X-Ray Image Search Interface — Assignment Brief

Objective

Build a prototype that allows users to search X-ray images using a text query or an image query.

1. Dataset Collection (Minimum 500 Images)

- Collect at least 500 X-ray images from at least 5 different public websites.

- Include multiple categories (chest, spine, dental, fracture, etc.).

- Maintain metadata CSV with image_name, source_url, category.

2. Text-Based Search

- Allow user to enter a text query.

- Implement TF–IDF or sentence embeddings.

- Display top 5–10 relevant images.

3. Image-Based Search (Reverse Image Search)

- Allow user to upload an X-ray image.

- Use pretrained models (ResNet■50, DenseNet, ViT, CLIP).

- Compute cosine similarity and return top 5 similar images.

4. User Interface Requirements

- Provide text input, image upload, and results display grid.

- Handle errors gracefully.

5. Submission Requirements

- Code folder

- Dataset folder with metadata CSV

- Screenshots or demo video

- Short report (1–2 pages)

6. Bonus (Optional)

- Ranking scores

- Category filters

- Search API endpoints

7. Evaluation Criteria

- Dataset completeness

- Search correctness

- UI quality

- Code quality

- Report clarity