**Project Design Phase**

**Problem – Solution Fit Template**

| Date | 30 July 2025 |
| --- | --- |
| Team ID | PNT2025TMID09555 |
| Project Name | The Roadmap Generator |
| Maximum Marks | 2 Marks |

### **Problem–Solution Fit Template**

### **Problem 1: Lack of Personalized Learning Roadmaps**

* **Description**:  
  Learners often don’t know where to begin when learning a new skill. Generic resources don’t cater to their current knowledge level or goals.
* **Who experiences it**:  
  Students, career switchers, working professionals, and lifelong learners.
* **Why it matters**:  
  Without direction, learners waste time, lose motivation, or abandon learning altogether.
* **Current solutions**:  
  Static blog posts, generic course lists, YouTube videos — none offer dynamic personalization.

### **Solution 1: Personalized AI-Powered Roadmap Generation**

* **How**:  
  The user enters the skill they want to learn (e.g., "NLP"). The LLaMA2 language model dynamically generates a step-by-step roadmap based on learning principles and free online resources.
* **Why it works**:  
  LLaMA2 can understand context, assess required sub-skills, and generate tailored learning sequences using its training on diverse educational content.
* **User value**:  
  Saves time, removes confusion, increases motivation through clear and achievable goals.

### **Problem 2: Difficulty in Finding Quality, Free Learning Resources**

* **Description**:  
  Learners often get overwhelmed by paid courses and misleading resources. Finding good *free* content is difficult and time-consuming.
* **Who experiences it**:  
  Budget-conscious learners, students in remote regions, and developers exploring new domains.
* **Why it matters**:  
  Access to knowledge should not be limited by cost or geography.
* **Current solutions**:  
  Reddit threads, random blog posts, YouTube — not curated or structured.

### **Solution 2: Curated Free Resource Integration with Roadmap**

* **How**:  
  The LLaMA2 model includes references to **free** and high-quality resources like MOOCs, blogs, YouTube lectures, GitHub repos, etc.
* **Why it works**:  
  It ensures affordability and accessibility while maintaining quality.
* **User value**:  
  Learners can start immediately without a paywall barrier.

### **Problem 3: No End-to-End Interface for Learning Path Creation**

* **Description**:  
  Most AI-powered learning tools focus either on tutoring or content generation, not end-to-end roadmap generation.
* **Who experiences it**:  
  Users who want guidance, not just definitions or chat-based Q&A.
* **Why it matters**:  
  A guided roadmap builds confidence and keeps learners on track.

### **Solution 3: Full-Stack Web App Powered by LLaMA2 and Streamlit**

* **How**:  
  A Streamlit web interface captures user input, processes it through a locally loaded LLaMA2 model (via CTransformers), and outputs a custom roadmap on the webpage.
* **Why it works**:  
  Lightweight, fast, scalable, and easy to deploy without cloud dependencies.
* **User value**:  
  A one-stop solution from skill entry → roadmap generation → learning launch.