Stack Question

1. Reverse "ICTCLASS" using stack

Solution,

Step 1: Initialize stack

stack = []

Step 2: Push characters onto the stack

input\_str = "ICTCLASS"

for char in input\_str:

stack.append(char)

Step 3: Pop characters from the stack

reversed\_str = ""

while stack:

reversed\_str += stack.pop()

Step 4: Output the reversed string

print("Reversed String:", reversed\_str)

Queue Question

1. Queue vs stack for distributing ID cards. Which fits?

Solution,

Step 1: Initialize the queue

id\_card\_queue = deque()

Step 2: Enqueue arrivals

arrivals = ["Alice", "Bob", "Charlie", "David"]

for person in arrivals:

id\_card\_queue.append(person) # Enqueue

print(f"{person} has arrived and is added to the queue.")

Step 3: Distribute ID cards in FIFO order

print("\nDistributing ID cards...")

while id\_card\_queue:

current\_person = id\_card\_queue.popleft() # Dequeue

print(f"ID card given to {current\_person}")