From Theory to Reality: Applications of AI for Defence

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Ex - Disney, Sony, Target, Grab, and Wipro
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Dr. Angshuman Ghosh

- 15+ years of rich experience in top global companies such as Disney, Sony, Target, Grab, and Wipro
- Visiting Professor at top institutions like IITs, IIMs, IISc, ISB, and NITs
- Member of Forbes Council and American Marketing Association
- PhD + MBA from XLRI Jamshedpur and Computer Engineer
- ‘Top 10 AI Leaders in India’, ‘40 under 40 Global Innovator’

Disney Sony Target

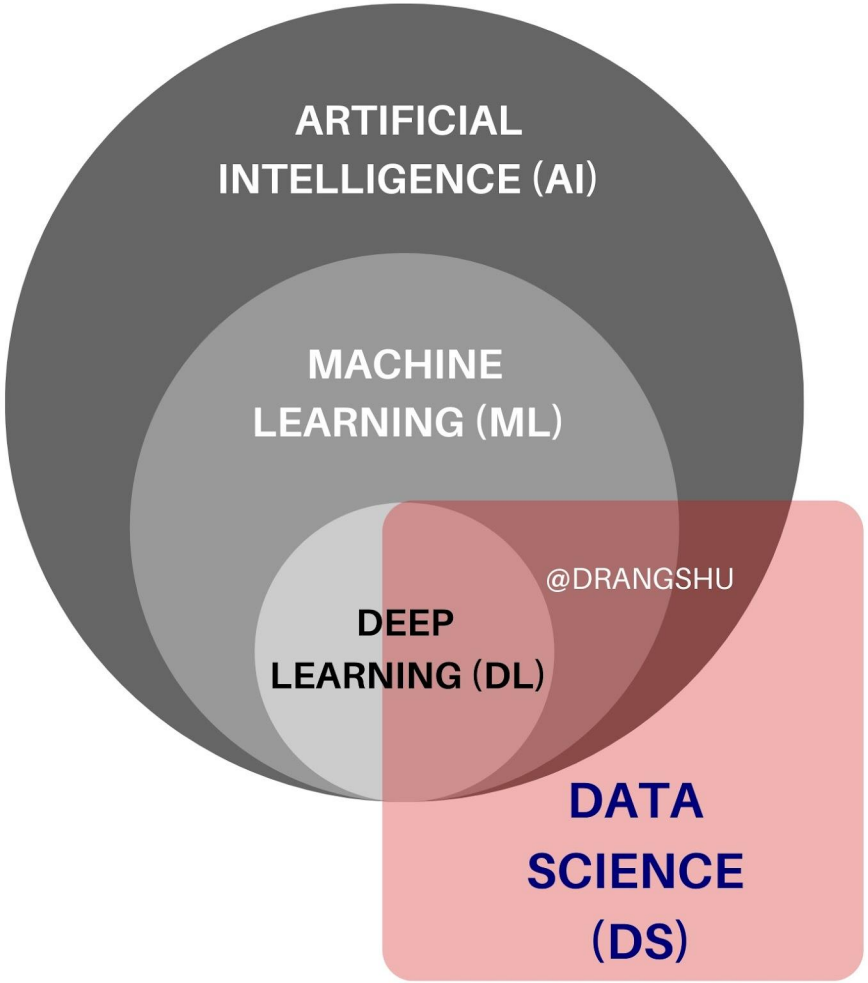
Wipro Grab Forbes

Agenda

- Introduction to AI
- 7 AI Applications for Defence
- Summary & Key Takeaways

Introduction to AI

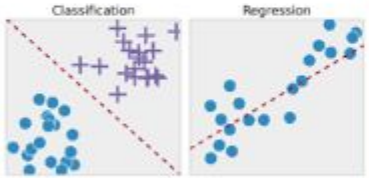
AL / ML / DL


ARTIFICIAL
INTELLIGENCE (AI)
MACHINE
LEARNING (ML)
DEEP
LEARNING (DL)
@DRANGSHU
DATA
SCIENCE
(DS)

Types of Machine Learning

Supervised Learning

- Regression – sales forecasting
- Classification – grouping potential customers

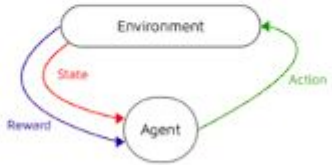


Unsupervised Learning

- Clustering – splitting customers by preferences
- Dimensionality Reduction – storing less data

