**Functional Requirements**

1. Media Upload and Preprocessing The system should allow users to upload images and videos for deepfake detection. It should preprocess the uploaded media files (resizing, normalization, etc.) before passing them to the detection pipeline.

2. Deepfake Detection and Analysis The system should detect deepfakes using the trained model and provide a confidence score indicating the likelihood of manipulation. This process should be efficient, supporting real-time analysis.

3. Explainable AI (XAI) Visualization The system should generate visual explanations for its predictions, highlighting manipulated areas in media and providing insights to enhance transparency and trustworthiness.

4. User Management and Access Control The system should have a user management feature that allows administrators to manage user roles and permissions, ensuring that only authorized users can access sensitive detection data and system configurations.