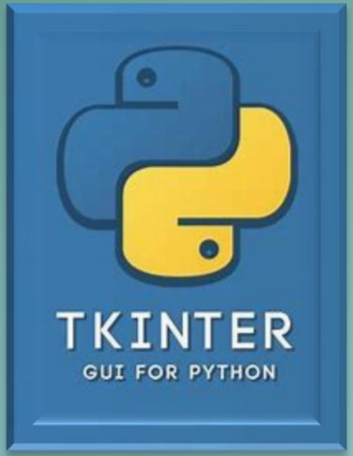
OBJECT ORIENTED PROGRAMMING

PROJECT BASED

2nd semester (Lect3)

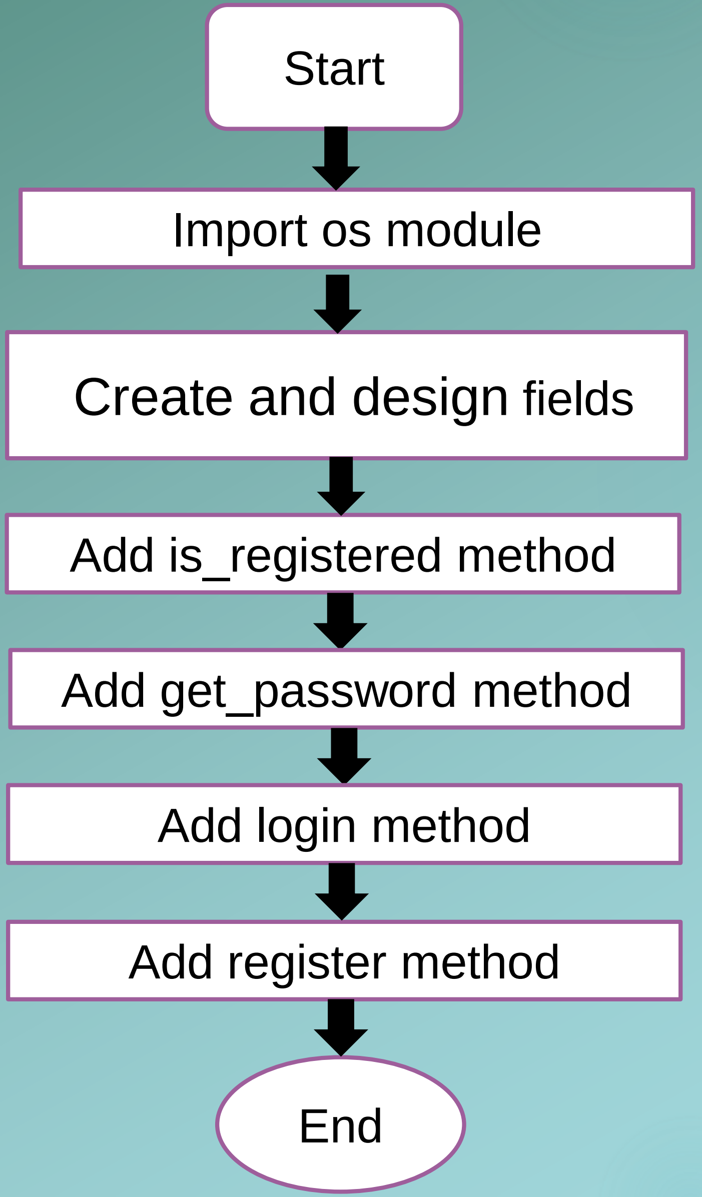
Creating Log in and Registration GUI window



Creating Log in and Registration GUI window

- **Q:** How can we create a GUI for player login and registration in the game? The window should include fields for entering a username and password, along with buttons for logging in and registering

Create GIU window



Creating Log in and Registration GUI window

1-Importing Modules

```
from tkinter import messagebox
import os
```

These lines import

- ❑ The `os` module for **file-related operations**, and
- ❑ The `messagebox` module from `tkinter` for **displaying message boxes**.
- ❑ We use `os` to check file existence and perform file operations,
- ❑ while `messagebox` allows us to provide interaction with user via message boxes.

