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AI for Bharat Hackathon

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Team Name : **techiess**

Team Leader Name :Suraj Bhan Kumar

Problem Statement : AI for learning & Developer Productivity

Brief about the Idea: Smart Learning Coach

Smart Learning Coach is an **AI-powered personalized learning guidance platform** that helps students and beginner developers learn technical skills in a **structured, adaptive, and goal-oriented way**.

The system:

Understands learning goals written in **natural language**

Assesses current skill level

- ✓ Generates **personalized learning roadmaps**
- ✓ Breaks learning into **weekly plans**
- ✓ Tracks progress and provides **AI mentoring**

->How Is Our Solution Different & Effective?

->How is it different from existing ideas?

- ✓ Existing platforms offer static, one-size-fits-all courses
- ✓ Smart Learning Coach provides AI-driven, personalized learning paths
- ✓ Uses natural language goal input, not predefined course selections
- ✓ Continuously adapts roadmap based on learner progress

->USP (Unique Selling Proposition)

Natural Language Goal Input
AI-Based Skill Assessment
Personalized Learning Roadmaps
Auto-Generated Weekly Plans
Progress Tracking & Analytics
AI Mentor for Guidance & Motivation
Secure & Privacy-Focused Design

->How does it solve the problem?

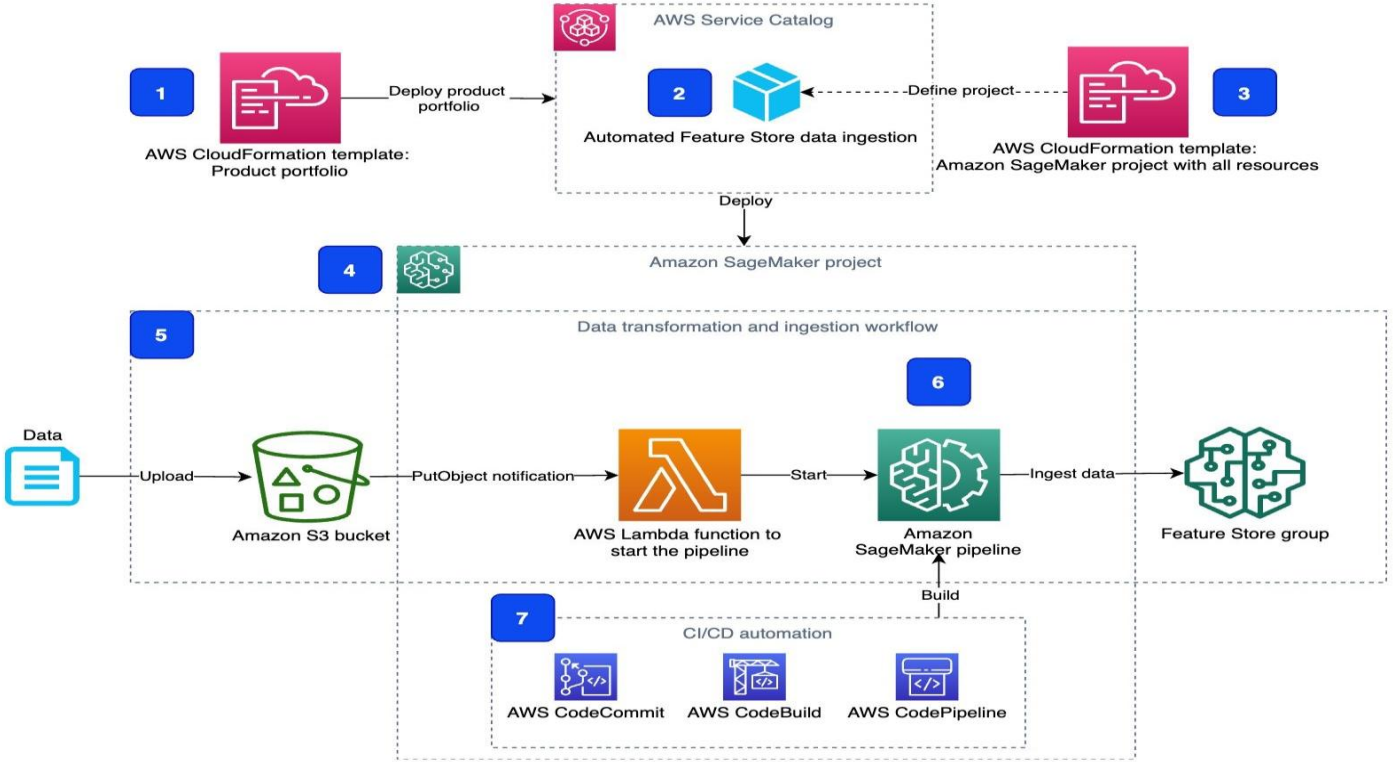
- Converts unclear learning goals into structured roadmaps
- Identifies skill gaps before starting learning
- Breaks learning into weekly, manageable tasks
- Tracks progress and gives real-time AI feedback

