USE CASE OF 5G

Create the use cases of 5G –

1. **eMBB**
2. **URLLC**
3. **mMTC**

1. mMTC Massive Machine-Type Communications (mMTC)

Asset Tracking

mMTC can be used to track the location and status of a large number of physical assets, such as, industrial equipment, or logistics vehicles. Small, low-power mMTC-enabled tracking devices can be attached to these assets, providing real-time data on their whereabouts and condition. This improves supply chain visibility and efficiency.

Environmental Monitoring-

Sensor networks using mMTC can be deployed to monitor environmental conditions like air quality, water levels, or soil moisture over a wide geographic area. The scalable connectivity of mMTC allows for the installation of many distributed sensors that can regularly report data to a central monitoring system. This enables better environmental management and early detection of issues.

2. URLLC (Ultra-Reliable Low-Latency Communications)

Remote Surgery

The extremely low latency and high reliability of 5G URLLC enables remote surgery, where a surgeon can control robotic surgical equipment from a distant location with minimal lag. This expands access to specialized medical care.

Autonomous Vehicles and V2X

URLLC supports the real-time communication and coordination required for autonomous vehicles to safely navigate and interact with each other and infrastructure (vehicle-to-everything, or V2X).

Industrial Automation

URLLC enables precise, reliable control of industrial equipment and processes, improving productivity and safety in factories and warehouses.

3. eMBB (Enhanced Mobile Broadband)

Video Streaming

- **High-Quality Video:** eMBB enables the delivery of high-definition (HD) and even 4K/8K video content to mobile devices. The increased data rates of 5G, up to 10 Gbps, allow for the seamless streaming of bandwidth-intensive video without quality degradation.

USE CASE OF 5G

- **Uninterrupted Viewing**: The low latency of eMBB, less than 10 ms, ensures a smooth, uninterrupted viewing experience. Users can watch videos without experiencing buffering or lag, even when on the move.

- **Mobility Support**: eMBB's mobility features allow users to maintain high-quality video streaming even when traveling at high speeds, such as in cars, trains, or airplanes. The network can seamlessly hand off the connection as the user moves between cell sites.

- **Immersive Experiences**: eMBB supports the delivery of advanced video formats, such as 360-degree video and virtual reality (VR) content, providing users with highly immersive multimedia experiences on their mobile devices.

- **Content Variety:** The enhanced capabilities of eMBB enable a wider range of video content, from live-streamed events to on-demand movies and TV shows, to be accessed and enjoyed on the go.

Mobile Gaming

High-Speed Connectivity: eMBB provides the high data rates required for seamless mobile gaming experiences. With speeds up to 10 Gbps, gamers can quickly download game updates and assets without delays.

Low Latency: The ultra-low latency of eMBB, less than 10 ms, is critical for competitive mobile gaming. It ensures that players' actions are registered and communicated to other players in real-time, reducing lag and providing a fair, responsive gaming experience.