Lab 4 Functions

For both questions, write your program using functions.

1. Random Number Guessing Game

Write a program that generates a random number in the range of 1 through 100, and asks the user to guess what the number is. If the user's guess is higher than the random number, the program should display "Too high, try again." If the user's guess is lower than the random number, the program should display "Too low, try again." If the user guesses the number, the application should congratulate the user and ask the user if they want to play again.

Optional Enhancement: Enhance the game so it keeps count of the number of guesses that the user makes. When the user correctly guesses the random number, the program should display the number of guesses.

Source: Gaddis, T., & Agarwal, R.. Starting out with Python. Pearson

Output example

```
Please guess what a number is: 50
Too low, try again
Please guess what a number is: 60
Too low, try again
Please guess what a number is: 70
Too low, try again
Please guess what a number is: 80
Too low, try again
Please guess what a number is: 90
Too low, try again
Please guess what a number is: 99
Congratulations! You used 6 attempts
Do you want to continue (y or n)?: y
Please guess what a number is: 50
Too low, try again
Please guess what a number is: 80
Too high, try again
Please guess what a number is: 70
Too low, try again
Please guess what a number is: 75
Congratulations! You used 4 attempts
Do you want to continue (y or n)?: n
```

2. Rock, Paper, Scissors Game

Write a program that lets the user play the game of Rock, Paper, Scissors against the computer.

The program should work as follows:

1. When the program begins, a random number in the range of 1 through 3 is generated. If the number is 1, then the computer has chosen rock. If the number is 2, then the computer has chosen paper. If the number is 3, then the computer has chosen scissors. (Don't display the computer's choice yet.)
2. The user enters his or her choice of "rock," "paper," or "scissors" at the keyboard.
3. The computer's choice is displayed.
4. A winner is selected according to the following rules:

• If one player chooses rock and the other player chooses scissors, then rock wins. (Rock smashes scissors.)
• If one player chooses scissors and the other player chooses paper, then scissors wins. (Scissors cuts paper.)
• If one player chooses paper and the other player chooses rock, then paper wins. (Paper wraps rock.)
• If both players make the same choice, the game must be played again to determine the winner.

Optional Enhancement: Enhance the program to ask the user if they want to continue playing. User enter 'y' if they want to play another round and enter 'n' if they want to stop.

Source: Gaddis, T., & Agarwal, R.. Starting out with Python. Pearson

Output example

```
Enter rock (R), paper (P), or scissors (S): R
Computer: Scissors
You win!
Do you want to play again (y or n)?: y
Enter rock (R), paper (P), or scissors (S): S
Computer: Scissors
Enter rock (R), paper (P), or scissors (S) again: P
Computer: Scissors
Computer wins!
Do you want to play again (y or n)?: y
Enter rock (R), paper (P), or scissors (S): R
Computer: Paper
Computer wins!
Do you want to play again (y or n)?: y
Enter rock (R), paper (P), or scissors (S): R
Computer: Rock
Enter rock (R), paper (P), or scissors (S) again: R
Computer: Scissors
You win!
Do you want to play again (y or n)?: n
```