**Use Case and Sequence Diagrams - Simplified Notes**

**1. Use Case Diagram**

A **Use Case Diagram** shows how users (actors) interact with a system to achieve specific goals (use cases).

**Key Elements:**

* **Actors**: Who uses the system (e.g., user, external system).
* **Use Cases**: What actions the system performs for the actors.
* **System Boundary**: Defines the system's scope.

**Steps to Create:**

1. **Identify Actors**:
   * Who interacts with the system?
   * Example: User, External Website Server.
2. **Identify Use Cases**:
   * What does the system do for the actors?
   * Example: Perform Nmap Scan, Analyze Vulnerabilities, Generate Report.
3. **Connect Actors to Use Cases**:
   * Use lines to show which actor performs which action.

**Example:**

* **Actors**: User, External Website.
* **Use Cases**:
  + Start Nmap Scan,
  + Analyze Vulnerabilities,
  + Generate Report.

**2. Sequence Diagram**

A **Sequence Diagram** shows how different parts of the system communicate over time to complete a task.

**Key Elements:**

* **Objects (Lifelines)**: Actors or system components.
* **Messages**: Arrows showing communication between objects.

**Steps to Create:**

1. **Identify Objects/Actors**:
   * List system parts involved in the interaction.
   * Example: User, Nmap Tool, Website Server.
2. **Determine Message Flow**:
   * What is the order of communication?
   * Example: User → Nmap Tool → Website Server → Nmap Tool → User.
3. **Draw Lifelines and Messages**:
   * Use vertical lines for objects and arrows for messages.

**Example:**

* **Objects**: User, Nmap Tool, Website Server.
* **Messages**:
  + Start Scan,
  + Send Scan Request,
  + Receive Response,
  + Analyze Results,
  + Show Report.

**Diagrams for Your Project**

**Functional Components:**

* **Scanning Module**: Runs the Nmap scan.
* **Analysis Module**: Analyzes scan results.
* **Reporting Module**: Generates the final report.

**Use Case Diagram:**

* **Actors**: User.
* **Use Cases**: Start Scan, Analyze Results, Generate Report.

**Sequence Diagram:**

* **Objects**: User, Scanning Module, Analysis Module, Reporting Module.
* **Messages**:
  + Start Scan,
  + Analyze Results,
  + Generate Report.