Project Lesson: Rock, Paper, Scissors Game in Python

Objective: Create a Rock, Paper, Scissors game where the user plays against the computer. The program will randomly generate the computer's choice, compare it with the user's input, and declare the winner.

Step 1: Import Required Modules

We need the `random` module to generate the computer's choice.

```
import random
```

Step 2: Define Choices

Create a list of valid choices: "Rock", "Paper", and "Scissors".

```
choices = ["rock", "paper", "scissors"]
```

Step 3: Generate Computer's Choice

Use `random.choice()` to randomly select one of the options from the list.

```
computer_choice = random.choice(choices)
```

Step 4: Get User Input

Prompt the user to enter their choice and ensure it is valid.

```
user_choice = input("Enter your choice (rock, paper, scissors): ").lower()
while user_choice not in choices:
    print("Invalid choice! Please try again.")
    user_choice = input("Enter your choice (rock, paper, scissors): ").lower()
```

Step 5: Determine the Winner

Compare the user's choice with the computer's choice using conditional statements.

```
if user_choice == computer_choice:
    result = "It's a tie!"
```

```
elif (user_choice == "rock" and computer_choice == "scissors") or \
     (user_choice == "paper" and computer_choice == "rock") or \
     (user_choice == "scissors" and computer_choice == "paper"):
    result = "You win!"
else:
    result = "You lose!"
```

Step 6: Display the Result

Show the user's choice, the computer's choice, and the final result.

```
print(f"\nYou chose: {user_choice}")
print(f"Computer chose: {computer_choice}")
print(result)
```

Full Code

```
import random

# Define choices
choices = ["rock", "paper", "scissors"]

# Generate computer's choice
computer_choice = random.choice(choices)

# Get user input
print("Welcome to Rock, Paper, Scissors!")
user_choice = input("Enter your choice (rock, paper, scissors): ").lower()
while user_choice not in choices:
    print("Invalid choice! Please try again.")
    user_choice = input("Enter your choice (rock, paper, scissors): ").lower()

# Determine the winner
if user_choice == computer_choice:
    result = "It's a tie!"
elif (user_choice == "rock" and computer_choice == "scissors") or \
     (user_choice == "paper" and computer_choice == "rock") or \
     (user_choice == "scissors" and computer_choice == "paper"):
    result = "You win!"
else:
    result = "You lose!"

# Display the result
print(f"\nYou chose: {user_choice}")
print(f"Computer chose: {computer_choice}")
print(result)
```

Sample Output

```
Welcome to Rock, Paper, Scissors!
Enter your choice (rock, paper, scissors): rock

You chose: rock
Computer chose: scissors
You win!
```
