Government Polytechnic, Pune-16

(An Autonomous Institute of Government of Maharashtra)

A
MICROPROJECT REPORT
ON

"Bank Management System"

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Under the Guidance of
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DEPARTMENT OF INFORMATION TECHNOLOGY
(Academic Year: 2020-21)

Government Polytechnic, Pune-16

(An Autonomous Institute of Government of Maharashtra)

Department Information Technology

CERTIFICATE

This is to certify that **Dhanashri Arjun Ghadage (1907020),Sonali Gade(1907016),Prerna Divekar(1907014)** of Third Year Diploma in Information Technology has successfully completed Micro project titled **"Bank Management System"** as part of his diploma curriculum of Course Operating System in year 2020-21.

Project Guide	**H.O.D**	**Principal**
(Mrs. Kiran Gaikwad)	**(Mrs. M. U. Kokate)**	**(Dr. V. S. Bandal)**

ACKNOWLEDGEMENT

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Last but not the least I wish to thank my parents for financing my studies and helping me throughout my life for achieving perfection and excellence. Their personal help in making this report and seminar worth presentation is gratefully acknowledged.

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Abstract

The content of an abstract must answer or address the needs of every issue happen in bank management system project. These issues could be lacking of security in manual managing of bank accounts or to address the efficiency of banking transactions by making the management system an online project. For example is:

To create a project for resolving a customer's financial applications in a banking environment in order to meet the needs of an end banking user by giving multiple ways to accomplish banking chores. Also, to provide additional features to the user's work space that aren't available in a traditional banking project.

This project abstract for Bank Management System is important because you can foresee the function of the system upon creating it.

Introduction

The “Bank Account Management System” project is a model Internet Banking Site. This site enables the customers to perform the basic banking transactions by sitting at their office or at homes through PC or laptop. The system provides the access to the customer to create an account, deposit/withdraw the cash from his account, also to view reports of all accounts present. The customers can access the banks website for viewing their Account details and perform the transactions on account as per their requirements. With Internet Banking, the brick and mortar structure of the traditional banking gets converted into a click and portal
model, thereby giving a concept of virtual banking a real shape. Thus today's banking is no longer confined to branches. E-banking facilitates banking transactions by customers round the clock globally. The primary aim of this “Bank Account Management System” is to provide an improved design methodology, which envisages the future expansion, and modification, which is necessary for a core sector like banking. This necessitates the design to be expandable and
modifiable and so a modular approach is used in developing the application software. Anybody who is an Account holder in this bank can become a member of Bank Account Management System. He has to fill a form with his personal details and Account Number. Bank is the place where customers feel the sense of safety for their property. In the bank,customers deposit and withdraw their money. Transaction of money also is a part where customer takes shelter of the bank. Now to keep the belief and trust of customers, there is the

positive need for management of the bank, which can handle all this with comfort and ease. Smooth and efficient management affects the satisfaction of the customers and staff members, indirectly. And of course, it encourages management committee in taking some needed decision for future enhancement of the bank. Now a day's, managing a bank is tedious job up to certain limit. So software that reduces the work is essential. Also today's world is a genuine computer world and is getting faster and faster day-by-day. Thus, considering above necessities, the software for bank management has became necessary which would be useful in managing the bank more efficiently. All transactions are carried out online by transferring from accounts in the same Bank or international bank. The software is meant to overcome the drawbacks of the manual system.

Description

Python GUI – 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.

To create a tkinter app:

1. **Importing the module – tkinter**
2. **Create the main window (container)**
3. **Add any number of widgets to the main window**
4. **Apply the event Trigger on the widgets.**

There are two main methods used which the user needs to remember while creating the Python application with GUI.

Tk(screenName=None, baseName=None, className='Tk', useTk=1):

To create a main window, tkinter offers a method 'Tk(screenName=None, baseName=None, className='Tk', useTk =1)'. To change the name of the window, you can change the className to the desired one. The basic code used to create the main window of the application is:

```
m=tkinter.Tk()
```

where m is the name of the main window object

2.mainloop(): There is a method known by the name mainloop() is used when your application is ready to run. mainloop() is an infinite loop used to run the application, wait for an event to occur and process the event as long as the window is not closed.
m.mainloop()

tkinter also offers access to the geometric configuration of the widgets which can organize the widgets in the parent windows. There are mainly three geometry manager classes class.
pack() method: It organizes the widgets in blocks before placing in the parent widget.
grid() method: It organizes the widgets in grid (table-like structure) before placing in the parent widget.
place() method: It organizes the widgets by placing them on specific positions directed by the programmer.
There are a number of widgets which you can put in your tkinter application. Some of the major widgets are explained below:

1.Button:To add a button in your application, this widget is used.
The general syntax is:
w=Button(master, option=value)

master is the parameter used to represent the parent window. There are number of options which are used to change the format of the Buttons. Number of options can be passed as parameters separated by commas. Some of them are listed below.

- **activebackground**: to set the background color when button is under the cursor.
- **activeforeground**: to set the foreground color when button is under the cursor.
- **bg**: to set he normal background color.
- **command**: to call a function.
- **font**: to set the font on the button label.
- **image**: to set the image on the button.
- **width**: to set the width of the button.
- **height**: to set the height of the button.

<u>2.Canvas:</u> It is used to draw pictures and other complex layout like graphics, text and widgets.
The general syntax is:
w = Canvas(master, option=value)

master is the parameter used to represent the parent window.

There are number of options which are used to change the format of the widget. Number of options can be passed as parameters separated by commas. Some of them are listed below.

- **bd**: to set the border width in pixels.
- **bg**: to set the normal background color.
- **cursor**: to set the cursor used in the canvas.
- **highlightcolor**: to set the color shown in the focus highlight.
- **width**: to set the width of the widget.
- **height**: to set the height of the widget.

```
from tkinter import *
```

3.Entry: It is used to input the single line text entry from the user.. For multi-line text input, Text widget is used.
The general syntax is:
w=Entry(master, option=value)

master is the parameter used to represent the parent window. There are number of options which are used to change the format of the widget. Number of options can be passed as parameters separated by commas. Some of them are listed below.

- **bd**: to set the border width in pixels.
- **bg**: to set the normal background color.
- **cursor**: to set the cursor used.
- **command**: to call a function.
- **highlightcolor**: to set the color shown in the focus highlight.
- **width**: to set the width of the button.
- **height**: to set the height of the button.

4.Frame: It acts as a container to hold the widgets. It is used for grouping and organizing the widgets. The general syntax is:
w = Frame(master, option=value)

master is the parameter used to represent the parent window.

There are number of options which are used to change the format of the widget. Number of options can be passed as parameters separated by commas. Some of them are listed below.

- **highlightcolor**: To set the color of the focus highlight when widget has to be focused.
- **bd**: to set the border width in pixels.
- **bg**: to set the normal background color.
- **cursor**: to set the cursor used.

- **width**: to set the width of the widget.
- **height**: to set the height of the widget.

