



**\*\*\*Project Proposal\*\*\***

**An AI-Powered Web Application for Skin Cancer Detection  
and Cure Recommendation**

An Intelligent Solution to Identify and Classify Skin Cancer Using  
AI-Based Image Analysis

**Submitted by**

Abdul Rehman (F22BINFT1M01133)

**Submitted to**

Dr. Syed Ali Nawaz Shah

**Department of Information Technology**

**Faculty of Computing**

**The Islamia University of Bahawalpur**

# **Title: An AI-Powered Web Application for Skin Cancer Detection:**

An Intelligent Solution to Identify and Classify Skin Cancer Using AI and Recommend Effective Solution.

## **Introduction:**

Skin cancer is one of the most common types of cancer worldwide, and its early detection plays a vital role in improving patient outcomes. Traditional diagnostic methods often require professional dermatologists and specialized laboratory tests, which may not be accessible in all regions. This project aims to bridge that gap by developing a web-based application that uses an Artificial Intelligence to analyze uploaded skin images and provide instant diagnostic feedback. The system will be designed with user-friendliness, security, and accessibility in mind, ensuring that users can easily upload images and receive accurate predictions regarding potential skin Cancer.

## **Objective:**

To design and develop a secure and user-friendly web-based application that integrates with an AI [API] to detect and classify skin cancer from uploaded skin images, enabling users to obtain quick, AI-powered diagnostic insights without the need for specialized medical expertise.

## **Goals:**

1. **Simplify the Diagnosis Process:** To facilitate a seamless process by allowing users to upload a skin image and receive an instant AI-based analysis.
2. **Provide Actionable Advice:** To offer immediate, AI-generated information regarding the causes, symptoms, and treatment option.
3. **Enhance User Access:** Ensure accessibility and usability through a responsive, intuitive web interface.
4. **Raise Awareness:** Promote awareness of skin cancer detection and the importance of early diagnosis.

## **Key Features:**

### **User Registration and Dashboard:**

1. **User Profile:** Provide the functionality for creating a secure user profile that includes the user's name, email and a history of their uploaded skin images and diagnostic result.
2. **Scan History:** A personal dashboard where users can view all their previous submissions, including the uploaded image, the diagnosis result, and the recommended cure.

### **AI-Powered Disease Detection:**

1. **Image Upload:** Allow users to either capture a new image using their device camera or upload an existing image from their gallery.
2. **Instant Diagnosis:** The system will integrate with a specialized, pre-trained third-party AI API to analyze the image and provide an accurate Skin Cancer name with a confidence score.

### **Results and Information:**

1. The system displays the detected type of skin condition with a confidence percentage.
2. Generates brief educational information about the detected condition.

### **Additional Features:**

1. Educational content on types of skin cancer and preventive measures.
2. Secure storage and encrypted data handling.

### **Problem Statement:**

The increasing number of skin cancer cases worldwide highlights the need for early detection tools. However, most individuals do not have immediate access to dermatologists or specialized testing facilities. This results in delays in diagnosis and treatment, especially in remote or underdeveloped regions. This project aims to solve this problem by providing an online AI-powered solution that allows users to upload skin lesion images and instantly receive an analysis result powered by a third-party API. This not only facilitates early detection but also increases awareness and accessibility of medical AI technologies.

### **Target Audience:**

1. **General Public** – Individuals seeking quick screening or second opinions.
2. **Medical Students** – For educational purposes.
3. **Health Awareness Organizations** – To promote early detection initiatives.

### **Project Scope:**

The scope of the project includes:

3. **Backend Development:** Develop a RESTful API using Python Flask to handle image uploads, communicate with the external AI API, and store user information.
4. **Web Application Development:** Create a responsive web interface using HTML, CSS, and JavaScript, allowing users to upload images and view results.
5. **API Integration:** Connect with a third-party AI image recognition API specialized in skin disease or cancer detection.

6. **Database Management:** Implement a secure database (PostgreSQL/Firebase) for user authentication and scan history.

### Dual AI API Integration:

1. Integration of a specialized image recognition API for the primary task of disease identification from user-uploaded images.
2. Integration of a generative language model API to provide detailed information, causes, and cure recommendations based on the diagnosis from the first API.

### Methodology:

The project will follow the Agile Development methodology, emphasizing iterative development and continuous feedback.