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2- Create and Design Fields

```
self.label_username = tk.Label(self.window, text="Username:")
self.label_username.pack()  # Add username label to the window

self.label_password = tk.Label(self.window, text="Password:")
self.label_password.pack()  # Add password label to the window

# Create entry fields for username and password
self.entry_username = tk.Entry(self.window)
self.entry_username.pack()  # Add username entry field to the window

self.entry_password = tk.Entry(self.window, show="*")  # Show asterisks for password input
self.entry_password.pack()  # Add password entry field to the window

# Create buttons for login and register
self.button_login = tk.Button(self.window, text="Login", command=self.login)
self.button_login.pack()  # Add login button to the window

self.button_register = tk.Button(self.window, text="Register", command=self.register)
self.button_register.pack()  # Add register button to the window
```

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First, we need to integrate entry fields into the existing code. To accomplish this, we'll write the following lines:

```
# Create entry fields for username and password
        self.entry_username = tk.Entry(self.window)
        self.entry_username.pack()  # Add username entry field to the window

        self.entry_password = tk.Entry(self.window, show="*")  # Show asterisks for password input
        self.entry_password.pack()  # Add password entry field to the window
```

These lines introduce two entry fields:

- ❑ One for the username, and,
- ❑ Another for the password. For added security, the characters in the password field are hidden, denoted by the show="*" parameter.
- ❑ The show="*" parameter ensures that the characters entered in the password field are displayed as asterisks, increasing security.

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```
# Create buttons for login and register
self.button_login = tk.Button(self.window, text="Login", command=self.login)
self.button_login.pack()  # Add login button to the window

self.button_register = tk.Button(self.window, text="Register", command=self.register)
self.button_register.pack()  # Add register button to the window
```

- ❑ Create buttons for login and register, specifies that the button should be placed inside the **self.window** window, displays the text "Login“ and ‘Register” on the buttons, and associates the **self.login** and **self.register** methods with the button's action. This means that when the buttons are clicked, the **self.login** and **self.register** methods will be executed.

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3- Add is-registered method

```
def is_registered(self, username):
    # Check if username exists in the saved file
    with open("user_info.txt", "r") as file:
        for line in file:
            if f"Username: {username}" in line:
                return True
    return False
```

- ❑ This method checks if a username exists in the saved file "user_info.txt".
- ❑ We need this method to verify if a username is already registered before attempting to log in with it.
- ❑ It reads the file line by line and searches for the specified username.

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4- Add get_password method

```
def get_password(self, username):
    # Retrieve the password associated with the username
    with open("user_info.txt", "r") as file:
        for line in file:
            if line.startswith(f"Username: {username}"):
                return line.split("Password: ")[1].strip()
    return None
```

- This method retrieves the password associated with a given username from the saved file "user_info.txt".
- We need this method to fetch the correct password associated with a username during the login process.
- It parses the file content to extract the password corresponding to the username.

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- **Note :**

```
return line.split("Password: ")[1].strip()
```

- **line**: This variable represents a line of text from a file. It likely contains user information in the format "Username: [username], Password: [password]".
- **split("Password: "):** This method splits the line into two parts based on the string "Password: ". After splitting, we have a list containing two elements. The first element is everything before "Password: ", and the second element is everything after "Password: ".
- **[1]:** This index accesses the second element of the split result, which corresponds to the password part of the line.
- **strip():** This method removes any leading or trailing whitespace characters from the password string. It ensures that there are no extra spaces or newline characters in the password.

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5- Add login method

```
def login(self):
    # Retrieve username and password input from entry fields
    username = self.entry_username.get()
    password = self.entry_password.get()

    # Check if user_info.txt exists before attempting to read from it
    if os.path.exists("user_info.txt"):
        # Check if username exists in the saved file
        if self.is_registered(username):
            # Retrieve the password associated with the username
            correct_password = self.get_password(username)
            if correct_password == password:
                messagebox.showinfo("Login", "Login successful")  # Show login success message box
            else:
                messagebox.showerror("Error", "Incorrect password")  # Show incorrect password error message box
        else:
            messagebox.showerror("Error", "Username is not registered")  # Show username not registered error message
box
    else:
        messagebox.showerror("Error", "File 'user_info.txt' does not exist")  # Show file not found error message box
```

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- ❑ The login method now includes logic to check the validity of the entered username and password.
- ❑ We use **os.path.exists()** to verify if the file "user_info.txt" exists. If the file exists, we proceed to validate the entered credentials by comparing them with the stored data.
- ❑ We use message boxes to provide informative feedback to the user about the login process.

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6- Add Register method

```
def register(self):
    # Retrieve username and password input from entry fields
    username = self.entry_username.get()
    password = self.entry_password.get()

    # Implement registration functionality (store username and password to a file)
    # Placeholder code:
    with open("user_info.txt", "a") as file:
        file.write(f"Username: {username}, Password: {password}\n")
    messagebox.showinfo("Registration", "Registration successful")  # Show registration success msg box
```

- ❑ The register method is responsible for storing newly registered usernames and passwords in the file "user_info.txt".
- ❑ We use file I/O operations to append the new user information to the file.
- ❑ After successful registration, we inform the user via a message box.