R1-01: Inventory Misalignment in Multi-Warehouse Logistics

Problem Overview:
A national logistics company faces inventory discrepancies across multiple warehouses, leading to overstock in some locations and stockouts in others, despite using ERP systems.

Required Skill Sets:

- Data Analysis & Forecasting

- Supply Chain Management

- ERP Integration

- Cloud Computing

Technologies to Consider:

- Python or R for data analysis

- Machine Learning libraries (e.g., scikit-learn, TensorFlow)

- Cloud platforms (e.g., AWS, Azure)

- APIs for ERP systemsIIT Jammu

R1-02: Unplanned Downtime in Mid-Sized Manufacturing Units

Problem Overview:
Mid-sized manufacturing units suffer from unplanned machine downtime due to lack of advanced monitoring systems and minimal digital infrastructure.Scribd+1Reddit+1

Required Skill Sets:

- IoT and Sensor Integration

- Predictive Maintenance

- Data Analytics

- Embedded SystemsIIT Jammu+6Engineers Planet+6Studocu+6https://hackathon.formidium.com/+2Engineers Planet+2Engineers Planet+2Studocu

Technologies to Consider:

- Microcontrollers (e.g., Arduino, Raspberry Pi)

- Sensors for monitoring machine health

- Data visualization tools (e.g., Grafana)

- Cloud services for data storage and analysis

R1-03: Digital Trust Without Digital Clutter

Problem Overview:
Users often share personal data online without understanding how it's stored or used. There's a need for solutions that empower users to control their digital identity and data relationships.

Required Skill Sets:

- Cybersecurity and Data Privacy

- User Experience (UX) Design

- API Development

- Blockchain (optional)[innovateyou.in+1Studocu+1](innovateyou.in+1Studocu+1)

Technologies to Consider:

- OAuth 2.0 and OpenID Connect for authentication

- Privacy dashboards or browser extensions

- Blockchain platforms (e.g., Ethereum) for decentralized identity

- Frontend frameworks (e.g., React, Angular)

R1-04: Trust Gaps in Supply Chain Traceability

Problem Overview:
Global supply chains lack transparency, making it difficult to track the origin and movement of goods, leading to vulnerabilities like fraud and counterfeiting.

Required Skill Sets:

- Blockchain and Distributed Ledger Technologies

- Supply Chain Management

- Data Integration

- Smart Contracts[Scribd](Scribd)

Technologies to Consider:

- Hyperledger Fabric or Ethereum for blockchain implementation

- Smart contract development using Solidity

- QR code or RFID integration for tracking

- APIs for data sharing among stakeholders

R1-05: Enhancing Job Screening

Problem Overview:
The recruitment process is time-consuming, involving manual review of job descriptions and CVs. There's a need for an AI system to automate this process.

Required Skill Sets:

- Natural Language Processing (NLP)

- Machine Learning

- API Development

- Frontend and Backend Developmentinnovateyou.in+1Engineers Planet+1pncnmnp.github.io+10Studocu+10Engineers Planet+10

Technologies to Consider:

- NLP libraries (e.g., spaCy, NLTK)

- Machine Learning frameworks (e.g., TensorFlow, PyTorch)

- Web frameworks (e.g., Django, Flask)

- Databases (e.g., PostgreSQL, MongoDB)Reddit

R1-06: Defending National Web Infrastructure from Targeted Attacks

Problem Overview:
Government websites and public service platforms are frequently targeted by cyberattacks, necessitating solutions for proactive detection and rapid mitigation.

Required Skill Sets:

- Cybersecurity and Network Security

- Anomaly Detection

- Real-time Monitoring

- Scalable System DesignIIT JammuEngineers Planet+3Studocu+3innovateyou.in+3

Technologies to Consider:

- Intrusion Detection Systems (e.g., Snort, Suricata)

- Security Information and Event Management (SIEM) tools

- Machine Learning for anomaly detection

- Dashboard tools (e.g., Kibana, Grafana)

General Recommendations:

- **Team Composition:**

    o Data Scientists

    o Backend and Frontend Developers

    o UX/UI Designers

    o Domain Experts (e.g., Supply Chain, Cybersecurity)

- **Development Tools:**

    o Version Control: Git

    o Project Management: Jira, Trello

    o Collaboration: Slack, Microsoft Teams

- **Deployment Platforms:**

    o Cloud Services: AWS, Azure, Google Cloud

    o Containerization: Docker

    o Continuous Integration/Continuous Deployment (CI/CD): Jenkins, GitHub Actions