**Assignment 4:** Stack Implementation and String Reversal

**Objective:** Implement a stack using a list and use it to reverse a string.

## **Instructions:**

- 1. Write Python functions to simulate stack operations using a list. Implement the following functions:
  - push (stack, item): Add an item to the top of the stack.
  - pop (stack): Remove and return the item from the top of the stack. Handle the case where the stack is empty by raising an exception or returning a suitable value.
  - is\_empty(stack): Return True if the stack is empty, otherwise False.
- 2. Implement a function reverse\_string(s) that reverses a string using the stack operations defined above. The function should:
  - Initialize an empty list to use as the stack.
  - Push each character of the string onto the stack.
  - Pop characters from the stack and concatenate them to form the reversed string.