2.1: Image Browser

The image browser is implemented as a Java applet using the Java Swing graphical libraries. The image browser interface can be initialised from the command line tool after the PDF directory has been specified. All images are presented in a grid layout in a window, including names of their source PDFs. As images are presented as buttons, an image can be selected for a search by clicking the image. Multiple image searches can be performed in the same window by simply clicking on another image in the left hand panel. Once this window has been closed, the user may return to the console to perform either a further image search session, or a text search as in task 1.

2.1: Feature Extraction Components

Feature extraction and indexing are performed using the LIRE library and the standard Lucene IndexWriter. The image search is done with respect to the CEDD feature. That is, the images are ranked by relevance based on the similarity of the colour and edge directivity descriptor, which represents an image as colour and texture measures in a histogram in order to ascertain similarities between images.

2.4 Interactive Image Retrieval

Once an image has been selected to search for, and the CEDD features from the other images have been extracted and stored, the LIRE GenericFastImageSearcher extracts the top hits for the image search based on the distance from the features of the image to the features extracted above. This images are then displayed in the same window, to the right of the original image search, along with their PDF source file names and their numerical score value. After a search has been performed and results returned, a user may select further images for searching in the left hand pane, and the new results will replace the previous ones on the right hand side.

Example results of an image search performed on the coin image can be seen below: