

# API Documentation for Skin Disease Detection Model

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This document provides a comprehensive overview of the API endpoints for the Skin Disease Detection model, built using FastAPI. This API allows users to upload an image of skin and receive a detailed PDF report, including the detected disease, confidence level, symptoms, and care tips.

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## Base URL

The base URL for the API is dependent on where you deploy your application. For local development, it's typically:

`http://localhost:8000`

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## Authentication

This API currently does not require any authentication. All endpoints are publicly accessible.

Security Note: For production environments, it is highly recommended to implement robust authentication and authorization mechanisms (e.g., API keys, OAuth2.0) to protect your API and user data.

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## Endpoints

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### 1. Root Endpoint

This is a simple endpoint to confirm that the API is live and running.

- **URL:** /
- **Method:** GET
- **Description:** Returns a confirmation message.
- **Response:**
  - **Status Code:** 200 OK
  - **Body:**
  - JSON

```
{
```

```
"msg": "Deep Learning model API is live!"
}
```

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## 2. Predict and Generate Report

This endpoint allows users to upload an image of skin for disease detection and receive a comprehensive PDF report as a response.

- **URL:** `/predict-and-generate-report`
- **Method:** `POST`
- **Description:** Uploads a skin image, processes it using a pre-trained YOLO model to detect potential skin diseases, and generates a PDF report containing the detection results, relevant disease information (description, symptoms, care tips), and an annotated image showing the detection.
- **Request:**
  - **Content-Type:** `multipart/form-data`
  - **Parameters:**
    - **file:** (Required) The image file to be uploaded.
      - **Type:** `UploadFile` (File object)

```
import requests
```

```
url = "http://localhost:8000/predict-and-generate-report"
```

```
files = {'file': open('/path/to/your/image.jpg', 'rb')} # Replace with your image path
```

```
response = requests.post(url, files=files)
```

```
if response.status_code == 200:
```

```
    with open("skin_report.pdf", "wb") as pdf_file:
```

```
        pdf_file.write(response.content)
```

```
    print("PDF report generated successfully!")
```

```
else:
```

```
    print(f"Error: {response.status_code} - {response.text}")
```

```
    ■
```

```
    ■
```

- **Responses:**
  - **Status Code:** `200 OK`

- **Content-Type:** application/pdf
- **Body:** A binary stream representing the generated PDF report.
- **Headers:**
  - Content-Disposition: attachment;  
filename=skin\_report\_<disease\_name>.pdf (e.g.,  
skin\_report\_Acne.pdf)
- **Status Code:** 400 Bad Request
- **Description:** No disease detection found in the uploaded image.
- **Body:**
- JSON

```
{
  "detail": "No detection found"
}
```

- 
- 
- **Status Code:** 500 Internal Server Error
- **Description:** An unexpected error occurred during report generation.
- **Body:**
- JSON

```
{
  "detail": "Error generating report: <error_message>"
}
```

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- (e.g., "Error generating report: cannot identify image file <\_io.BytesIO object at 0x...>" if the uploaded file is not a valid image format)

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## Error Handling

The API provides the following error handling:

- **400 Bad Request:** Returned if the model cannot detect any disease in the provided image.

- **500 Internal Server Error:** Returned for any unexpected server-side errors, such as issues with image processing, PDF generation, or if the uploaded file is not a valid image.

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## Important Notes

- **Model Location:** The API expects the YOLO model to be located at `./DL/150epoch/best.pt`. Ensure this path is correct in your deployment environment.
- **HIPAA Logo:** The PDF generation attempts to include a HIPAA logo from `./assets/HIPAA_logo-2.png`. If this file is missing, the PDF will still be generated, but a "Watermark Image Missing!" message will appear in the background of the report. For a production environment, ensure this asset is present and consider its relevance to your specific compliance needs.
- **Disclaimer:** The generated PDF report explicitly includes a disclaimer stating that it's AI-generated and not a substitute for professional medical advice.
- **CORS:** The API is configured with `CORS` to allow requests from any origin (`allow_origins=["*"]`). In a production environment, you should restrict `allow_origins` to only the domains that need to access your API for security reasons.