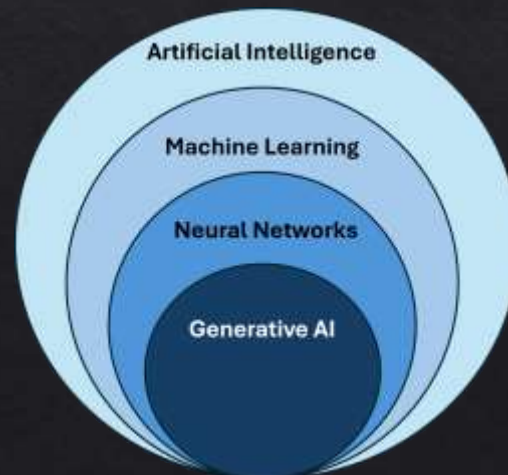# AI & ML ROADMAP PROGRAM

By codeNirvahana

ARTIFICIAL INTELLIGENCE (AI) & MACHINE LEARNING (ML)

- ◈ Artificial Intelligence (AI) is the ability of machines to perform tasks that normally require human intelligence such as thinking, learning, and decision-making.

- ◈ Machine Learning (ML) is a subset of AI that enables systems to learn from data and improve automatically without being explicitly programmed.

- ◈ Examples:

- ▪ Voice assistants

- ▪ Recommendation systems

- ▪ Self-driving cars

- ▪ Chatbots

SCOPE OF AI & ML DEVELOPMENT

◆ AI and ML have a huge scope across industries:

▪ Healthcare (disease prediction)

▪ Finance (fraud detection)

▪ Education (personalized learning)

▪ E-commerce (recommendation engines)

▪ Automotive (self-driving vehicles)

▪ AI is shaping the future of technology and innovation.

JOB OPPORTUNITIES IN AI & ML

- ◈ India:
- ▪ Rapid growth in AI startups
- ▪ High demand in IT companies and research labs
- ▪ Strong opportunities in Bengaluru, Hyderabad, Pune
- ◈ Abroad:
- ▪ High demand in USA, Europe, and Canada
- ▪ Research, data science, and AI engineering roles
- ▪ Very high salary packages
- ▪ AI & ML professionals are among the highest paid in tech.

Difference Between AI, ML & Deep Learning

- ◈ **AI vs ML vs DEEP LEARNING**

- ▪ Artificial Intelligence: Makes machines intelligent

- ▪ Machine Learning: Machines learn from data

- ▪ Deep Learning: Uses neural networks to process complex data

- ◈ Deep Learning is used in:

- ▪ Image recognition

- ▪ Speech recognition

- ▪ Natural language processing

Skills Required for AI & ML Development

◈ To become an AI & ML developer, you should learn:

▪ Python programming

▪ Mathematics & Statistics

▪ Data Structures

▪ Machine Learning algorithms

▪ Data handling & preprocessing

▪ Problem-solving skills

▪ Strong fundamentals are very important in AI & ML

Tools & Technologies Used

◈ Popular tools and technologies in AI & ML:

▪ Python

▪ NumPy, Pandas

▪ Scikit-learn

▪ TensorFlow

▪ PyTorch

▪ Jupyter Notebook

▪ Google Colab

▪ These tools help in building, training, and testing models.

Conclusion

- AI & ML are transforming the world of technology.

- High-demand future skills

- Excellent career growth

- Opportunities in research and industry

- Requires continuous learning

- AI & ML development is ideal for students interested in innovation and data.