

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}")
```