Reinforcement Learning

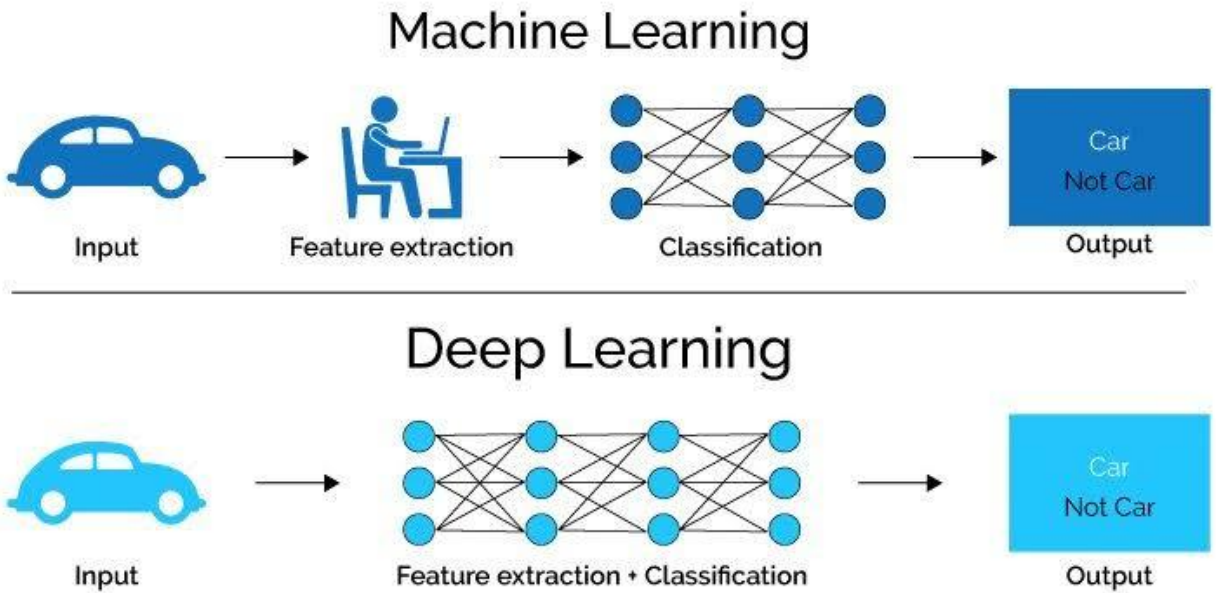
- Reasoning - robotics



Deep Learning

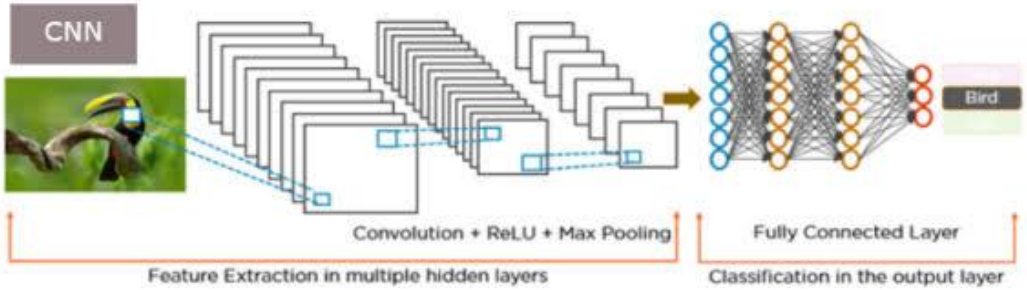
- Neural Networks – image recognition

Machine Learning vs Deep Learning

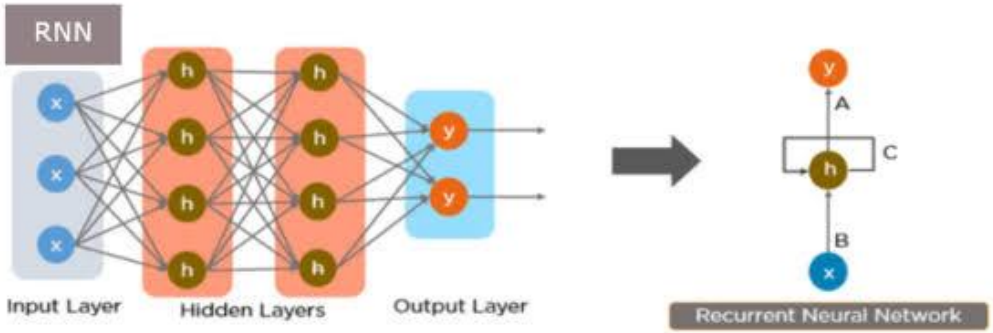


Deep Learning - CNN vs RNN

Convolutional Neural Network



Recurrent Neural Network

