DICOM File Metadata Extraction Documentation

Overview

This project is a Django web application that allows users to upload DICOM files and extract relevant metadata from them. The extracted metadata includes patient information, study details, and image attributes. The extracted metadata is then stored in a database, displayed to the user and user can search the data.

Features

- **DICOM file upload:** Users can upload DICOM files through a web interface.
- **Metadata extraction:** The application extracts metadata from the uploaded DICOM files, including patient name, ID, birthdate, study ID, study description, study date, modality, and pixel spacing.
- **Database storage:** Extracted metadata is stored in a database for future reference.
- **Metadata display:** Users can view the extracted metadata on a success page after uploading a DICOM file.

Installation

1. Clone the project repository from GitHub:
   git clone <repository_url>

2. Install dependencies:
   pip install -r requirements.txt

3. Run database migrations:
   python manage.py makemigrations
   python manage.py migrate

4. Start the Django development server:
   python manage.py runserver

5. Access the application at **http://127.0.0.1:8000** in your web browser.

Usage

- **Upload DICOM file:**
  - Navigate to the upload page form navbar.
  - Click the "Choose File" button and select a DICOM file.
  - Click the "Upload" button to submit the form.
- **View extracted metadata:**
  - After uploading a DICOM file, you will be redirected to a success page.
  - The success page displays the extracted metadata, including patient information, study details, and image attributes.

Components

- **Models:**
  - **DICOMMetadata**: Model to store extracted DICOM metadata in the database.
- **Forms:**
  - **DICOMUploadForm**: Form for DICOM file upload.
  - **LoginForm:** Form for user login.
  - **RegistrationForm:** Form for user registration.
- **Views:**
  - **upload_dicom**: View function to handle DICOM file upload and metadata extraction.
  - **extract_dicom_metadata**: Function to extract metadata from DICOM files.
  - **user_login**: View function to handle user login.
  - **logout_view**: View function to handle user logout.
  - **register**: View function to handle user registration.
  - **show**: View function to display all data on page.
  - **search_list**: View function to handle searching and displaying a list of items.
- **Templates:**
  - **upload.html:** HTML template for the DICOM file upload form.
  - **success.html:** HTML template for the success page displaying extracted metadata.
  - **login.html:** HTML template for the user login page.
  - **register.html:** HTML template for the user registration page.
  - **base.html:** Base HTML template containing common elements shared across multiple pages.

    - **show.html:** HTML template for displaying a specific item or page.

Dependencies

- **Django:** Web framework for building web applications in Python.
- **pydicom:** Library for working with DICOM files in Python.