Python: Pillow (a fork of PIL)

Python Imaging Library (expansion of PIL) is the de facto image processing package for Python language. It incorporates lightweight image processing tools that aids in editing, creating and saving images. Support for Python Imaging Library got discontinued in 2011, but a project named pillow forked the original PIL project and added Python3.x support to it. Pillow was announced as a replacement for PIL for future usage. Pillow supports a large number of image file formats including BMP, PNG, JPEG, and TIFF. The library encourages adding support for newer formats in the library by creating new file decoders.
This module is not preloaded with Python. So to install it execute the following command in the command-line:

```
from PIL import Image

img = Image.open(r"img")
```

Code

```python
#imports
from tkinter import *
import os
from PIL import ImageTk, Image
from tkinter import messagebox
from tkinter import ttk

#Main Screen
master = Tk()
master.title('Banking App'.center(420))
master.geometry("1000x1000+0+0")
master.configure(background = "black")

#Functions
def finish_reg():
    name = temp_name.get()
    age = temp_age.get()
    gender = temp_gender.get()
    password = temp_password.get()
    all_accounts = os.listdir()
    if name == "" or age == "" or gender == "" or password == "":
        return messagebox.showerror("Error","All Fields Required")
    for name_check in all_accounts:
        if name == name_check:
            notif.config(fg="red",text="Account already exists")
            return
        else:
            new_file = open(name,"w")
            new_file.write(name+'\n')
            new_file.write(password+'\n')
            new_file.write(age+'\n')
            new_file.write(gender+'\n')
            new_file.write('0')
            new_file.close()
            notif.config(fg="green", text="Account has been created")
```

```
def register():
    #Vars
    global temp_name
    global temp_age
    global temp_gender
    global temp_password
    global notif
    temp_name = StringVar()
    temp_age = StringVar()
    temp_gender = StringVar()
    temp_password = StringVar()

    #Register Screen
    register_screen = Toplevel(master)
    register_screen.title('Register')
    register_screen.geometry("600x500+0+0")

    #Labels
    Label(register_screen, text="Enter Your details to Register", 
font=('times new roman',35)).grid(row=0,sticky=N,pady=10)
    Label(register_screen, text="Name",fg='red', font=('times new 
roman',25)).grid(row=1,sticky=W)
    Label(register_screen, text="Age",fg='red', font=('times new 
roman',25)).grid(row=2,sticky=W)
    Label(register_screen, text="Gender", fg='red',font=('times new 
roman',25)).grid(row=3,sticky=W)
    Label(register_screen, text="Password", fg='red',font=('times new 
roman',25)).grid(row=4,sticky=W)
    notif = Label(register_screen, font=('times new roman',25))
    notif.grid(row=6,sticky=N,pady=10)
    #Entries
    Entry(register_screen,textvariable=temp_name,bd=5,fg='blue',font
=('times new 
roman',20,"bold")).grid(row=1,column=0,padx=20,pady=10)
    Entry(register_screen,textvariable=temp_age,bd=5,fg='blue',font=('
times new 
roman',20,"bold")).grid(row=2,column=0,padx=20,pady=10)
```

```
    #Entry(register_screen,textvariable=temp_gender,bd=5,font=('time
s new roman',20,"bold")).grid(row=3,column=0,padx=20,pady=10)
    gender=ttk.Combobox(register_screen,textvariable=temp_gender,f
ont=('times new roman',20,"bold"),width=20,state="readonly")
    gender['values']=("Male","Female","Others")
    gender.grid(row=3,column=0,padx=20,pady=10,)
    Entry(register_screen,textvariable=temp_password,bd=5,show="*",
fg='blue',font=('times new
roman',20,"bold")).grid(row=4,column=0,padx=20,pady=10)
    #Buttons
    Button(register_screen, text="Register", command =
finish_reg,fg='blue', font=('times new
roman',25)).grid(row=5,sticky=N,pady=10)
def login_session():
    global login_name
    all_accounts = os.listdir()
    login_name = temp_login_name.get()
    login_password = temp_login_password.get()

    for name in all_accounts:
        if name == login_name:
            file = open(name,"r")
            file_data = file.read()
            file_data = file_data.split('\n')
            password  = file_data[1]
            #Account Dashboard
            if login_password == password:
                login_screen.destroy()
                account_dashboard = Toplevel(master)
                account_dashboard.title('Dashboard')
                account_dashboard.geometry("500x700+0+0")
                account_dashboard.configure(background = "black")
                #Labels
                Label(account_dashboard, text="Account Dashboard",
fg="#ff00bf",font=('times new
roman',40)).grid(row=0,sticky=N,pady=10)
```

```
            Label(account_dashboard, text="Welcome
"+name,fg="#ff00bf", font=('times new
roman',40)).grid(row=1,sticky=N,pady=5)
            #Buttons
            Button(account_dashboard, text="Personal
Details",fg="blue",font=('times new
roman',30),width=20,command=personal_details).grid(row=2,sticky=
N,padx=10,pady=20)
            Button(account_dashboard,
text="Deposit",fg="blue",font=('times new
roman',30),width=20,command=deposit).grid(row=3,sticky=N,padx=
10,pady=20)
            Button(account_dashboard,
text="Withdraw",fg="blue",font=('times new
roman',30),width=20,command=withdraw).grid(row=4,sticky=N,pad
x=10,pady=20)
            Label(account_dashboard).grid(row=5,sticky=N,pady=10)
            return
         else:
            login_notif.config(fg="red", text="Password incorrect!!")
            return
   login_notif.config(fg="red", text="No account found !!")
def deposit():
   #Vars
   global amount
   global deposit_notif
   global current_balance_label
   amount = StringVar()
   file   = open(login_name, "r")
   file_data = file.read()
   user_details = file_data.split('\n')
   details_balance = user_details[4]
   #Deposit Screen
   deposit_screen = Toplevel(master)
   deposit_screen.title('Deposit')
   deposit_screen.geometry("500x500+0+0")
   #Label
```