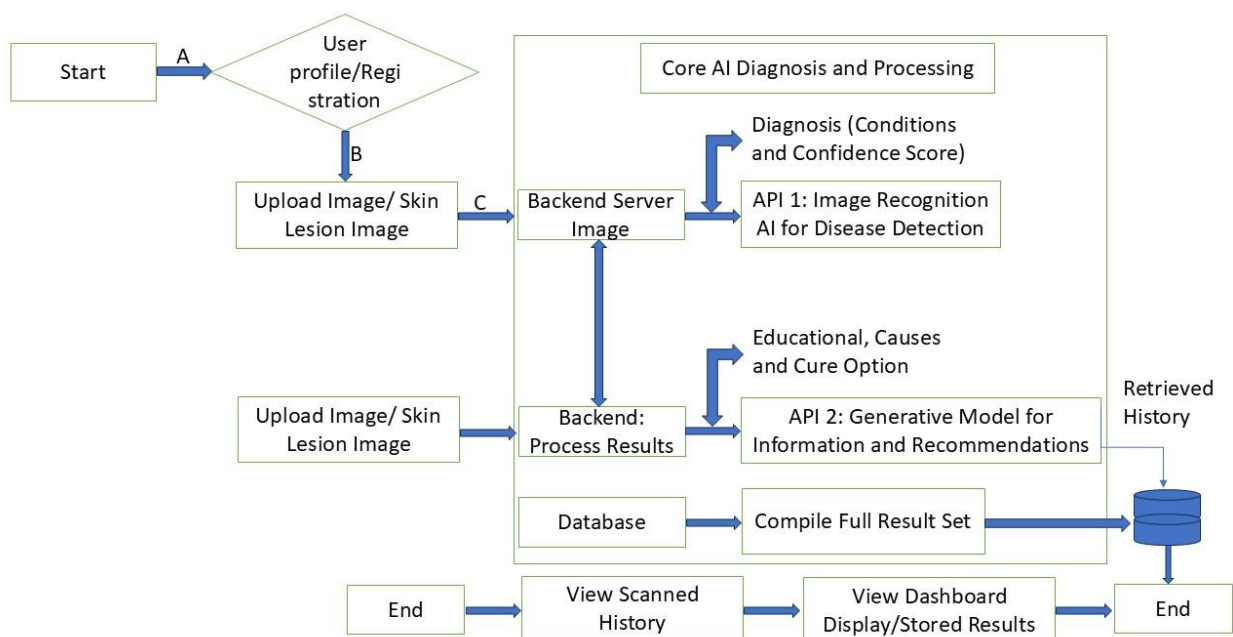
**Phase 1: Requirement Analysis and System Design** – Define system architecture, data flow, and design UI/UX wireframes.

**Phase 2: Backend Development** – Build Flask API endpoints for user authentication, image upload, and API communication.

**Phase 3: Frontend Development** – Develop the web interface for image uploads and results display.

**Phase 4: Integration and Testing** – Integrate all modules and conduct functional and usability testing.

**Phase 5: Deployment and Documentation** – Deploy on a web hosting platform and prepare final documentation.



## Technical Specifications:

- **Backend:** Python (Flask Framework)
- **Frontend:** HTML5, CSS3, JavaScript (Bootstrap or Tailwind CSS)
- **Database:** Firebase or PostgreSQL
- **External AI API:** Third-party Skin Cancer Detection API (e.g., SkinVision, SkinAI, or similar)
- **Hosting:** Heroku / Render / AWS
- **Security:** SSL Encryption, JWT-based authentication, and secure environment variable handling.

## Expected Outcome:

- A functional and secure web-based platform for skin cancer detection.
- A reliable backend integrated with an external AI API for fast and accurate diagnosis.
- A simple and intuitive user interface accessible from any modern browser.
- Improved awareness of skin cancer and early detection practices.

## Project Timeline:

- Month 1: Requirement Analysis and Design
- Month 2: Backend Development and API Integration
- Month 3: Frontend Development
- Month 4: Testing and Refinement
- Month 5: Deployment and Final Report

## Conclusion:

This project represents a modern, accessible, and impactful approach to healthcare technology. By integrating pre-trained AI APIs into a web-based system, it enables fast, accurate, and accessible skin cancer screening for users everywhere. The system's simplicity and scalability make it a valuable educational and medical awareness tool, empowering users with early insights into potential skin health issues.