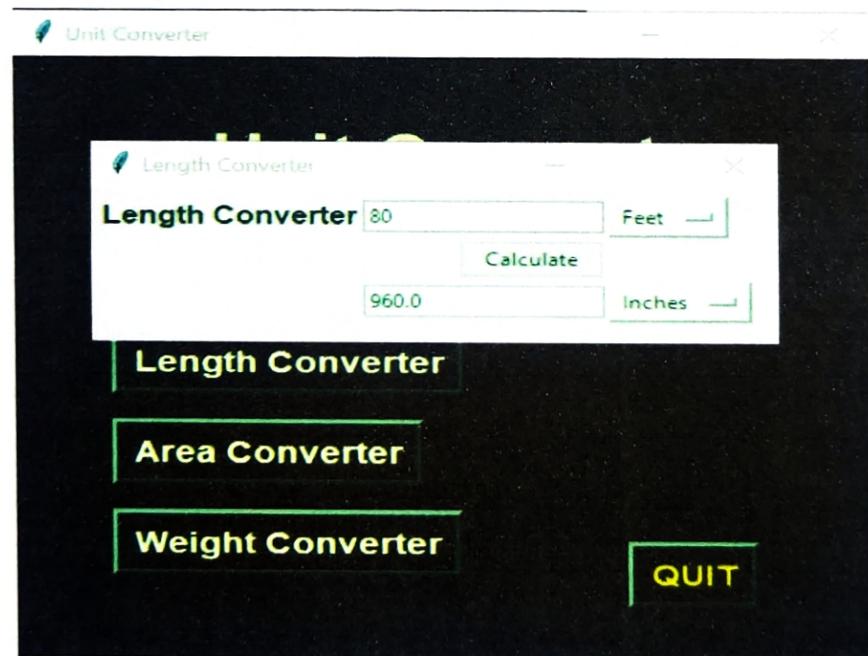


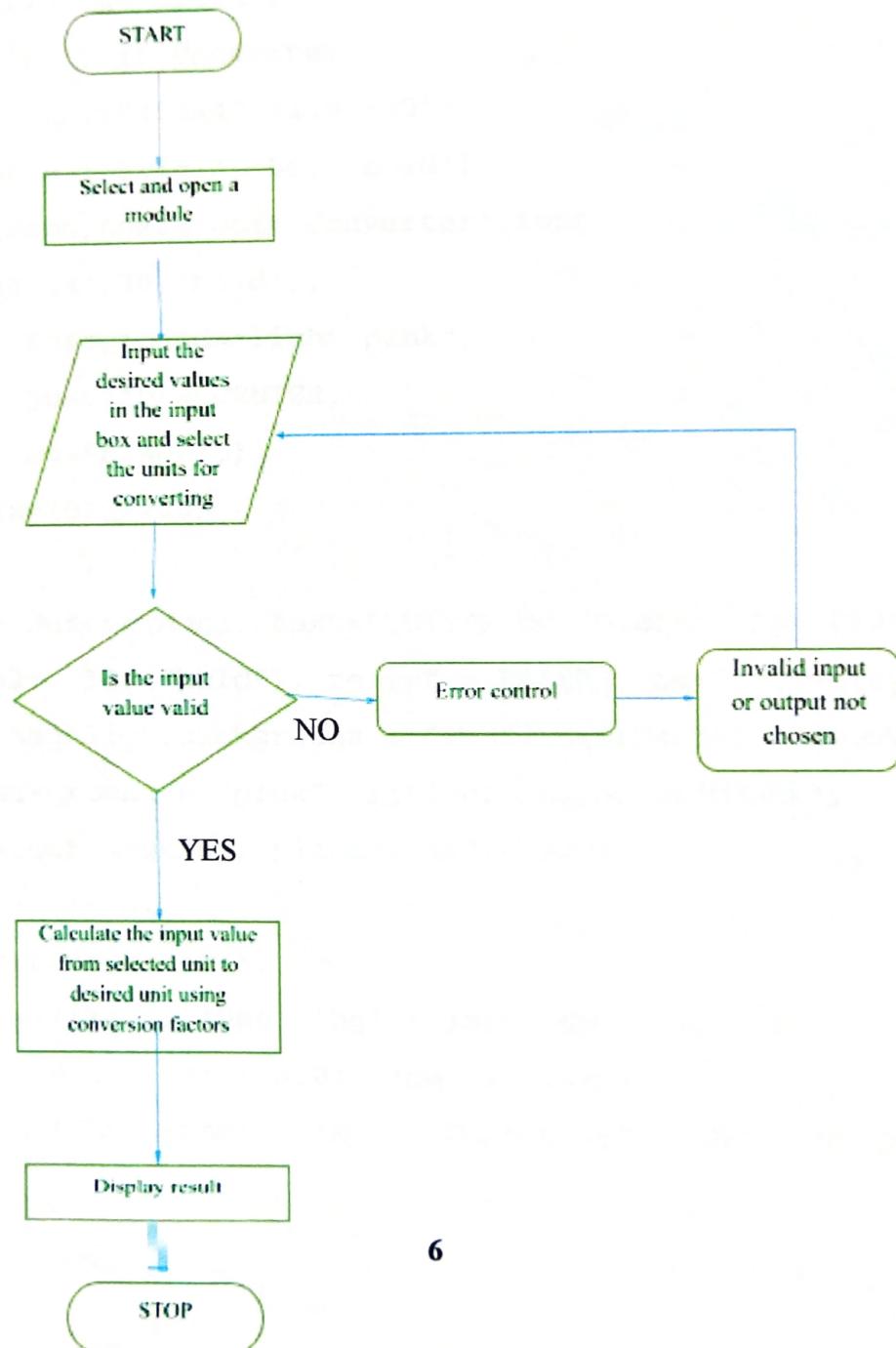
Fig.1.4 5-Conversion of Length from Feet to Inches