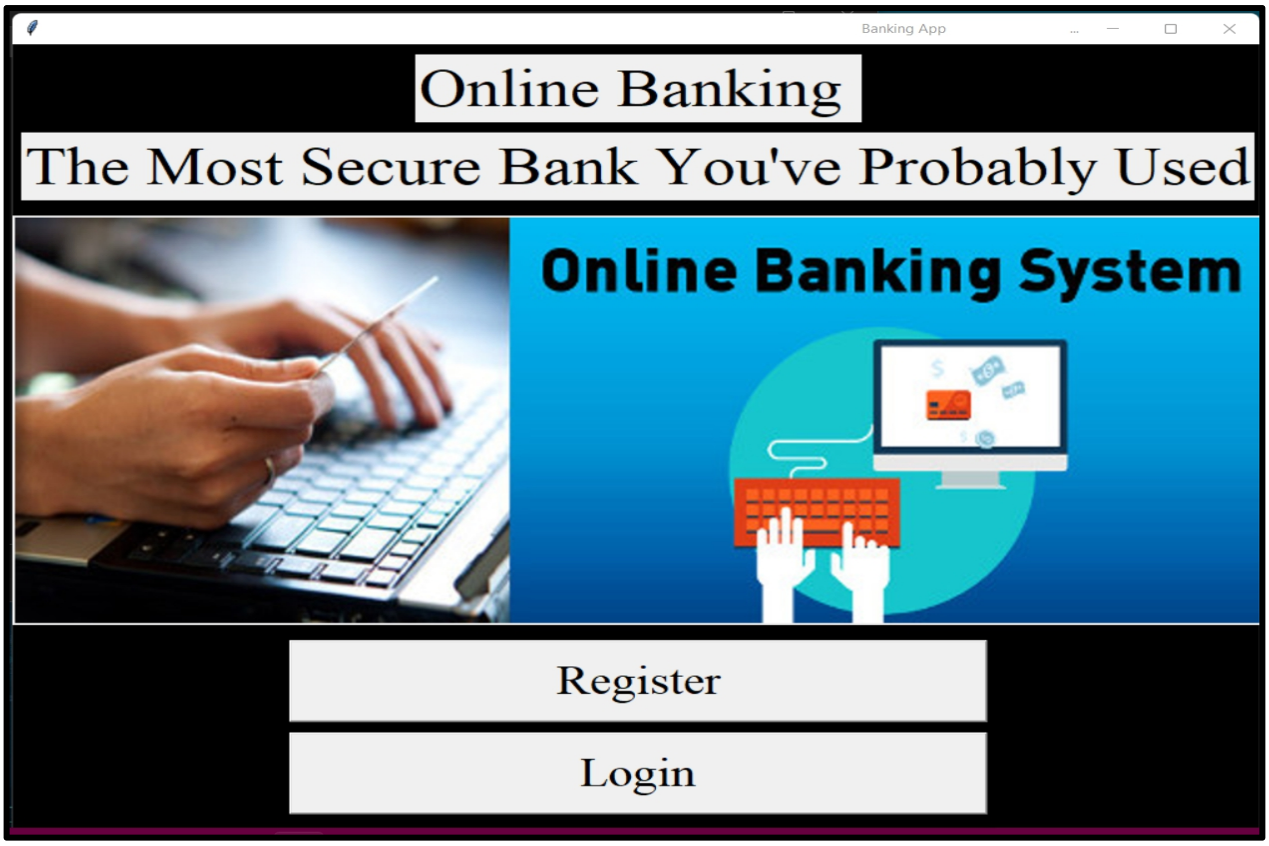
```
    Label(deposit_screen, text="Deposit",fg="#ff00bf", font=('times
new roman',40)).grid(row=0,sticky=N,pady=10)
    current_balance_label = Label(deposit_screen,fg="red",
text="Current Balance : $"+details_balance, font=('times new
roman',30))
    current_balance_label.grid(row=1,sticky=W)
    Label(deposit_screen, text="Amount : ",fg="blue", font=('times
new roman',30)).grid(row=2,sticky=W)
    deposit_notif = Label(deposit_screen,fg="blue",font=('times new
roman',10))
    deposit_notif.grid(row=4, sticky=N,pady=5)
    #Entry
    Entry(deposit_screen,
textvariable=amount,bd=5,fg="blue",font=('times new
roman',20,'bold')).grid(row=2,sticky=E,padx=20,pady=10)
    #Button
    Button(deposit_screen,text="Finish",fg="blue",font=('times new
roman',30),command=finish_deposit).grid(row=5,sticky=N,pady=5
def finish_deposit():
    if amount.get() == "":
        deposit_notif.config(text='Amount is required!',fg="red")
        return
    if float(amount.get()) <=0:
        deposit_notif.config(text='Negative currency is not accepted',
fg='red')
        return
    file = open(login_name, 'r+')
    file_data = file.read()
    details = file_data.split('\n')
    current_balance = details[4]
    updated_balance = current_balance
    updated_balance = float(updated_balance) + float(amount.get())
    file_data       = file_data.replace(current_balance,
str(updated_balance))
    file.seek(0)
    file.truncate(0)
    file.write(file_data)
    file.close()
    current_balance_label.config(text="Current Balance :
$"+str(updated_balance),fg="green")
    deposit_notif.config(text='Balance Updated', fg='green')

def withdraw():
     #Vars
    global withdraw_amount
    global withdraw_notif
    global current_balance_label
    withdraw_amount = StringVar()
    file   = open(login_name, "r")
    file_data = file.read()
    user_details = file_data.split('\n')
    details_balance = user_details[4]
    #Deposit Screen
    withdraw_screen = Toplevel(master)
    withdraw_screen.title('Withdraw')
    withdraw_screen.geometry("500x500+0+0")
    #Label
    Label(withdraw_screen, text="Withdraw",
fg="#ff00bf",font=('times new
roman',40)).grid(row=0,sticky=N,pady=10)
    current_balance_label = Label(withdraw_screen,fg="red",
text="Current Balance : $"+details_balance, font=('times new
roman',30))
    current_balance_label.grid(row=1,sticky=W)
    Label(withdraw_screen, text="Amount : ",fg="blue", font=('times
new roman',30)).grid(row=2,sticky=W)
    withdraw_notif = Label(withdraw_screen,font=('times new
roman',10))
    withdraw_notif.grid(row=4, sticky=N,pady=5)
    #Entry
    Entry(withdraw_screen,fg="blue",bd=5,font=('times new
roman',20,'bold'),
textvariable=withdraw_amount).grid(row=2,padx=20,pady=10,sticky
=E)
```

```
    #Button
    Button(withdraw_screen,fg="blue",bd=5,font=('times new
roman',30),text="Finish",command=finish_withdraw).grid(row=5,stic
ky=N,pady=5)
def finish_withdraw():
    if withdraw_amount.get() == "":
        withdraw_notif.config(text='Amount is required!',fg="red")
        return
    if float(withdraw_amount.get()) <=0:
        withdraw_notif.config(text='Negative currency is not accepted',
fg='red')
        return
    file = open(login_name, 'r+')
    file_data = file.read()
    details = file_data.split('\n')
    current_balance = details[4]
    if float(withdraw_amount.get()) >float(current_balance):
        withdraw_notif.config(text='Insufficient Funds!', fg='red')
        return
    updated_balance = current_balance
    updated_balance = float(updated_balance) -
float(withdraw_amount.get())
    file_data       = file_data.replace(current_balance,
str(updated_balance))
    file.seek(0)
    file.truncate(0)
    file.write(file_data)
    file.close()
    current_balance_label.config(text="Current Balance :
$"+str(updated_balance),fg="green")
    withdraw_notif.config(text='Balance Updated', fg='green')

def personal_details():
    #Vars
    file = open(login_name, 'r')
    file_data = file.read()
    user_details = file_data.split('\n')
    details_name = user_details[0]
    details_age = user_details[2]
    details_gender = user_details[3]
    details_balance = user_details[4]
    #Personal details screen
    personal_details_screen = Toplevel(master)
    personal_details_screen.title('Personal Details')
    personal_details_screen.geometry("400x500+0+0")
    #Labels
    Label(personal_details_screen, text="Personal Details",fg="green",
font=('times new roman',40)).grid(row=0,sticky=N,pady=10,padx=20)
    Label(personal_details_screen, text="Name :
"+details_name,fg="red", font=('times new
roman',20)).grid(row=1,sticky=W,pady=10,padx=20)
    Label(personal_details_screen, text="Age : "+details_age,fg="red",
font=('times new roman',20)).grid(row=2,sticky=W,pady=10,padx=20)
    Label(personal_details_screen, text="Gender :
"+details_gender,fg="red", font=('times new
roman',20)).grid(row=3,sticky=W,pady=10,padx=20)
    Label(personal_details_screen, text="Balance :$"+details_balance,
fg="red",font=('times new
roman',20)).grid(row=4,sticky=W,pady=10,padx=20)
def login():
    #Vars
    global temp_login_name
    global temp_login_password
    global login_notif
    global login_screen
    temp_login_name = StringVar()
    temp_login_password = StringVar()
    #Login Screen
    login_screen = Toplevel(master)
    login_screen.title('Login')
    login_screen.geometry("650x500+0+0")
    #Labels
    Label(login_screen, text=" Enter your details below to Login ",
font=('times new roman',35)).grid(row=0,sticky=W)
```