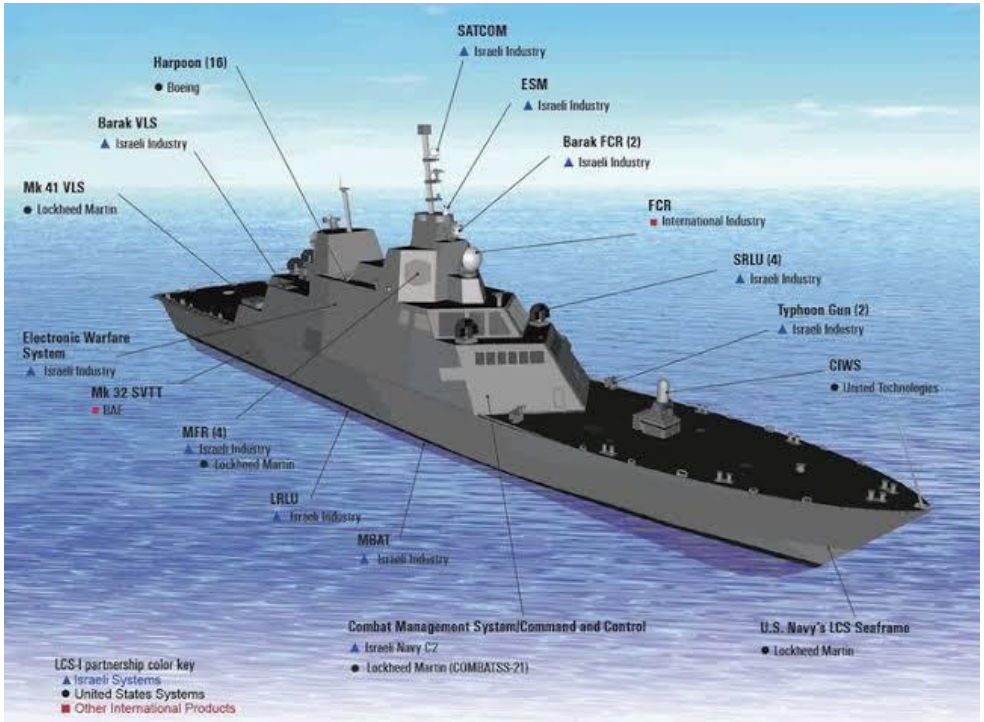


7 AI Applications for Defence

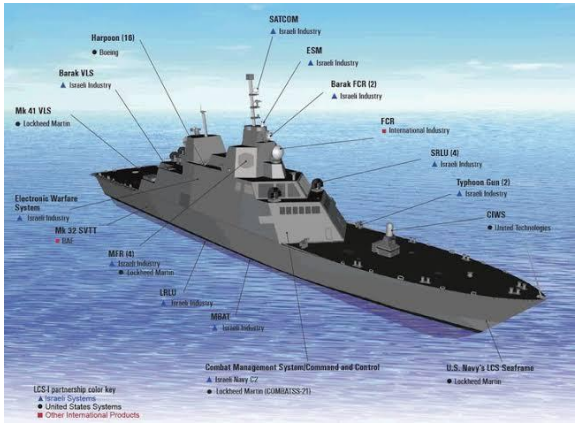
7 AI Applications for Defence

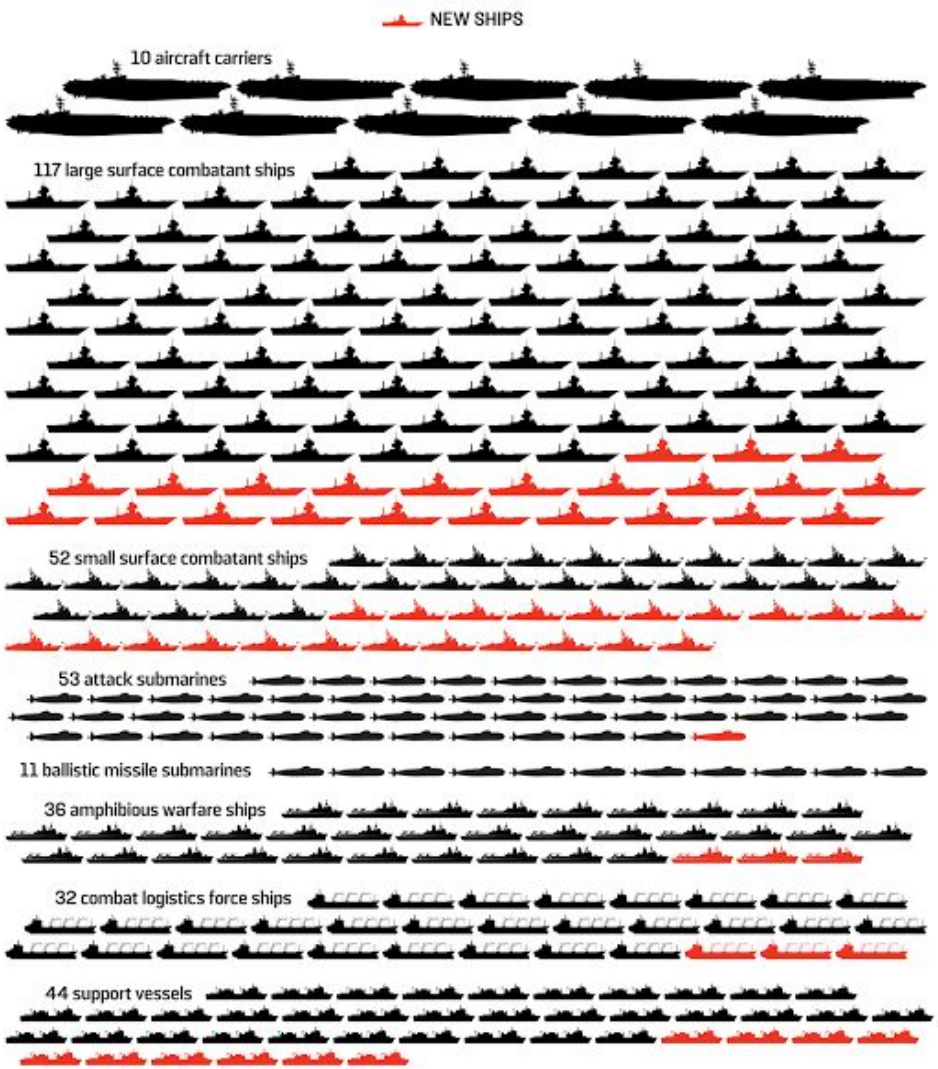
1. **Forecasting 2.0**
2. **Predictive Maintenance**
3. **Intelligent Supplier Selection**
4. **Smart Logistics**
5. **Document Intelligence**
6. **Nextgen Surveillance**
7. **Autonomous Weapons**

