**Day 8 & 9**

**Define inputs (number of users, fog nodes, resources, demand).**

**Define outputs (allocation matrix, prices, latency).**

**📥 Inputs (Day 1)**

These are the values your simulation will take as starting parameters:

1. **Number of Users (U)**
   * Example: 10 patients, 20 IoT devices, etc.
2. **Number of Fog Nodes (F) + Cloud (optional)**
   * Example: 3 Fog nodes + 1 Cloud.
3. **Resources at each Fog Node**
   * CPU capacity (MIPS or abstract units)
   * Memory capacity (MB/GB)
   * Bandwidth (Mbps)

Example:

Fog-A: CPU=10 units, Memory=8 units

Fog-B: CPU=6 units, Memory=6 units

Cloud: CPU=50 units, Memory=50 units

1. **User Demand (per request)**
   * Each user request = (cpu\_demand, mem\_demand, latency\_requirement)

Example:

User-1: needs 2 CPU, 1 Memory, latency < 5ms

User-2: needs 3 CPU, 2 Memory, latency < 10ms

1. **Pricing Parameters**
   * Initial price for each fog node (say, 5 credits per CPU).
   * Rules for **dynamic pricing** (price ↑ if load ↑).

**📤 Outputs (Day 2)**

After simulation/game execution, we produce:

1. **Allocation Matrix**  
   Shows where each user’s request was placed.  
   Example:

| **User** | **CPU Req** | **Mem Req** | **Assigned To** |
| --- | --- | --- | --- |
| U1 | 2 | 1 | Fog-A |
| U2 | 3 | 2 | Fog-B |
| U3 | 5 | 2 | Cloud |

1. **Prices (after dynamic adjustment)**  
   Final price per CPU unit in each fog node.  
   Example:
2. Fog-A: 8 credits/unit
3. Fog-B: 6 credits/unit
4. Cloud: 10 credits/unit
5. **Latency per user**  
   Time taken for each request.  
   Example:
6. U1: 3.2 ms
7. U2: 7.1 ms
8. U3: 15 ms
9. **Performance Metrics**
   * **Average Latency** (across all users)
   * **Average Cost** per user
   * **Resource Utilization** of fog nodes

**📊 Process in Simple Words**

* Inputs = **users + fog resources + demand + initial prices**
* Algorithm = **decide who gets which fog node, update prices**
* Outputs = **allocation matrix + new prices + performance metrics**

⚡ Example Run:

* 10 users, 3 fogs, 1 cloud.
* Some users go to nearby fogs (low latency, medium cost).
* If fogs are overloaded → dynamic pricing ↑ → some users pushed to cloud.
* Final result = balanced system with fair cost + latency.