Chess for Beginners: A Guide to Learning the main openings.

Presentation Summary: In this Python program, we have implemented a chess-related application that allows users to sign up, log in, learn chess moves, and retrieve their information. The program utilizes various functions for input validation and data management. It also includes a database to store user information and track chess moves.

Introduction

Chess, often considered the "game of kings," captivates our minds with its strategic depth and countless possibilities. However, for beginners, navigating the vast landscape of chess openings can be daunting. Recognizing this challenge, we have developed a purpose-driven program that aims to empower aspiring players by providing them with a solid foundation in both black and white openings.

In this Python program, we have implemented a chess-related application that allows users to sign up, log in, learn chess moves, and retrieve their information. The program utilizes various functions for input validation and data management. It also includes a database to store user information and track chess moves.

libraries used: numpy and pandas.

User Sign-up

- The code initializes an empty list called users to store user information and creates empty lists for different user attributes such as names, ages, IDs, and genders.
- The names() function is defined to prompt the user to enter their first name and last name. It validates that the names contain only letters and returns the full name.
- The ages() function is defined to prompt the user to enter their age. It checks if the input consists only of digits and returns the age.
- The genders () function is defined to prompt the user to enter their gender as "male" or "female." It validates the input and returns the gender.
- The passwords () function is defined to prompt the user to enter a password. It checks if the password meets the required criteria (at least 8 characters, letters, at least 1 special character, and at least one number) and returns the password.
- The code enters a loop where the user can choose between signing up and logging in.
- If the user chooses to sign up (option 1), the code calls the names(), ages(), genders(), and passwords() functions to collect the user's information.
- An ID number is assigned to the user, starting from 0 and incrementing by 1 for each new user.
- The user's information is stored in the users list as a sublist containing the name, age, gender, password, and ID.
- The user's information is also added to respective lists (namesus, agesus, gendersus, IDsus) to maintain separate lists for each attribute.
- The user is provided with their ID number, which they need to remember for logging in.
- The loop continues, allowing the user to choose between signing up and logging in again.

```
1.sign up 2.log in : 1
#signing up :


Please enter your first name (letters only): Baraa

Please enter your last name (letters only): Melhem

 enter your age : 20

Please enter your gender (male or female): male

Please enter a password with at least 8 characters, letters, at least 1
special character, and at least one number, with no spaces: @bnnae23

this is your ID number :  0
 #save it we will ask for it when you login
```

User Log-in

- The code would prompt the user to enter their ID number, which they obtained during the sign-up process.
- The user would input their ID number.
- The code would search for the ID number in the `IDsus` list to check if it exists.
- If the ID number is found, the code would prompt the user to enter their password.
- The user would input their password.
- The code would compare the entered password with the stored password associated with the user's ID number in the `users` list.
- If the entered password matches the stored password, the code would display a message indicating successful sign-in.
- If the entered password does not match the stored password, the code would display an error message indicating incorrect password.
- If the ID number is not found in the `IDsus` list, the code would display an error message indicating that the user does not exist.

```
1.sign up 2.log in : 2
#logging in

enter your name : Baraa Melhem

enter your password : @bnnae23

Please enter your ID number: 0
#joining..

would you like to
1.enter
2.learn moves
3.your information
4.exit
  please enter the number of your choice :  4
```

Admin Log-in

Sign-In Process for Admin:

The first admin in the list is `admin1`, with the password `@jqhq21ll1` , # number `15633` and ID `0`.

1. Admin Sign-In:
    o When choosing the login option, the user is prompted to enter their name, password, # number, and ID.
    o The entered credentials are then checked against the admin credentials in the "Admins" list.
2. Admin Powers:
    o Once the admin successfully logs in, they gain access to additional functionality.
    o the admin's primary power is the ability to add other admins.
    o The admin can add other admins by appending their credentials to the "Admins" list, and access to user's information.

```
1.sign up 2.log in : 254
#logging in

enter your name : admin1

enter your password : @jqhq21ll1

Please enter your # number: 15633

Please enter your ID number: 0
hi admin


1.add a new admin
2.users information
3.exit
your choice:
```

```
Please enter your ID number: 0
hi admin


1.add a new admin
2.users information
3.exit
your choice:2
         Name  Age  Gender  ID
0  Baraa Melhem   20    Male   0


1.add a new admin
2.users information
3.exit
your choice:
```

```
your choice:2
         Name  Age  Gender  ID
0  Baraa Melhem   20    Male   0


1.add a new admin
2.users information
3.exit
your choice:1
Name : admin2

Please enter a password with at least 8 characters, letters, at least 1
special character, and at least one number, with no spaces: @ad2min
Password must be at least 8 characters. Please try again.

Please enter a password with at least 8 characters, letters, at least 1
special character, and at least one number, with no spaces: @admin223

Name : admin2

this is your # number : 124662

this is your ID number : 1


1.add a new admin
2.users information
3.exit
your choice:
```

