Question-1: You are a conference manager. You have a list of meetings with start and end times. Your goal is to maximize the number of meetings held in a single conference room without overlapping. Explain the approach used by taking following input

1. Meeting 1: 9 AM – 10 AM
2. Meeting 2: 10:30 AM – 11:30 AM
3. Meeting 3: 10 AM – 12 PM
4. Meeting 4: 11 AM – 12 PM

Question-2: Packing a Suitcase for a Flight. You have a limited weight allowed in your suitcase. You need to pack items with different weights and values (like electronics, clothes, books) to maximize the value of packed items. Explain the approach used by taking following input

- Laptop (value = $1000, weight = 2 kg)
- Clothes (value = $500, weight = 3 kg)
- Books (value = $400, weight = 4 kg)
- Max weight = 5 kg

Question-3: You have several freelance jobs with deadlines and payments. Your goal is to maximize your income by selecting the best combination of jobs. Explain the approach used by taking following input

- Job 1: ₹500 (Deadline = 2 days)
- Job 2: ₹1000 (Deadline = 1 day)
- Job 3: ₹700 (Deadline = 2 days)

Question-4: Suppose you are using Google Maps to find the shortest route from your home to a shopping mall. The map is represented as a graph, where:

Intersections = Nodes, Roads = Edges, Travel time or distance = Edge weights

The goal is to find the shortest path (in terms of distance or time) from Home to Mall using Dijkstra's algorithm. Consider the following map as a weighted graph:

A = Home, B = Friend's House, C = Grocery Stored = Gas Station, E = Mall

Edge (A → B) of weight   2

Edge (A → C) of weight   4

Edge (B → C) of weight 1

Edge (B → D) of weight 7

Edge (C → D) of weight 3

Edge (C → E) of weight 5

Edge (D → E) of weight 2

Question-5: Write algorithm or pseudo code of all the algorithm discussed in the class for Greedy approach and analyse their time complexity with proper justification.