A single Navy ship has so many components



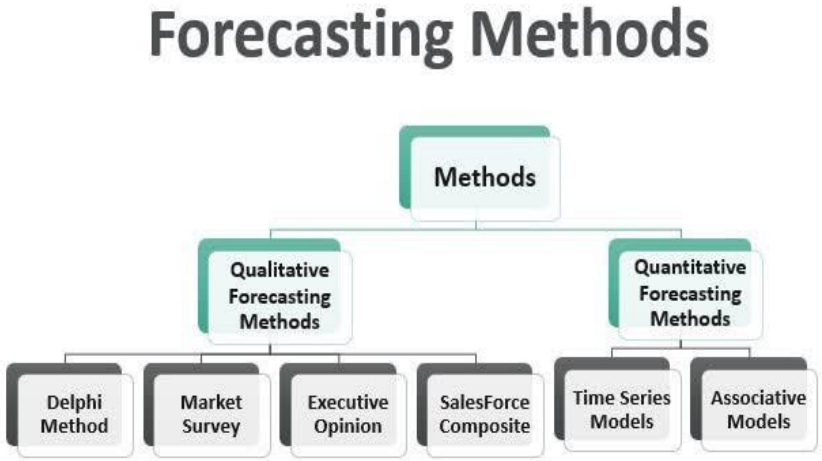
Navy has numerous ships



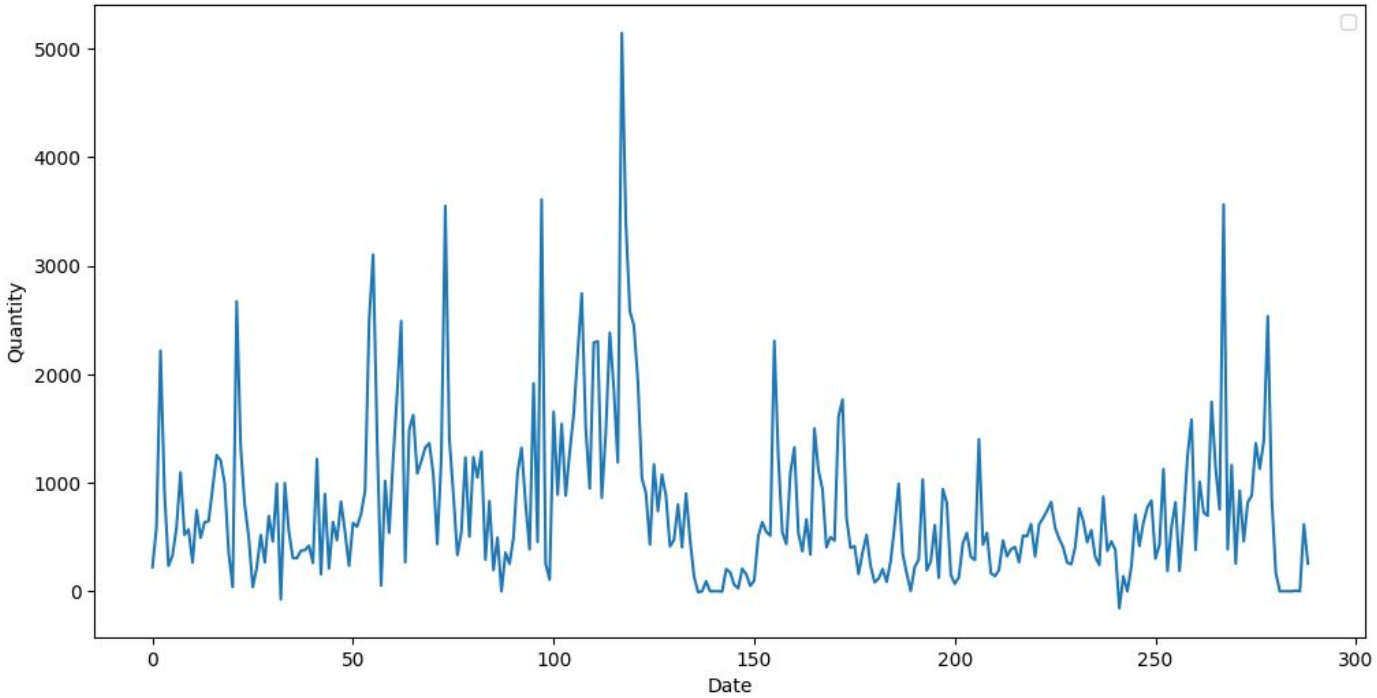


How many equipments and spare parts will be needed?

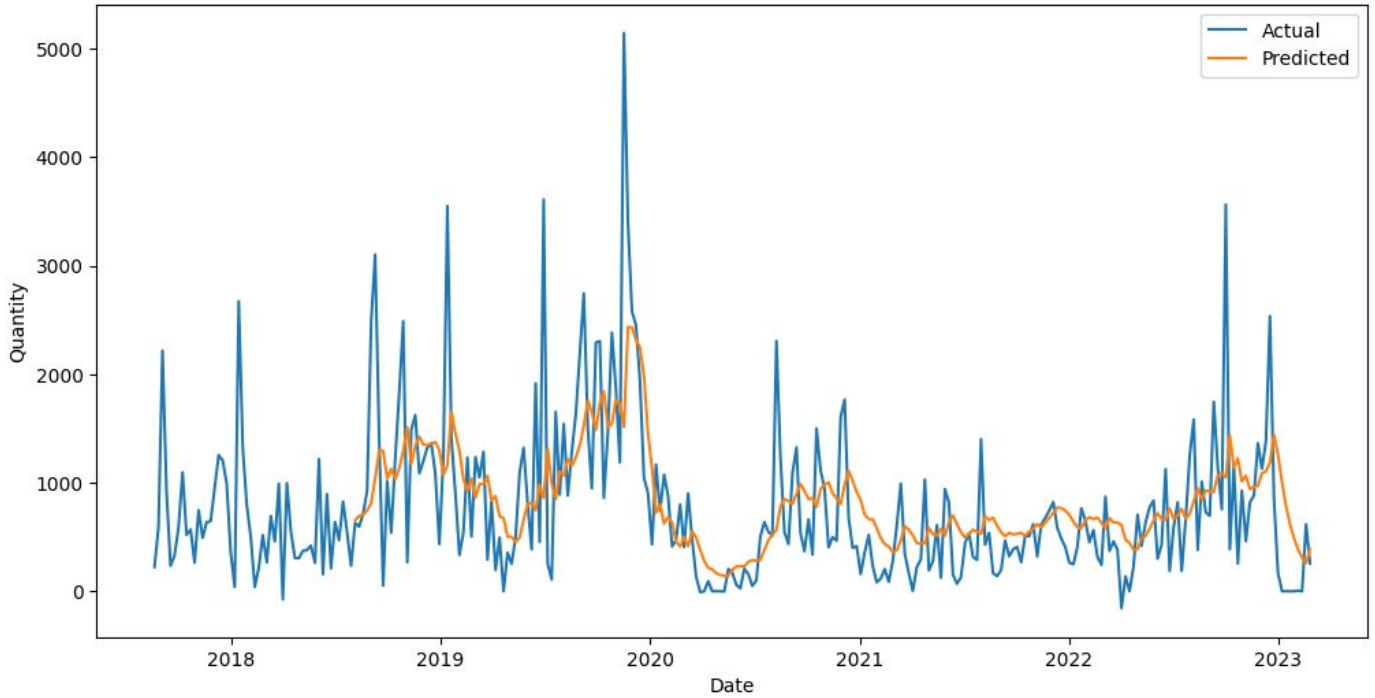
Forecasting



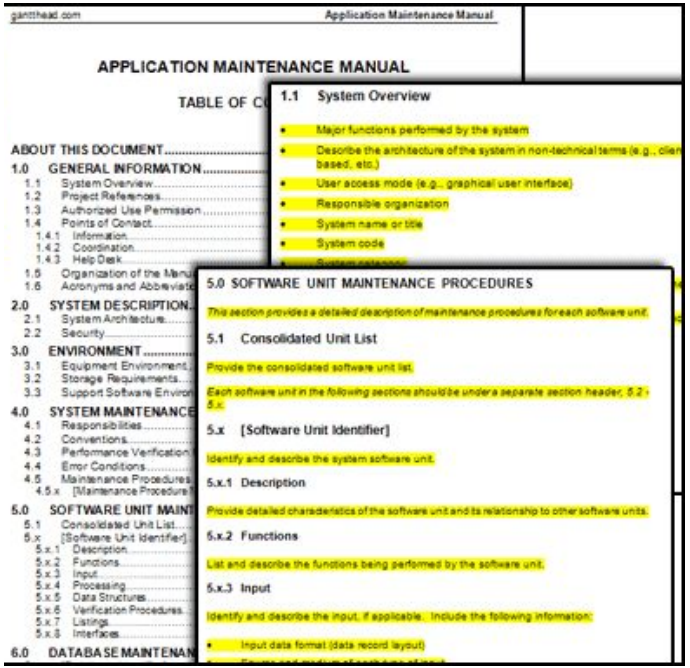
But, can you predict this?



