# **Dr. D. Y. Patil Unitech Society’s**

# **Dr. D. Y. Patil Arts, Commerce and Science College, Pimpri, Pune-18**

# **Department of Computer Science**

# **Academic Year 2024-2025**

# **Research Work Synopsis**

1. **Research Area:** Artificial Intelligence
2. **Title of Research Topic:** Role of AI in Game Development
3. **No of members:** Three (3)
4. **Name of Students and Roll No:**

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1. **Software and Hardware Requirements:**

* General Hardware Requirements for AI in Healthcare:

1. GPUs/TPUs: High-performance processors for training deep learning models.
2. CPUs: Multi-core processors for routine AI computations.
3. RAM: At least 32 GB to handle large healthcare datasets.
4. Storage: SSDs or cloud storage for fast access to large medical datasets.
5. Edge Devices: Embedded processors for AI in mobile and remote health applications.
6. Networking: High-speed internet for cloud integration and real-time data transfer.

* General Software Requirements for AI in Healthcare:

1. **AI Frameworks:** For implementing decision-making logic, behavior trees, and learning models (e.g., TensorFlow, PyTorch, scikit-learn).Data Libraries: For data handling and preprocessing.
2. **Game Engines:** For rendering and controlling game environments (e.g., Unity, Unreal Engine, Pygame).Development Tools: For model development, testing, and deployment.
3. **Development Tools:** For coding, debugging, and version control (e.g., Visual Studio Code, Git, Jupyter Notebooks).
4. **APIs and SDKs:** For real-world map integration and third-party services (e.g., Google Maps API, OpenStreetMap SDK).
5. **Simulation Tools:** For testing AI behavior in a virtual environment (e.g., Unity ML-Agents, OpenAI Gym).

**8. Brief Description of Research Topic:**

Artificial Intelligence (AI) in game development is revolutionizing the gaming experience by enabling smarter decision-making, adaptive gameplay, and realistic Non-Player Characters (NPCs). AI is used to simulate human-like behavior, enhance strategic thinking in games like chess, and integrate real-world data for immersive environments. From pathfinding and enemy reactions to dynamic dialogues and procedural content generation, AI enhances realism and engagement. This research explores AI algorithms, game engine integration, and real-time adaptability to demonstrate how AI is reshaping the future of interactive entertainment.