**Test Cases:**

**Test Case 1: Network Component Capacity**

Input: ComponentID = 201, ComponentType = "Base Station", Location = "City A", Capacity = 100 Mbps

Expected Output: Allocation succeeds.

**Test Case 2: Optimization Strategy Selection**

Input: StrategyID = 301, StrategyName = "Dynamic Allocation", AlgorithmUsed = "SVM", Parameters = {"epsilon": 0.2, "gamma": 0.9}

Expected Output: Strategy is selected.

**Test Case 3: Resource Allocation for High Capacity**

Input: AllocationID = 401, Timestamp = "2023-11-01 14:00:00", ResourceType = "Bandwidth", AmountAllocated = 80 Mbps

Expected Output: Allocation is successful.

**Test Case 4: Resource Allocation for Low Capacity**

Input: AllocationID = 402, Timestamp = "2023-11-01 14:30:00", ResourceType = "Bandwidth", AmountAllocated = 110 Mbps

Expected Output: Allocation fails due to exceeding capacity.

**Test Case 5: Strategy with High Parameters**

Input: AllocationID = 601, Timestamp = "2023-11-02 09:30:00", ResourceType = "Latency", AmountAllocated = 15 ms

Expected Output: Allocation succeeds.

**Test Case 6: Strategy with Low Parameters**

Input: AllocationID = 602, Timestamp = "2023-11-02 10:30:00", ResourceType = "Latency", AmountAllocated = 30 ms

Expected Output: Allocation fails due to insufficient optimization.

**Test Case 7: Strategy with No Parameters**

Input: AllocationID = 901, Timestamp = "2023-11-04 12:30:00", ResourceType = "Spectrum", AmountAllocated = 10 MHz

Expected Output: Allocation fails due to missing parameters.

**2. Boundary Value Conditions:**

**Resource Allocation for Low Capacity**

Lower Boundary: ComponentID = 201, ComponentType = "Base Station", Location = "City A", Capacity = 100 Mbps

Upper Boundary: AllocationID = 502, Timestamp = "2023-11-01 15:00:00", ResourceType = "Bandwidth", AmountAllocated = 100 Mbps

Expected Output: Allocation fails for AmountAllocated at 100 Mbps due to reaching the component's capacity.

**Strategy with High Parameters**

Lower Boundary: AllocationID = 601, Timestamp = "2023-11-02 09:15:00", ResourceType = "Latency", AmountAllocated = 10 ms

Upper Boundary: AllocationID = 601, Timestamp = "2023-11-02 09:45:00", ResourceType = "Latency", AmountAllocated = 20 ms

Expected Output: Allocation succeeds for AmountAllocated at 20 ms as it optimally meets the high parameter values.

**3. Equivalence Test Case (for Test Case 4):**

**Resource Allocation for High Capacity**

Equivalence Class 1: ResourceType = "Bandwidth", AmountAllocated = 80 Mbps (valid allocation)

Equivalence Class 2: ResourceType = "Latency", AmountAllocated = 80 ms (valid allocation)

Expected Output: Allocation succeeds for both equivalence classes.