1. Forecasting 2.0



Maintenance



gantthead.com Application Maintenance Manual

APPLICATION MAINTENANCE MANUAL

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6.0 DATABASE MAINTENAN

1.1 System Overview

- Major functions performed by the system
- Describe the architecture of the system in non-technical terms (e.g., clien based, etc.)
- User access mode (e.g., graphical user interface)
- Responsible organization
- System name or title
- System code

5.0 SOFTWARE UNIT MAINTENANCE PROCEDURES

This section provides a detailed description of maintenance procedures for each software unit.

5.1 Consolidated Unit List

Provide the consolidated software unit list.

Each software unit in the following sections should be under a separate section header, 5.2 - 5.x.

5.x [Software Unit Identifier]

Identify and describe the system software unit.

5.x.1 Description

Provide detailed characteristics of the software unit and its relationship to other software units.

5.x.2 Functions

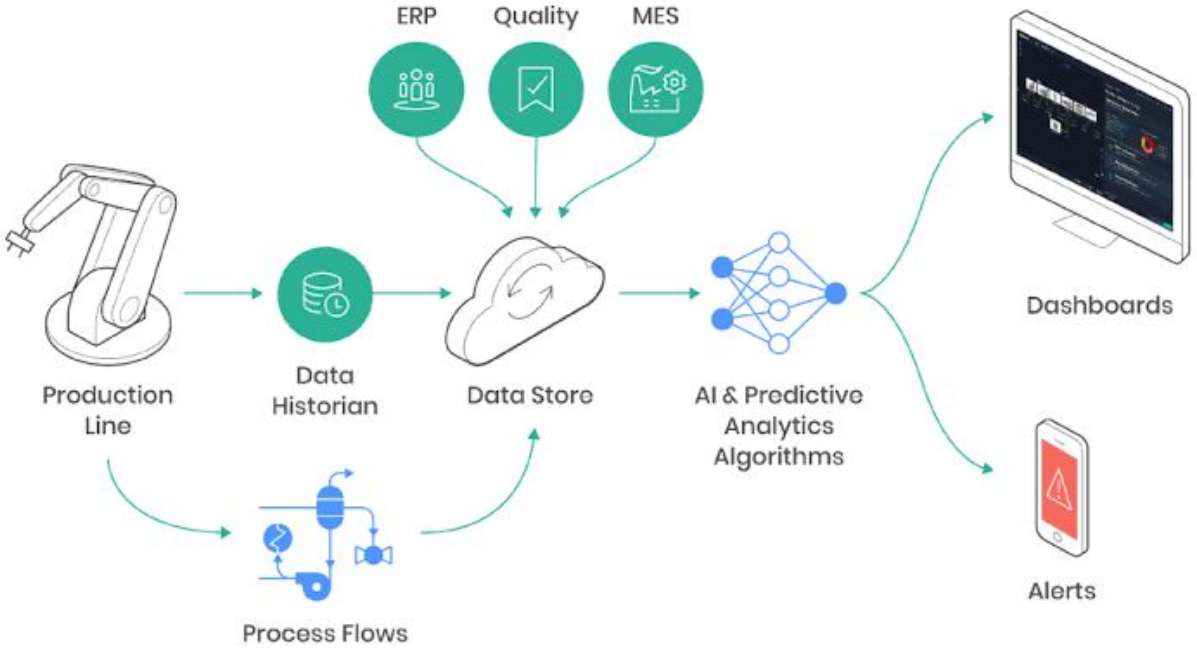
List and describe the functions being performed by the software unit.

5.x.3 Input

Identify and describe the input, if applicable. Include the following information:

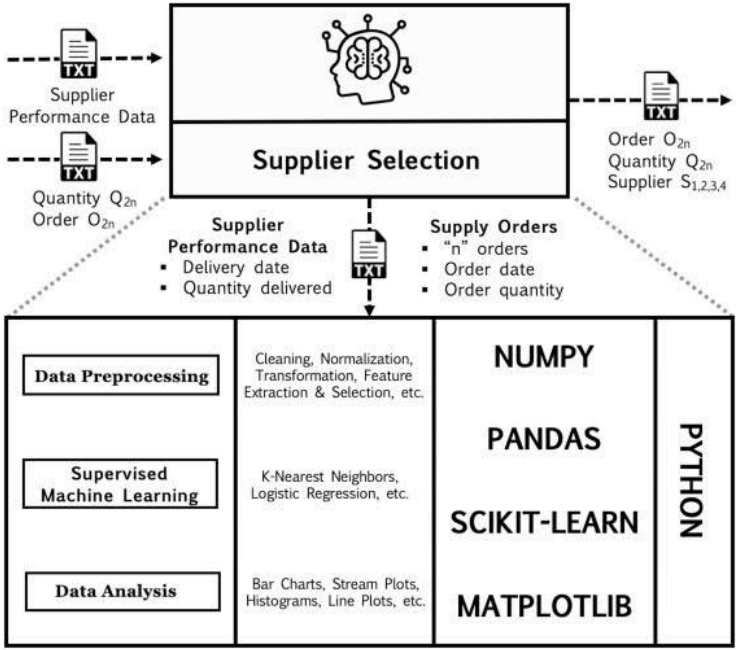
- Input data format (data record layout)