List of features offered by the solution

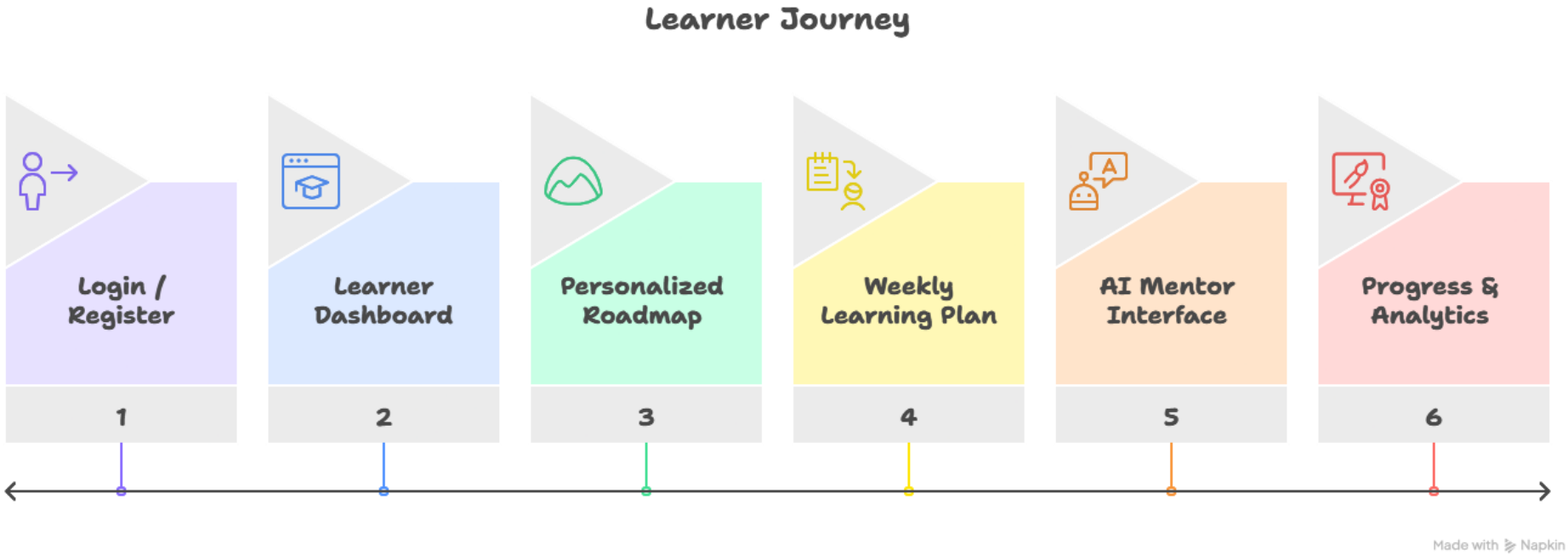
Core Features

- Natural Language Goal Processing
- Skill Level Assessment
- Personalized Coding tutor
- Personalized Learning Roadmap
- Weekly Learning Plan Generator
- Learning Resource Recommendation
- Progress Tracking Dashboard
- AI-Powered Mentoring
- Secure User Profiles