Chess Moves

In the given code, the functionality of entering chess moves allows users to input moves for both white and black pieces in a chess game. Here's how users can input white and black moves:

1. For white moves:
   - The code prompts the user to enter a move for the white player.
   - The user can input the move in algebraic notation, such as "e4" or "Nf3", etc...
   - The entered move is then appended to the `white_moves` list, which stores all the moves made by the white player.
2. For black moves:
   - Similarly, the code prompts the user to enter a move for the black player.
   - The user can input the move in the same algebraic notation as for white moves.
   - The entered move is appended to the `black_moves` list, which stores all the moves made by the black player.

The `white_moves` and `black_moves` lists serve as repositories for storing the moves made by the white and black players, respectively. These lists can be accessed and utilized throughout the code to track the progress of the game or validate moves.

```
#joining..

 would you like to
 1.enter
 2.learn moves
 3.your information
 4.exit
  please enter the number of your choice :  1


 enter the white move : e4


 enter the black move : e5

1. complete
 2.done
 : 1


 enter the white move : nf3


 enter the black move : d6

1. complete
 2.done
 : 2
 this opining called philidor defense
```

Learning Moves

1. Language Selection:
   - The code prompts the user to select a language to receive information about chess moves.
2. Available Options:
   - After selecting the language, the code provides a menu of available options for the user to choose from.
   - These options typically include learning about defenses and openings, but may include additional chess-related topics.
3. Information on Defenses and Openings:
   - Once the user selects a specific option, such as learning about defenses or openings, the code provides relevant information based on the user's choice.
   - This information can be retrieved from a pre-defined database or knowledge base that contains details about various defenses, openings, and other chess-related concepts.
   - The code may utilize conditional statements or functions to retrieve and display the appropriate information based on the user's input.

For example, if a user selects the option to learn about defenses, the code might retrieve information about common defensive strategies in chess, such as the Sicilian Defense or the French Defense. The code can then present this information to the user in the selected language.

Similarly, if the user selects the option to learn about openings, the code can provide information about popular chess openings like the Queen's Gambit or the Ruy Lopez, including their key moves and strategic considerations.

The code's functionality to provide information on defenses and openings based on user input relies on a combination of user selection, database retrieval, and appropriate language presentation. By incorporating a knowledge base of chess concepts, the code can offer users the opportunity to learn more about specific aspects of the game and enhance their understanding of various strategies and techniques.

```
would you like to
1.enter
2.learn moves
3.your information
4.exit
 please enter the number of your choice :  2

language / اللغة :
1.english
                                                        2. العربية
 : 1

do you want to know
1. defense
2. opening
please enter the number of your choice :2

do you want to know opening for white on :
1.e4
2.d4
please enter the number of your choice :1

choose one of these openings on e4 :
1.Italy
2.ruy lopez
3.scotch
please enter the number of your choice :1
Italy opening moves are : 1.e4 e5 2.Nf3 Nc6 3.Bc4
```

Conclusion

1. Sign-up and Sign-in:

- Users can sign up by providing a username and password.

- Users can sign in with their registered username, password and ID.

2. Chess Move Input:

- Users can input chess moves by specifying the starting and ending positions of the pieces.

- The moves are stored in separate lists for white moves and black moves.

3. Learning about Chess Moves:

- Users can select a language to receive information about chess moves.

- They can choose from a menu of options, such as learning about defenses or openings.

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SKILLS

- Programming , C++ , Python , C# , MATLAB
- Hard worker
- Arabic is the native language
- Fluency in English
- Work with teams
- Work under pressure

EDUCATION HISTORY

Studying Electrical Power Engineering
Institution: Yarmouk University

CERTIFICATIONS

MATLAB Programing
Institution: The Arab British Center
2021

Arduino Programing
Institution: STELLA
2018

HOBBIES

- *P*laying Football
- *S*wimming
- *R*eading Books
- Playing Chess
- Learning More in all fields