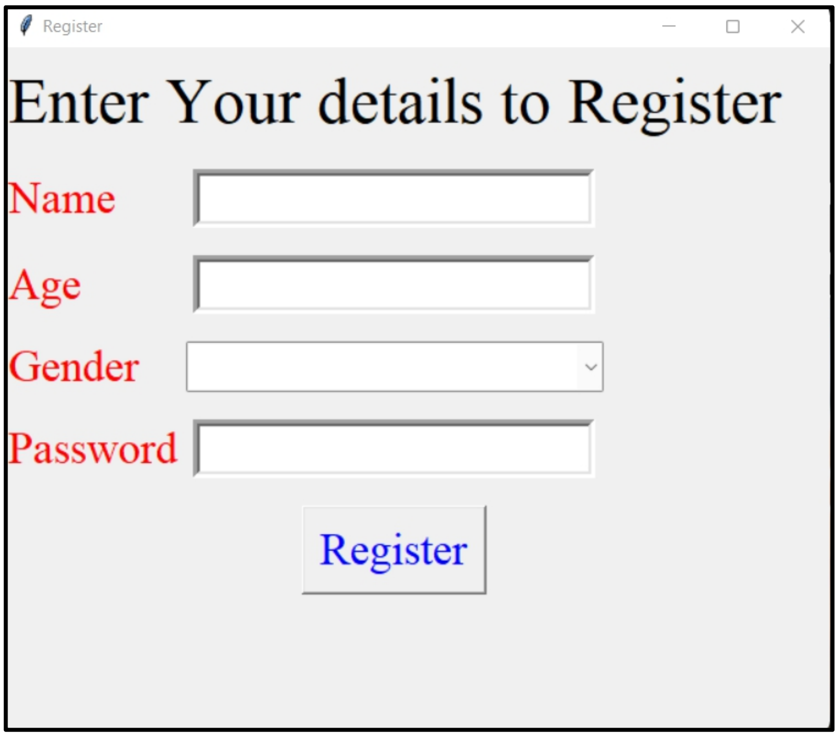
```
    Label(login_screen, text="Username",fg='red', font=('times new roman',25)).grid(row=1,sticky=W)
    Label(login_screen, text="Password", fg='red',font=('times new roman',25)).grid(row=2,sticky=W)
    login_notif = Label(login_screen, font=('times new roman',12))
    login_notif.grid(row=4,sticky=W)
    #Entry
    Entry(login_screen, textvariable=temp_login_name,bd=5,fg='blue',font=('times new roman',20,'bold')).grid(row=1,padx=20,pady=10,sticky=N)
    Entry(login_screen, textvariable=temp_login_password,show="*",bd=5,fg='blue',font=('times new roman',20,'bold')).grid(row=2,padx=20,pady=10,sticky=N)
    #Button
    Button(login_screen, text="Login", command=login_session,fg="blue",font=('times new roman',25)).grid(row=5,sticky=N,pady=20,padx=10)

#Image import
img = Image.open('1..jpg')
img = img.resize((1000,400))
img = ImageTk.PhotoImage(img)
#Labels
Label(master, text = "Online Banking ", font=('times new roman',40)).grid(row=0,sticky=N,pady=10)
Label(master, text = "The Most Secure Bank You've Probably Used", font=('times new roman',40)).grid(row=1,sticky=N)
Label(master, image=img).grid(row=2,sticky=N,pady=15)
#Buttons
Button(master, text="Register", font=('times new roman',30),width=25,command=register).grid(row=3,sticky=N)
Button(master, text="Login", font=('times new roman',30),width=25,command=login).grid(row=4,sticky=N,pady=10)
master.mainloop()
```