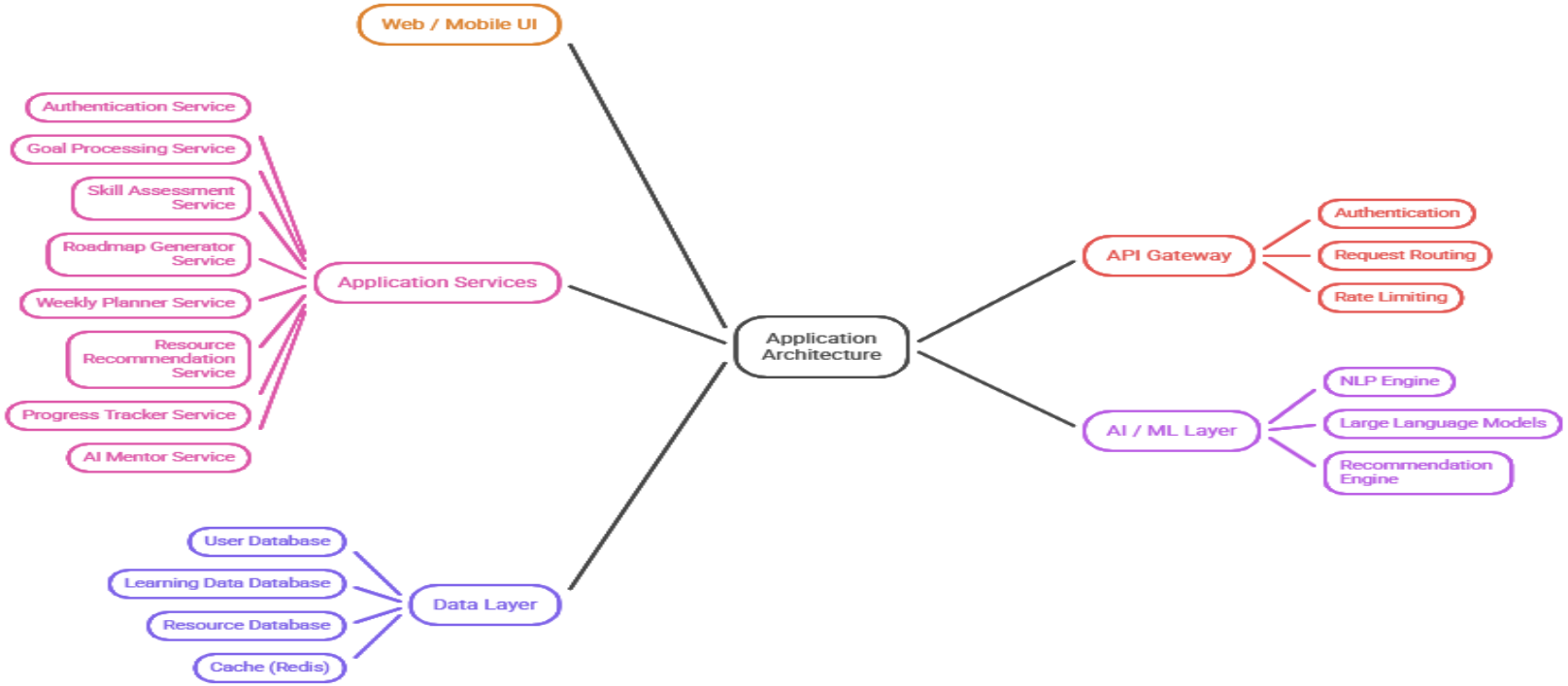
Process flow diagram or Use-case diagram



Wireframes/Mock diagrams of the proposed solution (optional)



Architecture diagram of the proposed solution:



Technologies to be used in the solution:

Frontend
- **HTML, CSS, JavaScript** – User interface
- **React.js** – Interactive and responsive UI

Backend & APIs
- **Python** – Core backend language
- **FastAPI** – High-performance REST APIs
- **JWT Authentication** – Secure user sessions

AI / Machine Learning
- **Natural Language Processing (NLP)** – Goal understanding
- **Large Language Models (LLMs)** – Roadmap generation & AI mentoring
- **Recommendation Algorithms** – Personalized learning resources

Databases & Storage
- **PostgreSQL** – User & learning data
- **MongoDB** – Roadmaps, plans, documents
- **Redis** – Caching & performance optimization

Cloud & Infrastructure
- **AWS Cloud Platform**
  EC2 / Lambda – Compute
  S3 – Resource storage
  RDS – Managed database
- **Docker** – Containerization
- **Kubernetes** – Scalability & orchestration

Security & Monitoring
OAuth 2.0 / JWT – Authentication & authorization
Encryption (TLS, AES) – Data security
CloudWatch / Prometheus – Monitoring & logging

Estimated implementation cost (optional):

Component	Cost Estimate
Cloud Infrastructure (AWS)	Low (Pay-as-you-use)
AI / NLP Model Usage	Medium
Backend Development	Moderate
Frontend Development	Low
Databases & Storage	Low
Security & Monitoring	Low

Overall Cost:
Prototype Stage: Low
Scalable Production: Cost-efficient & demand-based

Cost Strategy:
Serverless & managed cloud services
Auto-scaling based on user load

Add as per the requirements for the hackathon:

Alignment with AWS AI for Bharat Hackathon Requirements

1. Leverages **Artificial Intelligence (AI) and Natural Language Processing (NLP)** to enable **inclusive, personalized learning**
2. Designed to support **diverse learners across India**, including students and early-stage developers
3. Cloud-native architecture aligned with **AWS scalable and cost-efficient services**
4. Enables **AI-driven skill development** to support **Digital India and Skill India initiatives**
5. Focuses on **accessibility, affordability, and scalability** for nationwide adoption
6. Ensures **data privacy, security, and ethical AI usage**
7. Can be extended to support **regional languages and local learning needs**
8. Promotes **AI for social good** by improving learning outcomes at scale

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Thank You