# NEST.ai – Prototype Project Requirement Document (PRD)

## 1. Project Overview

**Project Name:** NEST.ai (Prototype)

**Vision:**
NEST.ai aims to build an AI-powered learning environment where students can learn from videos and documents while an AI agent watches, understands, and learns alongside them. The system focuses on contextual doubt-solving, personalized assistance, and clean, modern learning UX inspired by platforms like Netflix.

**Prototype Goal:**
To deliver a minimal yet functional prototype that demonstrates:

- Video-based learning with a Netflix-style interface
- AI-assisted doubt solving based on watched content
- Document-based Q&A
- User-generated content (video uploads)
- Secure authentication and robust backend handling

This prototype validates the core concept before scaling into a full edtech platform.

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## 2. Problem Statement

Traditional video learning platforms:

- Are passive (no contextual understanding of what the learner watched)
- Lack personalized, real-time doubt resolution
- Separate content consumption and doubt clearing

**NEST.ai solves this by:**

- Letting an AI agent watch and learn from the same content as the student
- Enabling students to ask contextual doubts tied to videos and documents
- Creating a unified learning + assistance space

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# 3. Target Users

- College students
- School students (higher classes)
- Self-learners
- Educators uploading lectures

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# 4. Core Features (Prototype Scope)

## 4.1 Authentication & User Management

- User sign-up / login (Email + Password)
- Secure authentication (JWT / OAuth-ready)
- User profile creation

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## 4.2 Home Page (Netflix-style Learning Feed)

**Purpose:** Content discovery and consumption

**Features:**

- Grid-based video layout similar to Netflix
- Categorization by:
    - Subject
    - Class / Level
    - Topic
- Video thumbnails with title, subject, duration
- Smooth scrolling and minimal UI

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## 4.3 Video Player & Learning Context

- In-app video player
- Track:
    - Watched videos
    - Watch duration
- Metadata capture:
    - Subject
    - Topic

    - Uploaded by

This data is used to build **learning context for the AI agent**.

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## 4.4 Study Area (AI Agent + Chatbot)

**Purpose:** Central AI-powered learning assistant

**Features:**

- Dedicated "Study Area" section
- Chat-based interface
- AI agent capabilities:
    - Answer doubts related to watched videos
    - Explain concepts in simple language
    - Provide summaries and clarifications

**Context Awareness:**

- AI responses are grounded in:
    - Videos watched by the user
    - Documents uploaded by the user

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## 4.5 Document Upload & Document Q&A

- Upload supported formats:
    - PDF
    - DOCX
    - PPT
    - TXT
- AI-powered document understanding
- Ask questions directly related to uploaded documents

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## 4.6 My Space / Account Section

**Purpose:** Personal learning & creator dashboard

**Features:**

- View uploaded videos

- Upload new videos
- View watched history
- Manage personal documents
- Basic profile management

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# 5. AI System Requirements

## 5.1 AI Agent Behavior

- Watches and processes videos (via transcripts + metadata)
- Learns alongside the student
- Maintains per-user learning context

## 5.2 AI Capabilities (Prototype)

- Natural language Q&A
- Contextual responses
- Document-based reasoning
- Video transcript-based understanding

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# 6. UI / UX Requirements

## Design Principles

- Clean
- Minimal
- Distraction-free
- Modern edtech aesthetic

## UI Guidelines

- Netflix-inspired home layout
- Clear navigation bar:
    - Home
    - Study Area
    - My Space
- Soft color palette
- Fast loading and smooth transitions

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# 7. Backend & System Architecture

## 7.1 Backend Requirements

- Robust and scalable backend
- REST / API-first architecture

## 7.2 Core Backend Responsibilities

- User authentication & authorization
- Video upload & streaming handling
- Document storage & retrieval
- AI context storage per user
- Chat history management

## 7.3 Database Requirements

- Users
- Videos
- Video metadata
- Watch history
- Documents
- AI context embeddings

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# 8. Security Requirements

- Secure authentication
- Protected user data
- Private user documents
- Access control for uploads

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# 9. Performance & Scalability (Prototype Level)

- Handle multiple concurrent users
- Optimized video delivery
- Asynchronous AI processing

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## 10. Non-Goals (Out of Scope for Prototype)

- Live classes
- Payments / subscriptions
- Certificates
- Advanced analytics dashboards

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## 11. Success Metrics for Prototype

- Users can:
    - Watch videos
    - Ask contextual doubts
    - Upload videos and documents
- AI answers are relevant to watched content
- Smooth UI/UX experience

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## 12. Future Scope (Post-Prototype)

- Personalized learning paths
- Teacher dashboards
- Collaborative learning spaces
- Advanced AI tutoring
- Multilingual support

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**Document Version:** 1.0
**Project:** NEST.ai Prototype
**Prepared for:** Hackathon / Early-stage Validation