Thanks for the detailed guidelines — they help narrow things down.

You're students of **Information Technology**, with knowledge of **HTML, CSS, JS, and Bootstrap**, and you've studied core subjects like:

- Introduction to IT
- Programming Fundamentals
- Object-Oriented Programming (OOP)
- Database Systems
- System and Network Administration
- Database Administration
- Computer Networks

✅ Based on this, your FYP should:

- Be **practical** and **impactful** (local industry/education/health/environment)
- Use your current skills (JS, HTML, CSS, Bootstrap)
- Integrate **databases**, **networks**, **OOP**, and **system management concepts**
- Have a **backend** (can be simple but not missing)
- Include **innovative or novel features**
- Avoid being just another simple app or clone

🔥 FYP IDEA: "Smart Network Resource Usage Dashboard for Educational Institutions"

🧠 Overview:

A **web-based system** that allows colleges/universities to **monitor, analyze, and optimize the usage of IT resources** (e.g., network bandwidth, lab computer usage, storage, downtime, etc.). It helps the IT department in **resource planning, budgeting, and troubleshooting**.

🎯 Real-World Problem it Solves:

Most educational institutions don't have a clear view of how their **network, computers, and systems** are being used, leading to:

- Overused or underused labs
- Unnoticed downtime
- Resource wastage
- Inefficient budgeting

This dashboard helps in **making data-driven decisions** for resource management.

🚀 Features:

1. **Real-time Monitoring Dashboard**
    - Live status of systems in labs (online/offline)
    - Network bandwidth usage per lab or system
2. **Usage Analytics**
    - Visualize which labs/computers are used most
    - Peak usage times
    - Storage usage trends
3. **Incident Tracking**
    - IT staff can log and track issues (e.g., “PC #12 offline”, “WiFi outage in Lab B”)
4. **Admin Panel**
    - Manage users, labs, departments
    - Assign technicians to reported issues
5. **Reporting Module**
    - Auto-generate monthly reports (usage, downtime, performance)
    - Export in PDF or CSV
6. **Login System**
    - Roles: Admin (IT head), Technician, Staff

💡 Novel Twist:

Add **AI-based recommendations** (basic logic using JS or cloud APIs):

- "Upgrade Lab C – usage is consistently 95%+"
- "WiFi bandwidth is underused in Lab D – redistribute resources"

💻 Tech Stack:

- **Frontend**: HTML, CSS, JS, Bootstrap
- **Backend**: Firebase / Node.js (or use Google Sheets as DB if limited)
- **Data Visualization**: Chart.js or Google Charts
- **Hosting**: GitHub Pages (frontend) + Firebase (backend)

📚 Course Integration:

Course	How it's Integrated
Programming Fundamentals	JS logic for monitoring and processing
OOP	Object-based design of system components
DB Systems/Admin	Real-time data storage, queries, reporting
Networks & Sys Admin	Focus of the project (network & system monitoring)
Introduction to IT	Broad tech understanding, system lifecycle

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□ Possible Add-ons:

- QR code scan to check system status
- Email notifications to admins
- Lab reservation system for students (mini module)

✅ Why It Fits the FYP Guidelines:

- **Solves a real-world problem** (resource misuse in institutions)
- **Local applicability** (every university/college needs it)
- **Cross-course knowledge** (networks, databases, programming)
- **Not difficult to implement** with your skills
- **Innovative** (not just a clone, includes monitoring + analytics)
- **Scalable** (can be applied to offices, hospitals too)