Implementation

Home Page



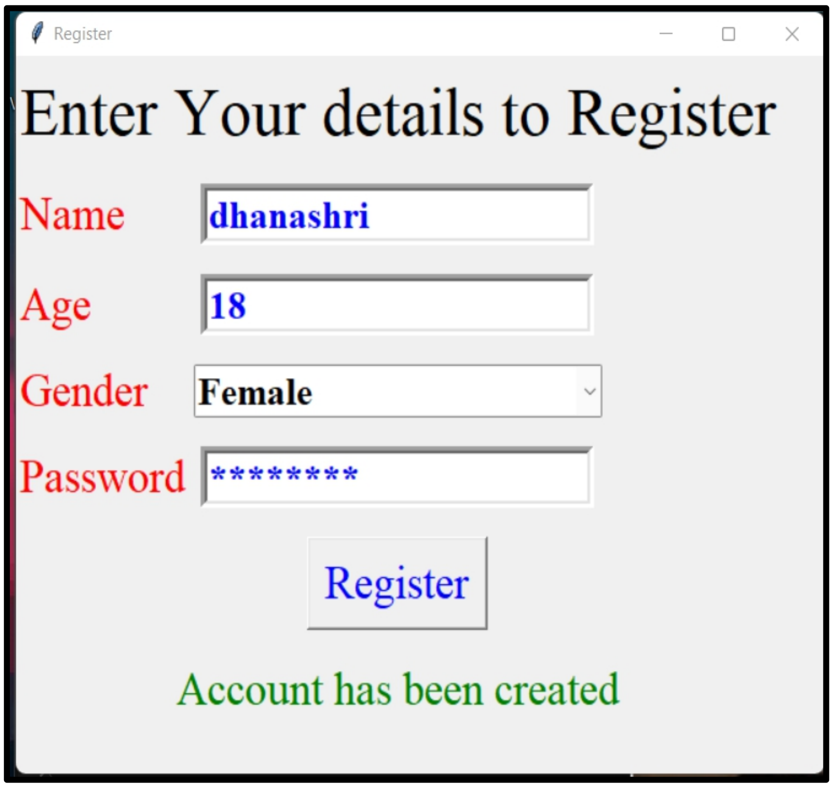
Registration Form



Enter Your details to Register

Name	
Age	
Gender	
Password	

When all fields are correct

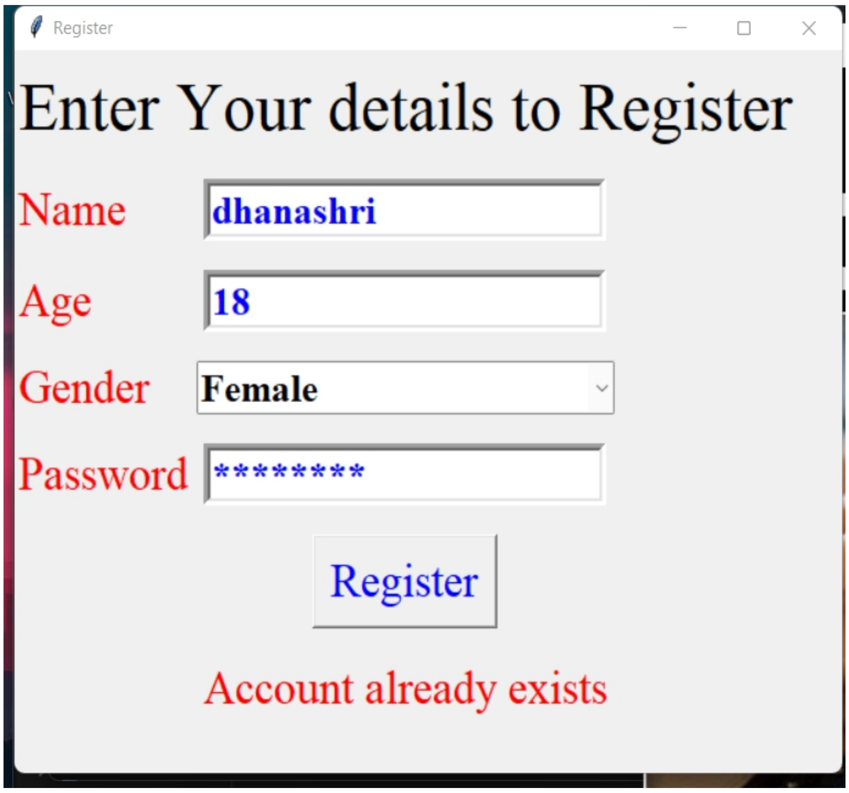


Enter Your details to Register

Name	dhanashri
Age	18
Gender	Female
Password	********

Account has been created

When given details are already exist in System



Register

Enter Your details to Register

Name: dhanashri

Age: 18

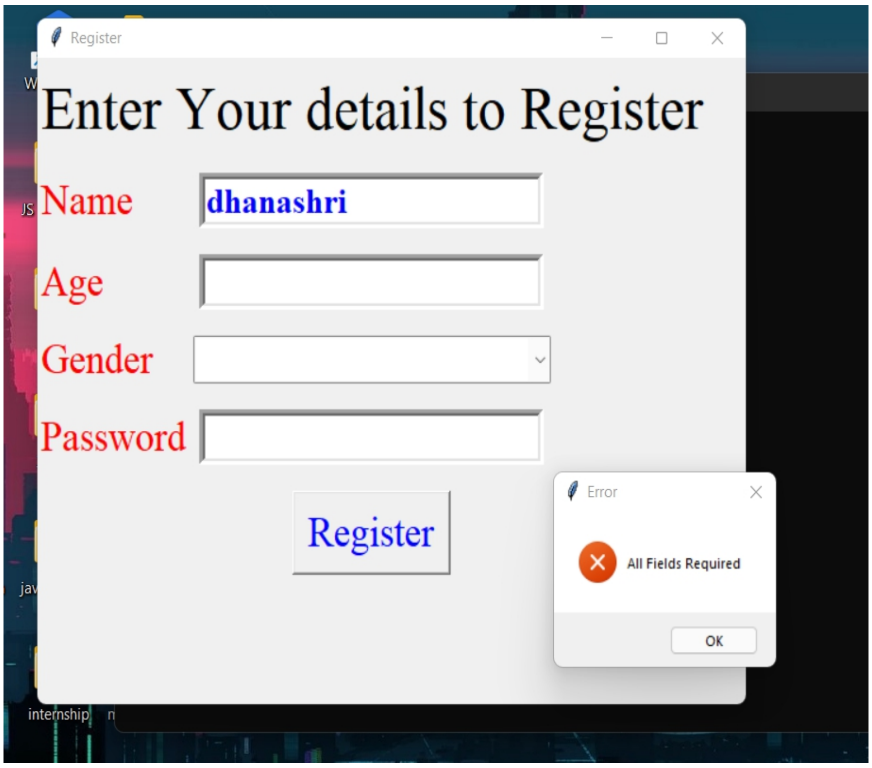
Gender: Female

Password: ********

Register

Account already exists

When any of the fields remain empty



Register

Enter Your details to Register

Name: dhanashri

Age:

Gender:

Password:

