

## Project Design Phase Solution Architecture

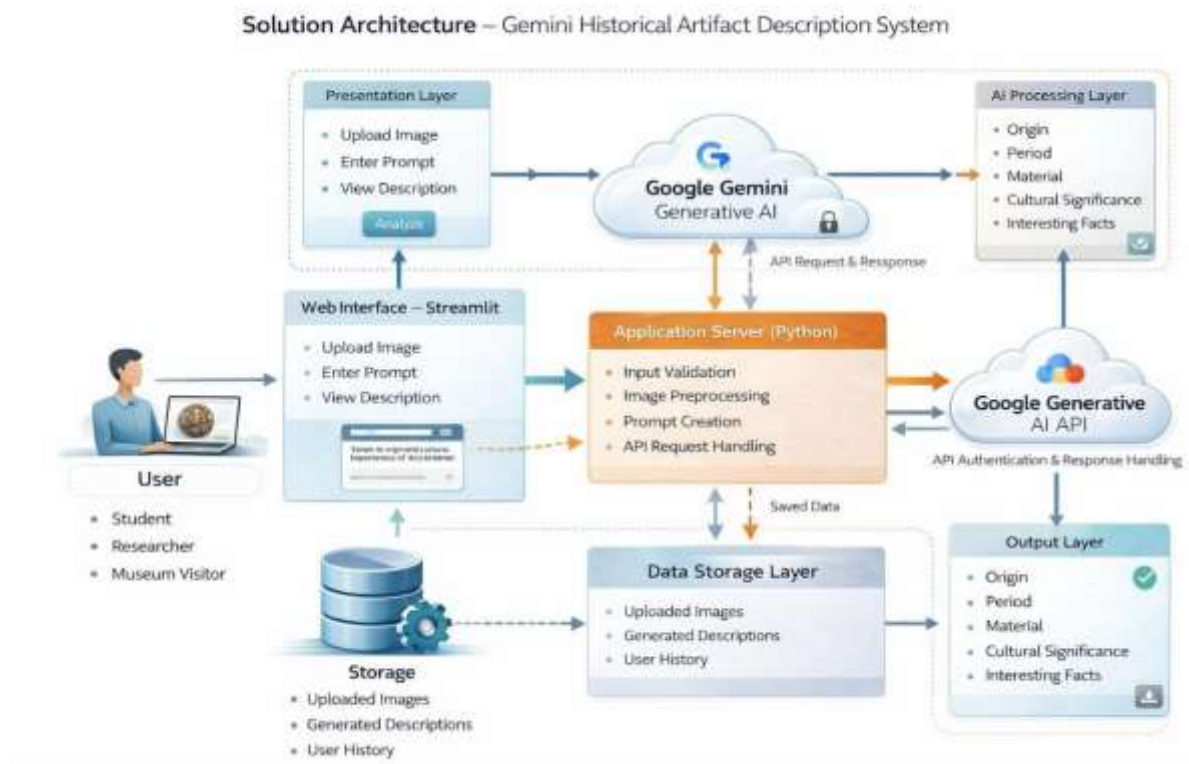
Date	2 February 2026
Team ID	LTVIP2026TMIDS50288
Project Name	Gemini Historical Artifact Description
Maximum Marks	4 Marks

### Solution Architecture:

Solution architecture is a complex process with many sub-processes that bridges the gap between business problems and technology solutions. Its goals are to:

- Find the best tech solution to solve existing business problems.
- Describe the structure, characteristics, behavior, and other aspects of the software to project stakeholders.
- Define features, development phases, and solution requirements.
- Provide specifications according to which the solution is defined, managed, and delivered.

### Example - Solution Architecture Diagram:



## **Step-by-Step Working:**

### **Step-1: User opens the system**

- The user (student / museum visitor / researcher) opens the web or mobile application and logs in.
- The system shows a camera/upload option.

### **Step-2: Capture or Upload Image**

The user takes a photo of a historical artifact (statue, coin, temple carving, weapon, inscription) or uploads an existing image from the gallery.

### **Step-3: Image sent to Backend Server**

- The application sends the image to the backend server through the internet (API request).
- The server receives the image and prepares it for processing.

### **Step-4: AI Image Analysis (Gemini / Vision Model)**

- The AI model analyzes the picture:
  - detects object type
  - identifies material (stone, bronze, gold, etc.)
  - recognizes historical period
  - finds symbols or text
- This is the main brain of your project.

### **Step-5: Historical Knowledge Retrieval (Database)**

After identification, the server checks the historical database:

- monument details
- dynasty/kingdom
- usage and purpose
- location and cultural importance

### **Step-6: Generate Description (Generative AI)**

Gemini AI generates a human-readable explanation like a museum guide:

- name of artifact
- origin
- age
- story behind it
- importance

### **Step-7: Optional Translation & Voice Output**

- The system can:
  - translate into regional languages (Tamil/Hindi/English)
  - convert text to speech (audio guide)

So the user can hear like a tour guide.

### **Step-8: Result displayed to user**

Finally, the application shows:

- artifact image
- detailed description
- historical facts

- audio narration

The user now understands the artifact instantly .