Question 1

# Create an empty stack using a list

stack = []

# i. Using the append() method, add ten university names to the stack

universities = ["Harvard", "Stanford", "MIT", "Oxford", "Cambridge", "Yale", "Princeton", "Caltech", "UC Berkeley", "University of Tokyo"]

stack.extend(universities)

# ii. Using the extend() method, add 8 names of people

people = ["Alice", "Bob", "Charlie", "David", "Eve", "Frank", "Grace", "Hannah"]

stack.extend(people)

# iii. Using the pop() method, remove 13 items

for \_ in range(13):

stack.pop()

# iv. Count the remaining items in the stack and list them

remaining\_items = len(stack)

# v. Print the output and take a snapshot

print("Remaining items in the stack:", remaining\_items)

print("Items in the stack:", stack)

question 2

# Create an empty list as a queue

queue = []

# vi. Using the append() method, add ten town names to the queue

towns = ["New York", "Los Angeles", "Chicago", "Houston", "Phoenix", "Philadelphia", "San Antonio", "San Diego", "Dallas", "San Jose"]

queue.extend(towns)

# vii. Using the insert() method, add three names to the current list

queue.insert(0, "Miami") # Add at the front

queue.insert(6, "Seattle") # Add in the middle

queue.insert(len(queue), "Boston") # Add at the end

# viii. Using the pop() method, remove seven items from the queue

for \_ in range(7):

queue.pop(0) # Remove from the front

# ix. Count the remaining items in the queue and list them

remaining\_items = len(queue)

# x. Print the output and take a snapshot

print("Remaining items in the queue:", remaining\_items)

print("Items in the queue:", queue)