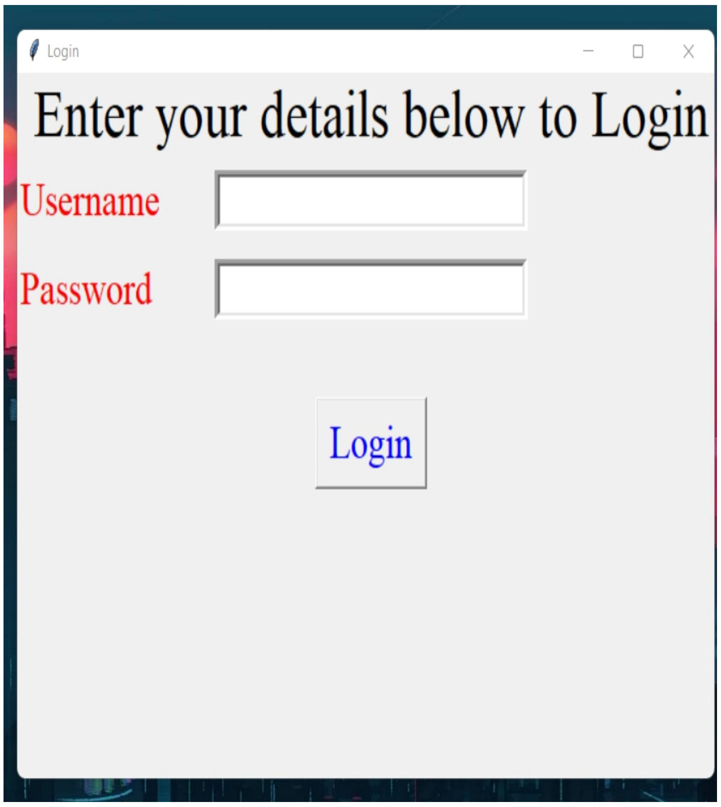
Register

Error

All Fields Required

OK

Login Form


Login

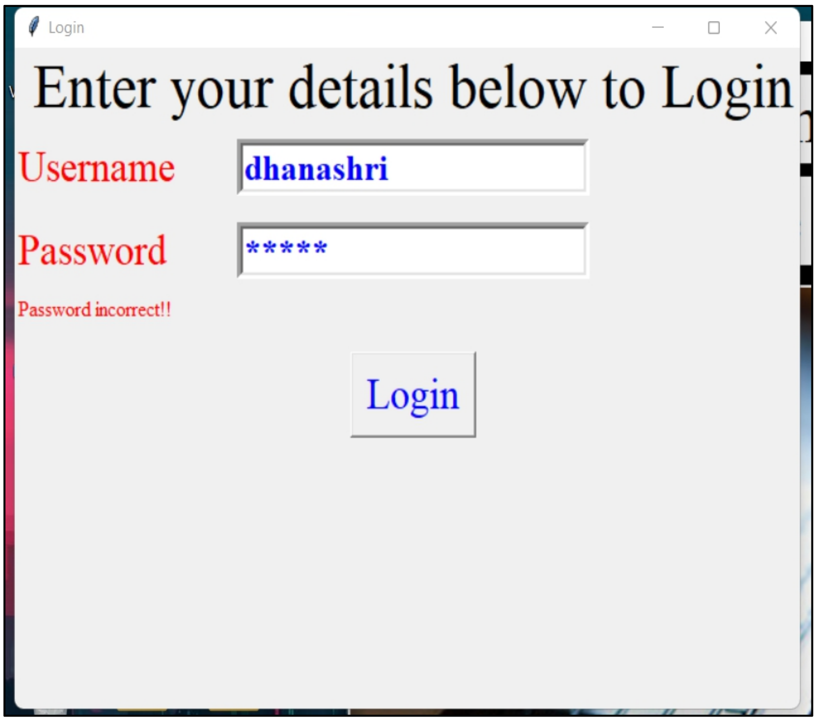
Enter your details below to Login

Username

Password

Login

When password is incorrect for entered username


Login

Enter your details below to Login

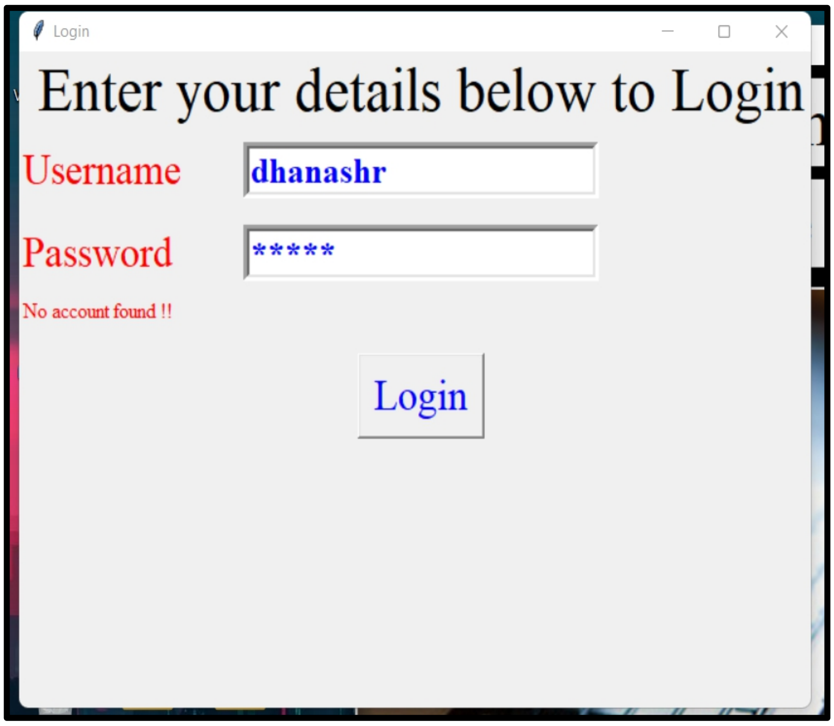
Username dhanashri

Password *****

Password incorrect!!

Login

When username and password are not registered in the system



Login

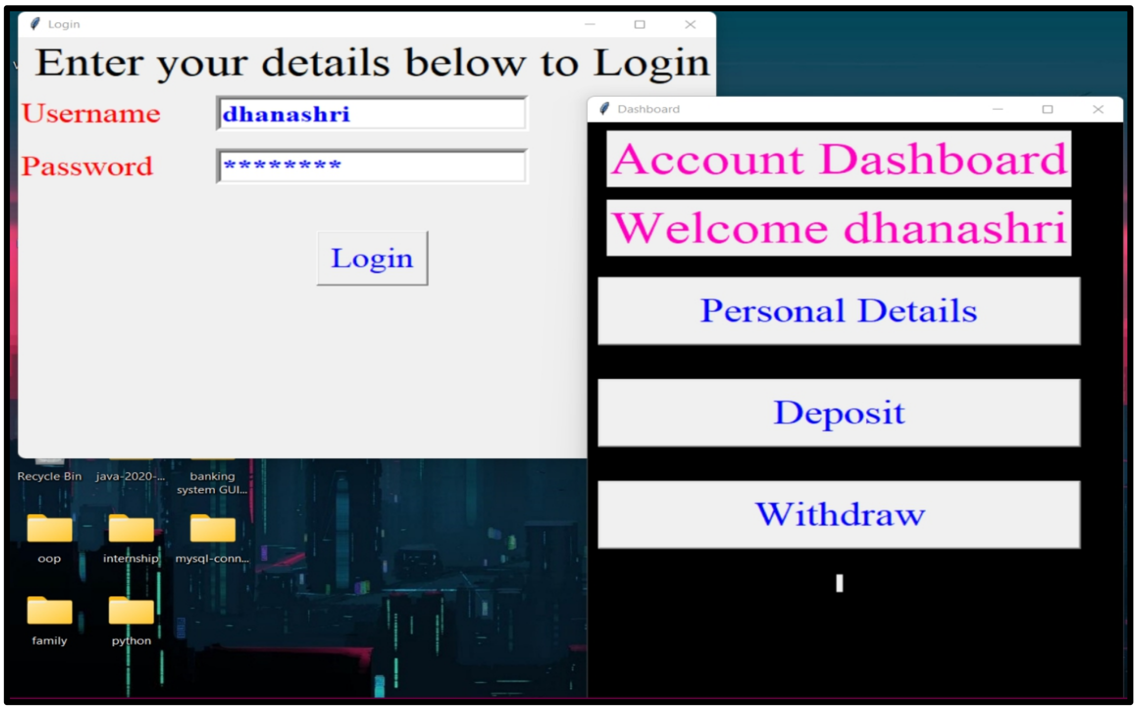
Enter your details below to Login

Username: dhanashr

Password: *****

No account found !!

