Lab 8 - Cheating

**Question 1**

Cheating in online games is the action of pretending to comply with the rules of the game, while secretly subverting them to gain an unfair advantage over an opponent. Describe an example of cheating from client side.

Please include details of how this cheating works and a mechanism to prevent it.

**Wall Hacking in First-Person Shooter Games:** In first-person shooter (FPS) games, players can cheat by using wall hacks. Wall hacks allow players to see through walls, terrain, and other objects that would normally obscure their vision. This gives them an unfair advantage as they can detect enemy positions and movements without being detected themselves.

**How It Works:** Cheaters modify the game client software to render walls and other obstacles transparent, allowing them to see opponents hiding behind them.

**Mechanism to Prevent It:** Implement server-side checks to validate player actions and restrict the information sent to the client. Additionally, use anti-cheat software that detects unauthorized modifications to the game client and punishes offending players accordingly.

**Question 2**

Please provide an example of server-side attack. Please include details of how this attack works and a mechanism to prevent it.

**Distributed Denial of Service (DDoS) Attack:** In online gaming, a DDoS attack targets the game server with a flood of traffic from multiple sources, overwhelming its resources and causing it to become unresponsive to legitimate player requests.

**How It Works:** Attackers use botnets or networks of compromised computers to send a massive volume of requests to the game server, consuming its bandwidth and processing capacity.

**Mechanism to Prevent It:** Implement robust network security measures, such as firewalls, intrusion detection systems, and rate limiting, to detect and mitigate DDoS attacks. Additionally, utilize content delivery networks (CDNs) to distribute traffic and absorb DDoS attacks before they reach the game server.