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import random
import sqlite3
import matplotlib.pyplot as plt
import pandas as pd

print("""
_____________________________________________________
        Welcome To Cricket Game
_____________________________________________________
""")

# ---------- Database Setup ----------
mydb = sqlite3.connect("cricket_db.db")
mycursor = mydb.cursor()

mycursor.execute("create table if not exists login(username varchar(25) not null,
password varchar(25) not null)")
mycursor.execute("create table if not exists cricket(sno int not null, date text not null,
name varchar(25) not null, run int not null, status varchar(25) not null)")
mycursor.execute("create table if not exists sno(id int not null)")
mydb.commit()

# Default Admin
mycursor.execute("select * from login")
if mycursor.fetchone() is None:
    mycursor.execute("insert into login values('Admin' , '1234')")
    mydb.commit()

# Initialize sno
mycursor.execute("select * from sno")
if mycursor.fetchone() is None:
    mycursor.execute("insert into sno values(0)")
    mydb.commit()

# ---------- Main Menu ----------
while True:
    print("""
1. Login
2. Instructions
3. Data
4. Exit
""")

    ch = int(input("Enter your choice: "))

    if ch == 1:
        passs = input("Enter Your Password: ")
        mycursor.execute("select * from login")
        t_user, t_pass = mycursor.fetchone()
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if passs == t_pass:
    loop1 = 'y'
    while loop1 == 'y':
        name = input("Enter Your Name: ")
        nu = int(input("Number Of Over: "))
        print("Game Starts...")
        num_0 = nu * 6

        print("\nHere comes the Toss")
        toss = input("Choose heads or tails: ").lower()
        random_toss = random.randint(1, 2)
        random_opt = random.randint(1, 2)
        u_opt = 0
        c_opt = 0

        if random_toss == 1 and toss == "heads":
            print("\nYou won the toss")
            u_opt = input("Choose bat or ball: ").lower()
        elif random_toss == 2 and toss == "tails":
            print("\nYou won the toss")
            u_opt = input("Choose bat or ball: ").lower()
        else:
            print("\nYou lost the toss")
            if random_opt == 1:
                c_opt = "bat"
            elif random_opt == 2:
                c_opt = "ball"
            print("Computer chose to", c_opt)

        # ---------- First Innings ----------
        print("\n---------- First Innings Begins ----------")
        runs_1 = 0
        wickets_1 = 0
        balls_1 = 0

        while wickets_1 != 2 and balls_1 != num_0:
            u_choice = int(input("\nChoose any number from 1 to 6: "))
            c_choice = random.randint(1, 6)

            if u_choice < 1 or u_choice > 6:
                print("\nPlease choose a value from 1 to 6.")
            else:
                print("Your choice:", u_choice, "\nComputer's choice:", c_choice)
                if u_choice == c_choice:
                    wickets_1 += 1
                else:
                    if u_opt == "bat" or c_opt == "ball":
                        Bat_first = "You"
                        Ball_first = "Computer"
                        runs_1 += u_choice
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            else:
                Bat_first = "Computer"
                Ball_first = "You"
                runs_1 += c_choice
        print("\nScore =", runs_1, "/", wickets_1)
        balls_1 += 1

print("\n---------- End of Innings ----------")
print("\nFinal Score:", runs_1, "/", wickets_1)
print("\n", Ball_first, "needs", runs_1 + 1, "runs to win.")

# ---------- Second Innings ----------
print("\n---------- Second Innings Begins ----------")
runs_2 = 0
wickets_2 = 0
balls_2 = 0

while wickets_2 != 2 and balls_2 != num_0 and runs_2 <= runs_1:
    u_choice = int(input("\nChoose any number from 1 to 6: "))
    c_choice = random.randint(1, 6)

    if u_choice < 1 or u_choice > 6:
        print("\nPlease choose a value from 1 to 6.")
    else:
        print("Your choice:", u_choice, "\nComputer's choice:", c_choice)
        if u_choice == c_choice:
            wickets_2 += 1
        else:
            if Bat_first == "Computer":
                runs_2 += u_choice
                Bat_second = "You"
            else:
                runs_2 += c_choice
                Bat_second = "Computer"
        print("\nScore =", runs_2, "/", wickets_2)
        balls_2 += 1

print("\n---------- End of Innings ----------")
print("\nFinal Score:", runs_2, "/", wickets_2)

# ---------- Result ----------
status = "Loose"
score = 0

print("\n~~~~~~~~~~ Result ~~~~~~~~~~")
if runs_1 > runs_2:
    if Bat_first == "You":
        status = "Win"
        score = runs_1
        print("\nCongratulations! You won the Match by", runs_1 - runs_2,
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"runs.")
                else:
                    print("\nBetter luck next time! The Computer won the Match by",
runs_1 - runs_2, "runs.")
                    score = runs_2
            elif runs_2 > runs_1:
                if Bat_second == "You":
                    status = "Win"
                    score = runs_2
                    print("\nCongratulations! You won the Match by", 2 - wickets_2,
"wickets.")
                else:
                    print("\nBetter luck next time! The Computer won the Match by", 2 -
wickets_2, "wickets.")
                    score = runs_1
            else:
                status = "Tie"
                score = runs_1
                print("The Match is a Tie. No one Wins.")

            mycursor.execute("select id from sno")
            t_sno = mycursor.fetchone()[0] + 1

            mycursor.execute("insert into cricket values(?, date('now'), ?, ?, ?)", (t_sno,
name, score, status))
            mycursor.execute("update sno set id=?", (t_sno,))
            mydb.commit()

            # ---------- Data Visualization ----------
            df = pd.read_sql_query("SELECT * FROM cricket", mydb)

            if not df.empty:
                df['date'] = pd.to_datetime(df['date'])
                player_df = df[df['name'] == name]

                # Runs over time
                plt.figure(figsize=(8, 5))
                plt.plot(player_df['date'], player_df['run'], marker='o', color='blue')
                plt.title(f'Runs Over Time - {name}')
                plt.xlabel('Date')
                plt.ylabel('Runs')
                plt.grid(True)
                plt.show()

                # Total runs comparison
                plt.figure(figsize=(6, 4))
                total_runs = df.groupby('name')
['run'].sum().sort_values(ascending=False)
                total_runs.plot(kind='bar', color='skyblue')
                plt.title('Total Runs by Each Player')
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                plt.xlabel('Player')
                plt.ylabel('Total Runs')
                plt.grid(axis='y')
                plt.show()

                # Match outcomes
                plt.figure(figsize=(6, 4))
                status_count = player_df['status'].value_counts()
                status_count.plot(kind='bar', color=['green', 'red', 'orange'])
                plt.title(f'Match Outcomes for {name}')
                plt.xlabel('Result')
                plt.ylabel('Count')
                plt.grid(axis='y')
                plt.show()

            loop1 = input("Do you want to play again(y/n): ").lower()

    elif ch == 2:
        print("""
1. You have to select any random number from 1 to 6.
2. The computer will also select a number.
3. While batting, if both numbers are the same, you lose a wicket.
4. While bowling, if both numbers are the same, computer loses a wicket.
5. Each player has 2 wickets and chosen overs.
6. The one with the higher score wins.
""")

    elif ch == 3:
        mycursor.execute("select * from cricket")
        print("SNO | DATE | NAME | RUN | STATUS")
        for i in mycursor.fetchall():
            t_sno, t_date, t_name, t_run, t_status = i
            print(f"{t_sno} | {t_date} | {t_name} | {t_run} | {t_status}")

    elif ch == 4:
      break
```