When username and password both are correct



Login

Enter your details below to Login

Username: dhanashri

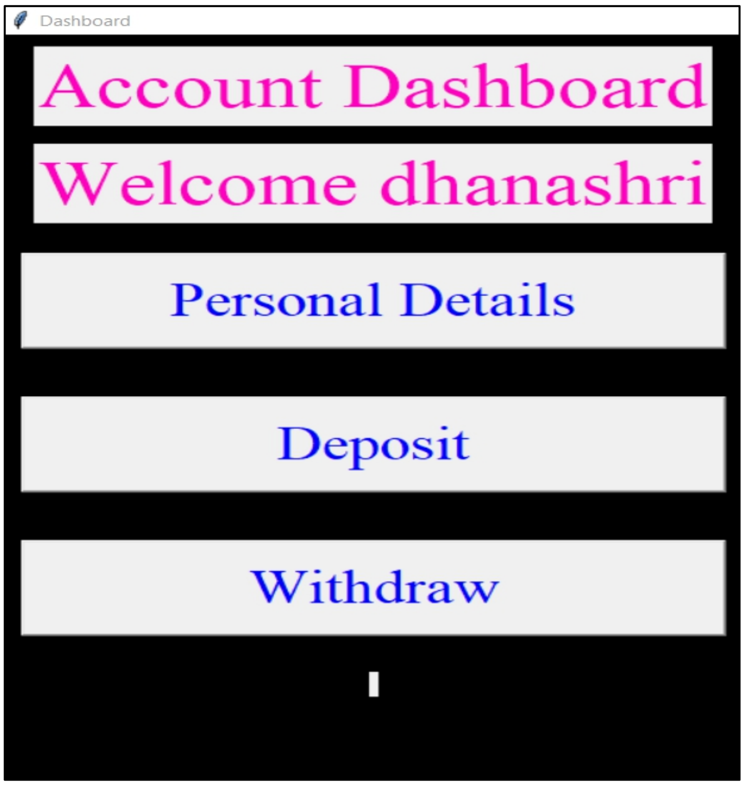
Password: *********

Dashboard

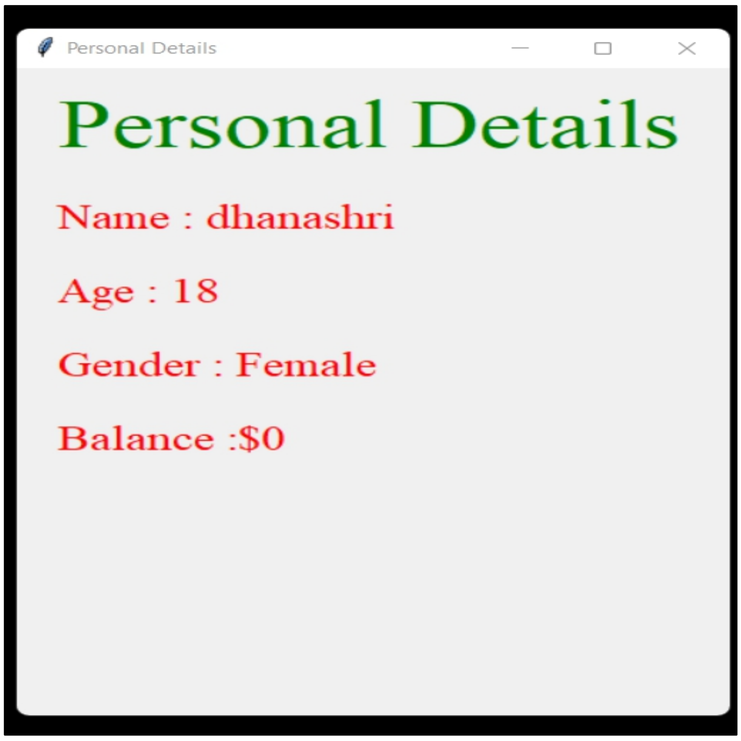
Account Dashboard

Welcome dhanashri

Dashboard



Personal Details



Personal Details

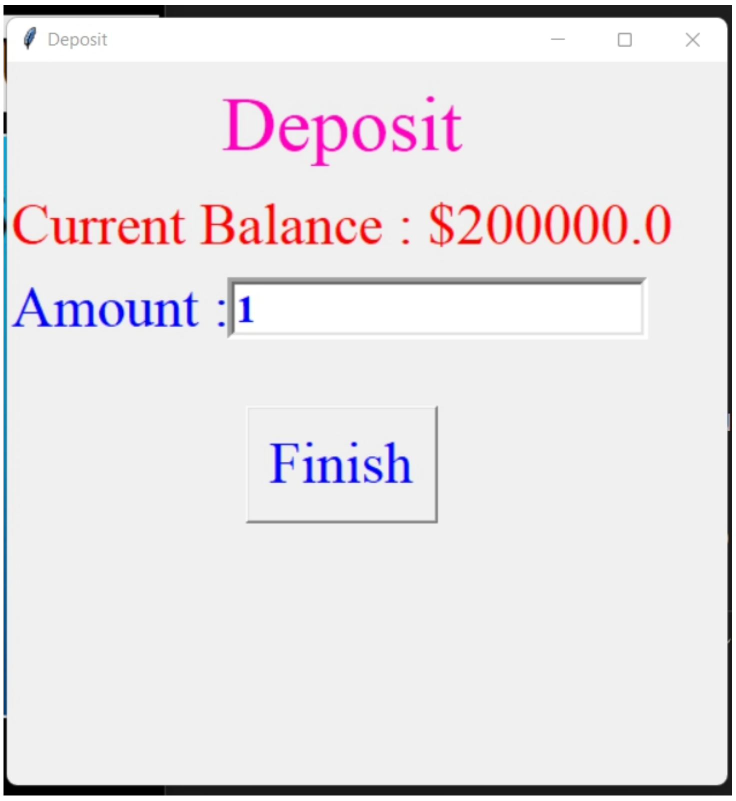
Name : dhanashri

Age : 18

Gender : Female

Balance :$0

Deposit



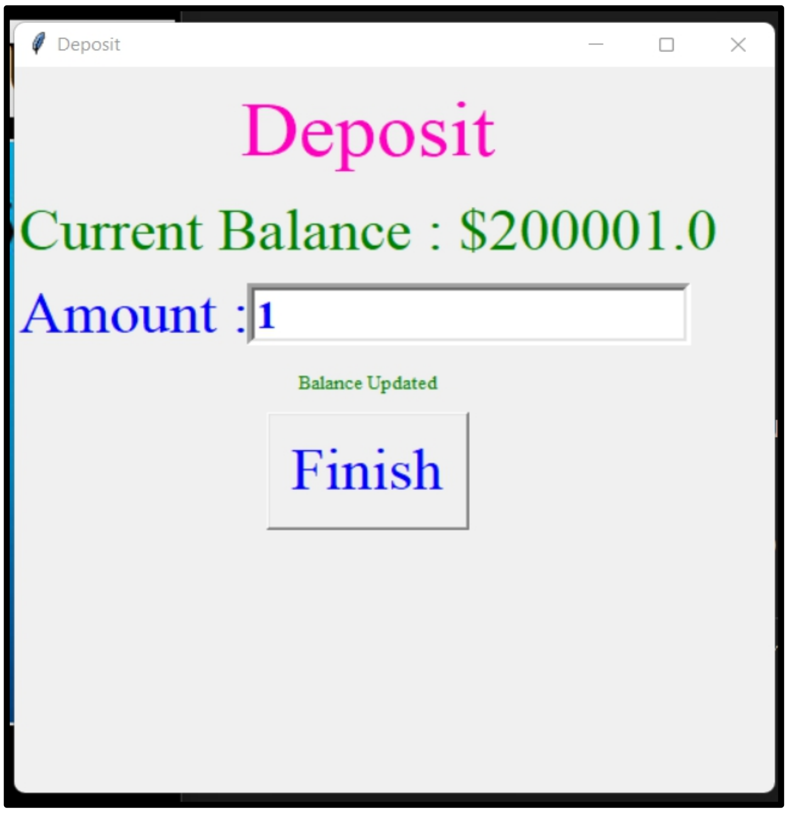
Deposit

Deposit

Current Balance : $200000.0

Amount : 1

When press finish button



Deposit

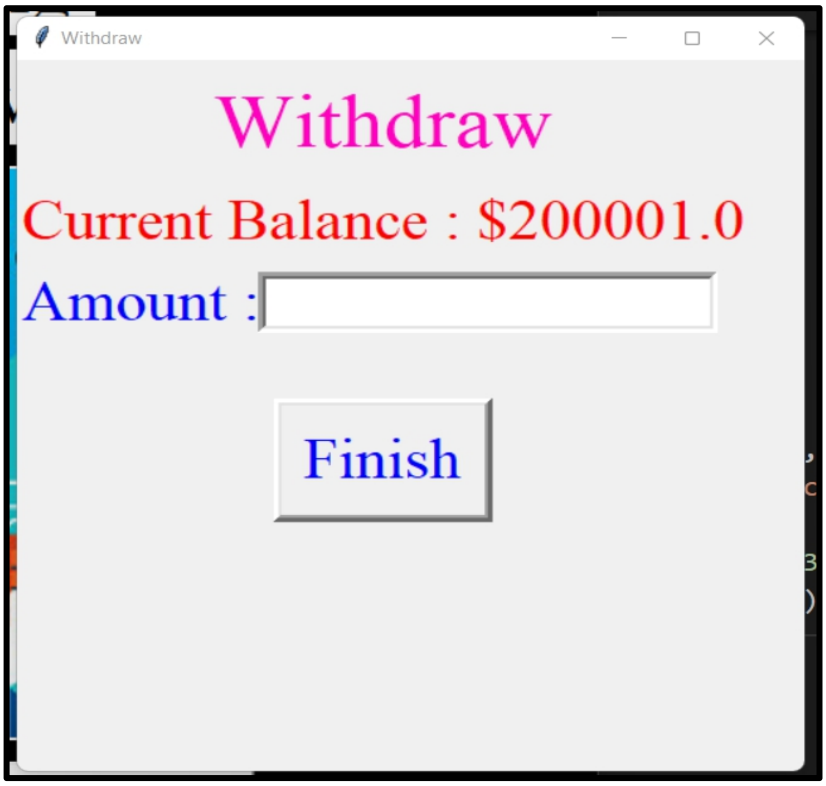
Deposit

Current Balance : $200001.0

Amount : 1

Balance Updated

Withdraw



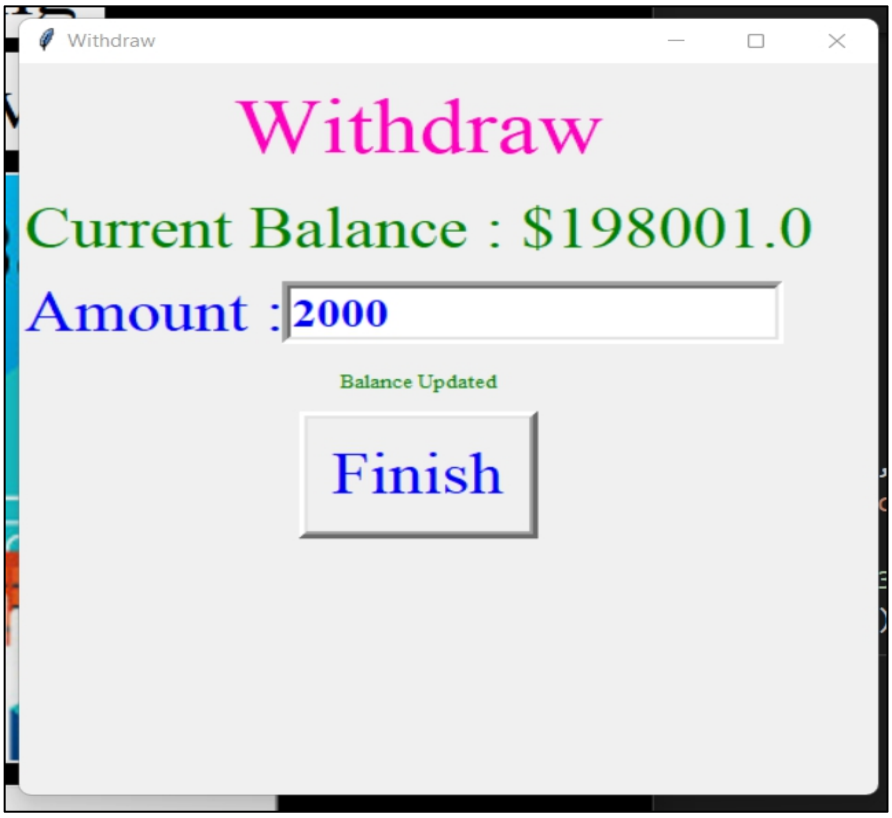
Withdraw

Withdraw

Current Balance : $200001.0

Amount :

When we press on finish button



Withdraw

Withdraw

Current Balance : $198001.0

Amount : 2000

Balance Updated

Course Outcome Achieve

1. Execute programs using operators and control flow statements.
2. Perform Operations on Python Data structures.
3. Develop applications using Functions, Modules and Packages.
4. Develop applications using object oriented concepts in python.
5. Write Python code for File Handling.
6. Working together as a group ,teamwork.
7. Logic building.

Conclusion

Hence we successfully creates the project on Bank Management System in Python Programming Language.

References

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2. https://www.geeksforgeeks.org/python-gui-tkinter/
3. https://docs.python.org/3/library/tkinter.ttk.html/