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| S.No | Application Domain | Complex Problem Identified | Justification | Task Details |
| 1 | Transportation | Traffic Congestion Prediction and Management | Urban traffic congestion leads to increased travel time, fuel consumption, and pollution. Accurate predictions can enhance traffic management and reduce congestion | Implement real-time traffic monitoring and prediction systems using data from sensors, GPS, and social media. Develop algorithms to optimize traffic flow and suggest alternative routes. |
| 2 | Education | Personalized Learning Pathways | Students have diverse learning needs and paces. Personalized learning can improve educational outcomes by catering to individual student needs. | Develop adaptive learning platforms that use student performance data to tailor educational content and pathways. Apply machine learning to analyze learning patterns and provide customized recommendations. |
| 3 | Manufacturing | Predictive Maintenance for Industrial Equipment | Equipment failures can cause significant downtime and financial loss. Predictive maintenance can prevent unexpected breakdowns and extend equipment lifespan | Use IoT sensors to collect data on equipment performance. Develop predictive models to analyze this data and identify potential failures before they occur. Integrate maintenance schedules with predictive insights. |