Chapter 2

Implementation

2.1 Implementations Details

2.1.A. Flowchart



2.1.B. Code

```
import tkinter as tk
from tkinter import *
from tkinter import Tk, StringVar , ttk

root = Tk()
root.resizable(0,0)
root.config(bg="black")
root.title('Unit Converter')
root.geometry("450x400+100+200")
labelfont = ('ariel', 56, 'bold')
l=Label(root,text='Unit Converter',font
= ('Helvetica',30,'bold'),
        foreground="light pink",
        justify = CENTER,
        bg="black",)
l.place(x=100,y=40)

widget = Button(None, text="QUIT", bg="black", fg="red",font
= ("Arial", 14, "bold"), relief = RAISED, bd=5, justify =
CENTER, highlightbackground = "red", overrelief = GROOVE,
activebackground = "pink", activeforeground="black",
command=root.destroy).place(x=320,y=320)

def WeightConverter():
    factors = {'kg' : 1000, 'hg' : 100, 'dg' : 10, 'g' :
1,'deg' : 0.1, 'cg' : 0.01, 'mg' : 0.001}
    ids = {"Kilogram" : 'kg', "Hectagram" : 'hg', "Decagram"
```

```
        Button(root, text="Length Converter", bg="black",
fg="pink", font = ("Arial", 14, "bold"), relief = RAISED,
bd=5, justify = CENTER, highlightbackground = "pink",
overrelief = GROOVE, activebackground = "pink",
activeforeground="black",
command=LengthConverter).place(x=50,y=180)
widget = Button(root, text="Area Converter", bg="black" ,
fg="pink", font = ("Arial", 14, "bold"), relief = RAISED,
bd=5, justify = CENTER, highlightbackground = "pink",
overrelief = GROOVE, activebackground = "pink",
activeforeground="black",
command=AreaConverter).place(x=50,y=240)
widgwidget = Button(root, text="Weight Converter",
bg="black" , fg="pink", font = ("Arial", 14, "bold"), relief
= RAISED, bd=5, justify = CENTER, highlightbackground =
"pink", overrelief = GROOVE, activebackground = "pink",
activeforeground="black",
command=WeightConverter).place(x=50,y=300)

root.mainloop()
```

2.2 Technologies Used

❖ Tkinter

Python offers multiple options for developing GUI (Graphical User Interface). Out of all the GUI methods, tkinter is the most commonly used method. It is a standard Python interface to the Tk GUI toolkit shipped with Python. Python with tkinter is the fastest and easiest way to create the GUI applications. Creating a GUI using tkinter is an easy task.

2.3 Test Cases

ID	Feature of Test	Execution step	Expected outcome	Results
1	To convert the desired value of tempertaure from celcius to fahrenheit	Enter the value to be converted into the celcius text box And hit the convert button	The converted value from celcius to fahrenheit	Celcius=100 To Fahrenheit=21 2.0
2	To convert the desired value of Area from one unit to the other	Enter the desired value in the first textbox. Select the unit to be converted and the required output unit press enter	The converted value from on unit to the other of the area is displayed	700 square km To 700000000.0 square m
3	To convert the desired value of Length from one unit to the other	Enter the desired value in the first textbox. Select the unit to be converted and the required output unit and hit the Calculate button	The converted value from on unit to the other of the length is displayed	80 feet To 960.0 inches
4	To convert the desired value of Length from one unit to the other	Enter the desired value in the first textbox. Select the unit to be converted and the required output unit and hit the Calculate button	The converted value from on unit to the other of the weight is displayed	200 kilogram To 200000.0 gram

Reference:

1) Lectures by project guide

2) <https://github.com/>

Acknowledgement

We have taken efforts in this project. However, it would not have been possible without the kind support and help of many individuals and organizations. We would like to extend my sincere thanks to all of them.

We are highly indebted to **Mr.Santosh V Jadhav** for his guidance and constant supervision as well as for providing necessary information regarding the project & also for their support in completing the project and for his kind co-operation and encouragement which helped us in completion of this project.

We would like to express our special gratitude and thanks to our guide for giving us such attention and time.

Also thanks and appreciations to our colleague in developing the project and people who have willingly helped us out with their abilities.