2. Predictive Maintenance

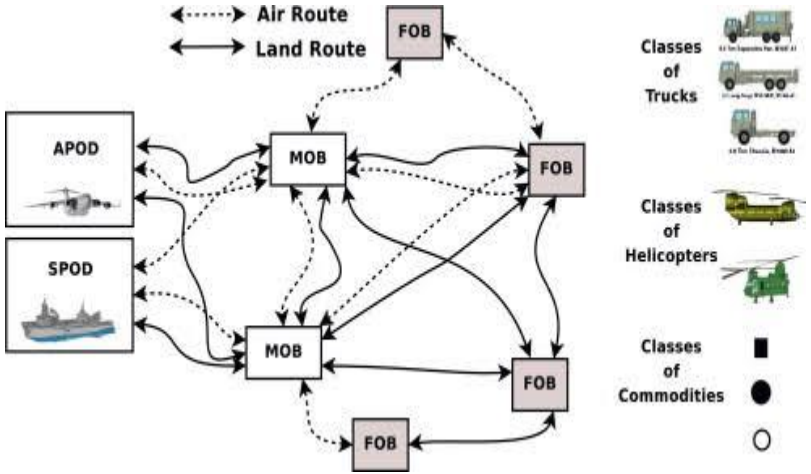


Supplier Selection

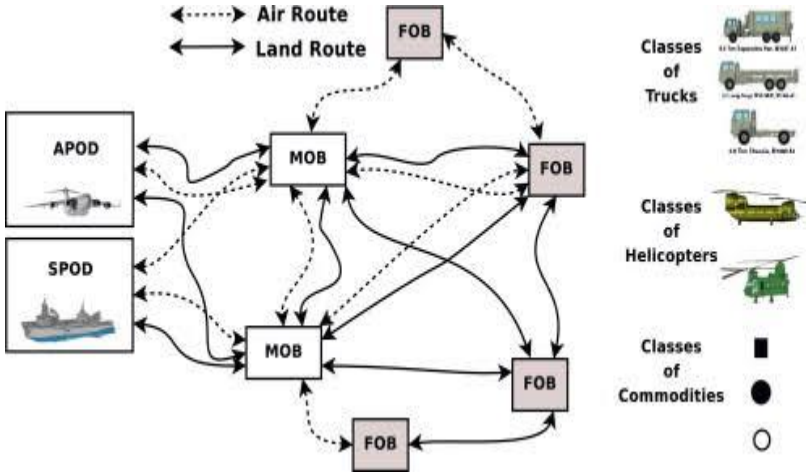
3. Intelligent Supplier Selection



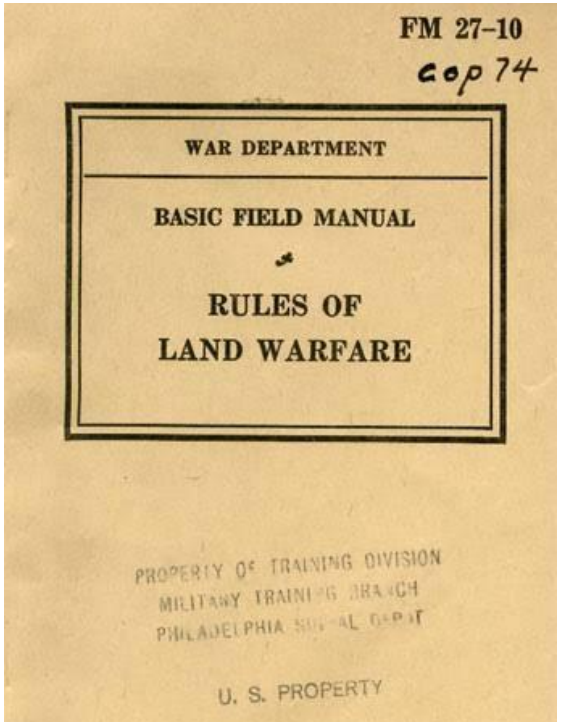
How to move goods and vehicles?

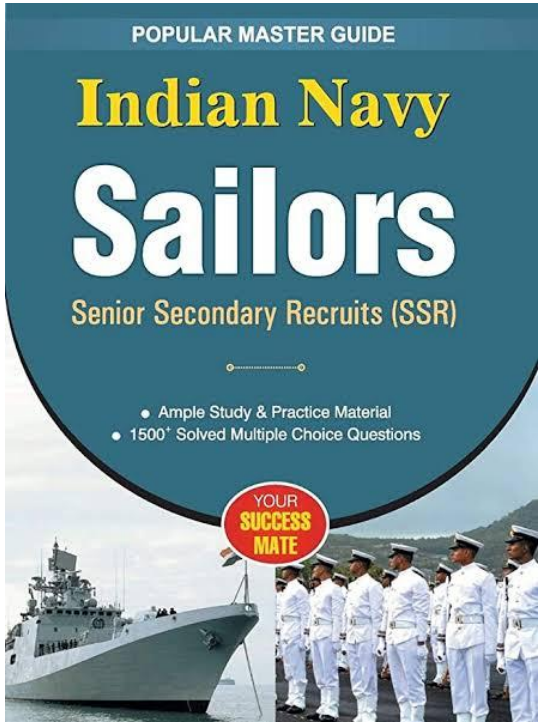


4. Smart Logistics



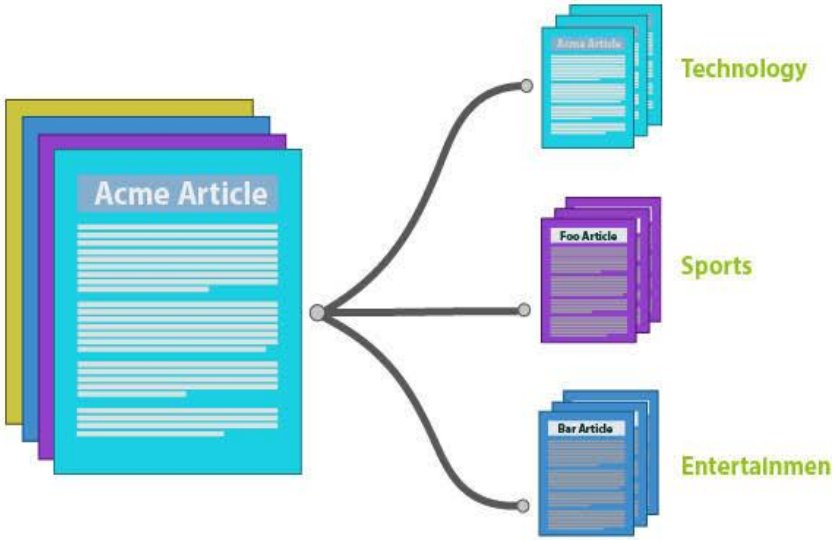
How to read, understand and use long documents?



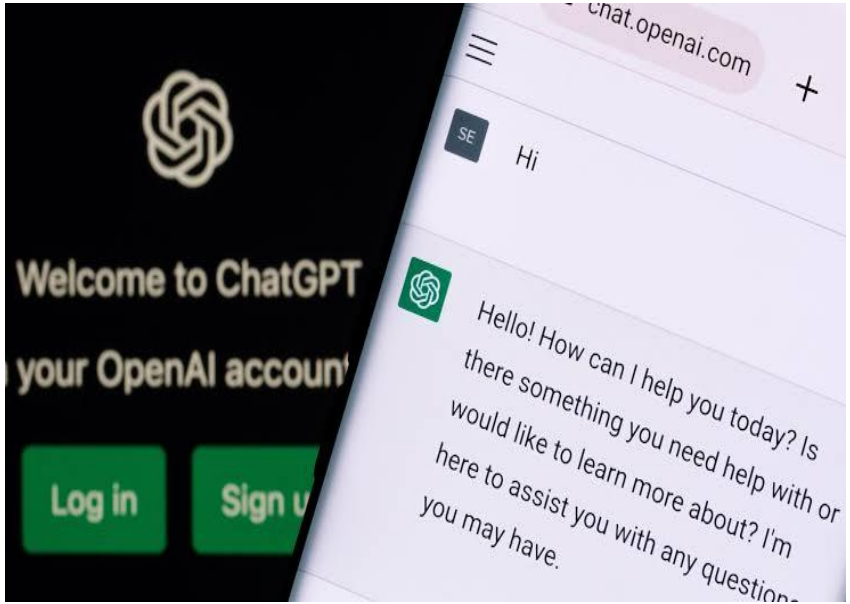


6. Document Intelligence

Document Category, Summary, Sentiment



Chat with your Document



Surveillance

Manual Surveillance

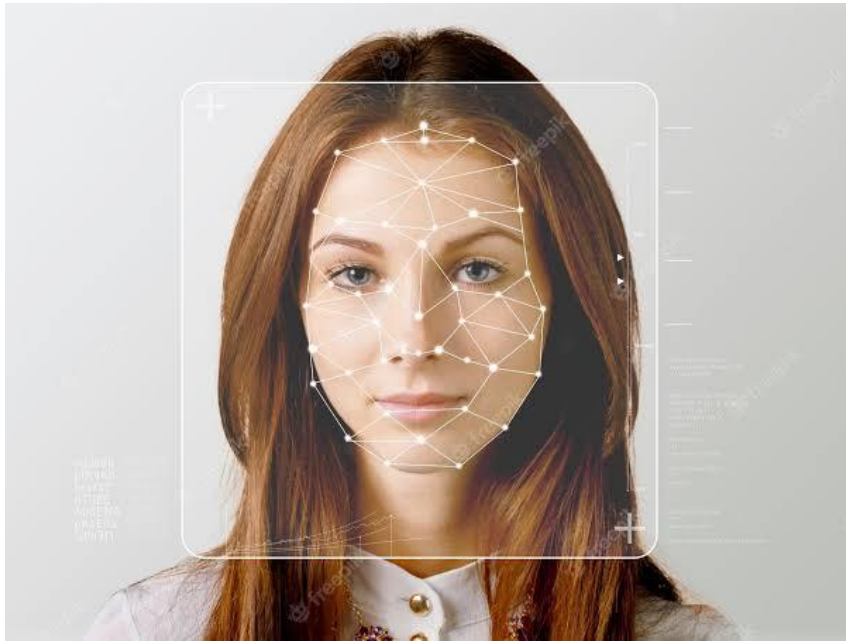
Surveillance

Manual Surveillance

Camera Surveillance

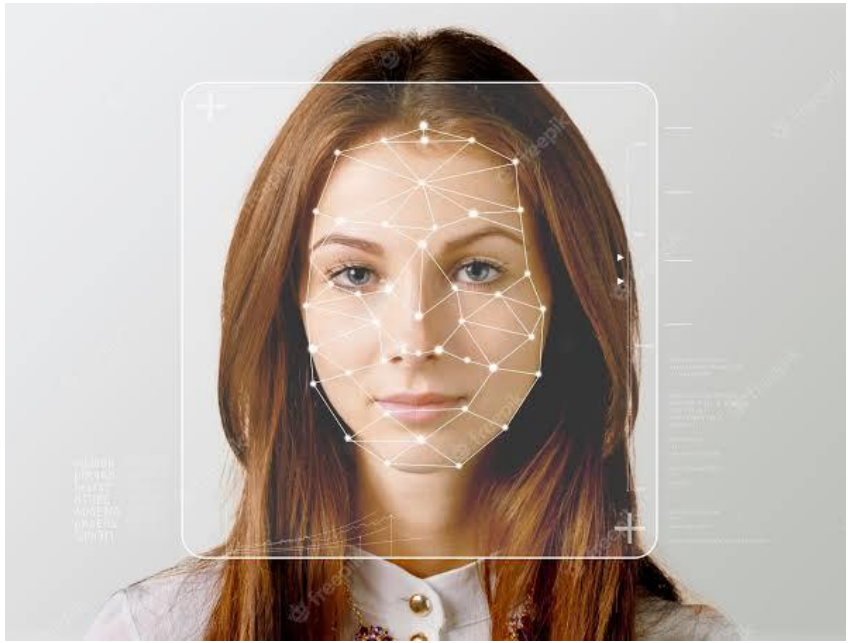
6. Nextgen Surveillance

Face Detection

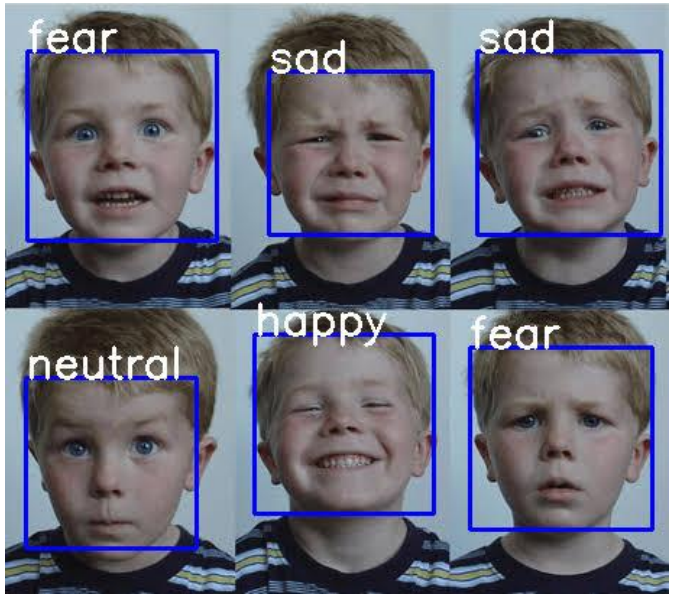


6. Nextgen Surveillance

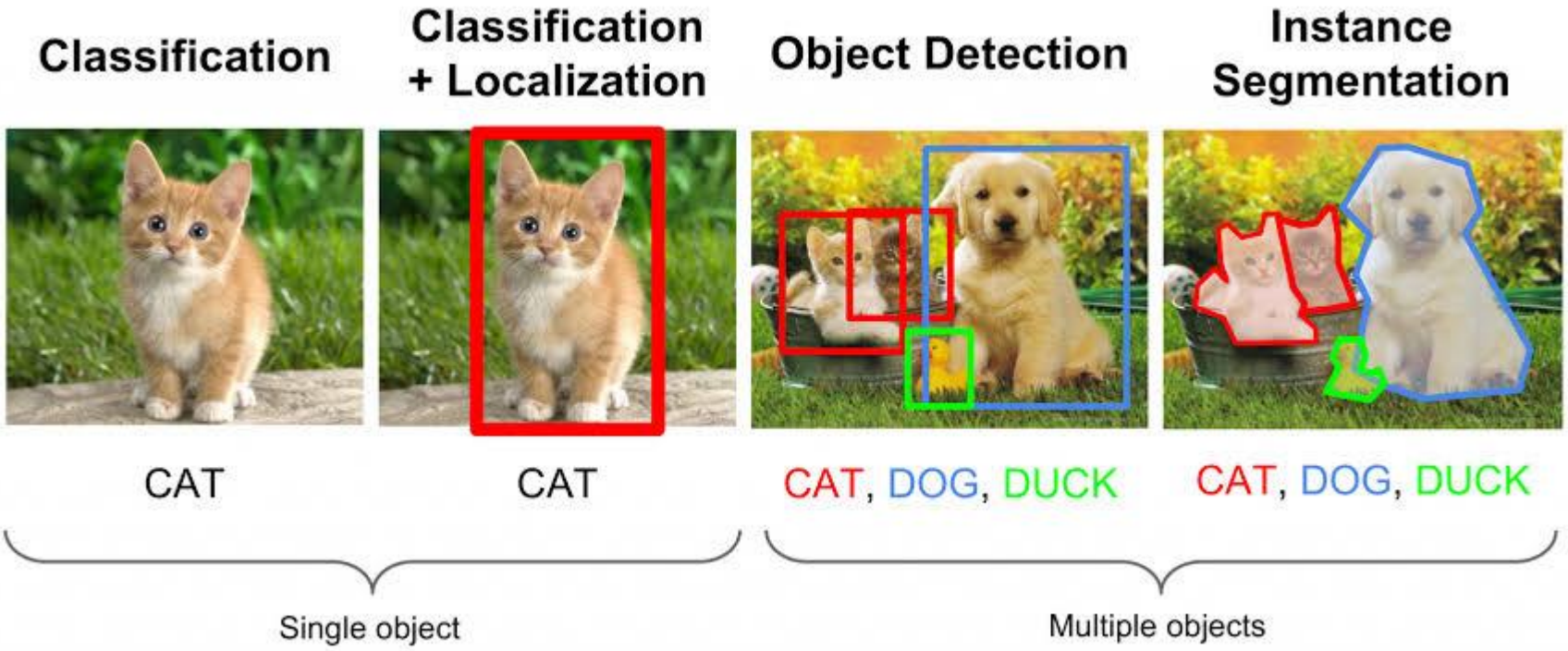
Face Detection



Emotion Detection



6. Nextgen Surveillance



Weapons

Weapons of the Past

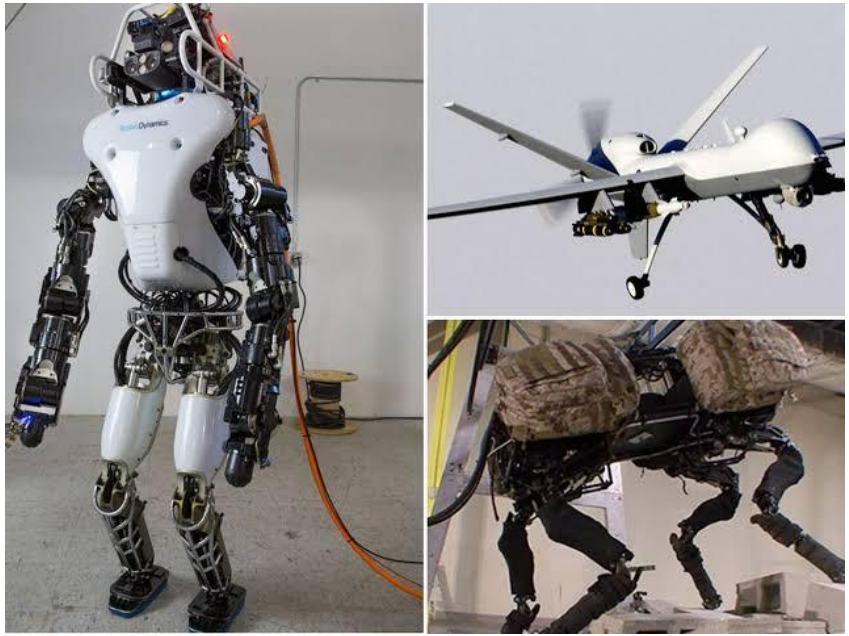
Weapons

Weapons of the Past

Weapons of the Present

7. Autonomous Weapons

AI + Robotics + Drones



Summary & Key Takeaways

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1. **Forecasting 2.0**: Accurate future predictions for better planning
2. **Predictive Maintenance**: Ensure reliability of ship and equipments
3. **Intelligent Supplier Selection**: Automatically select best suppliers based on needs
4. **Smart Logistics**: Optimise logistics to minimise cost, time, and distance
5. **Document Intelligence**: Extract insights and chat with documents
6. **Nextgen Surveillance**: Elevate security through smart monitoring
7. **Autonomous Weapons**: Get ready for Battlefield 4.0

Battlefield 4.0

https://youtu.be/vYxILGZ9IpQ

Thank You!

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Ex - Disney, Sony, Target, Grab, and Wipro
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