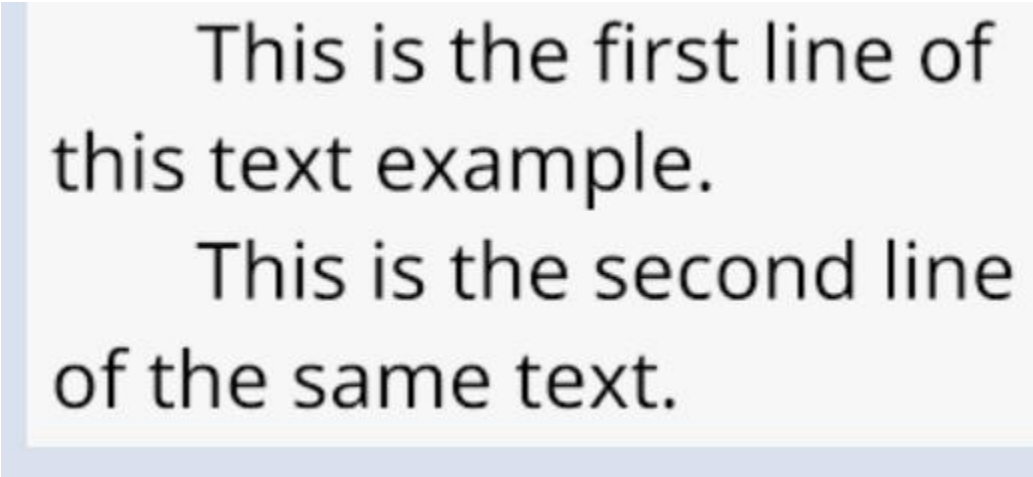

A revolution in digital pathology has been brought about by Whole Slide Imaging (WSI) which allows for high-resolution scanning of complete histological slides. For ease of analysis, these WSI files are often too large and as a result require effective handling and processing approaches. During our initial steps in analyzing ameloblastic whole slide images, we generate WSI file tiles using the OpenSlide library for managing and extracting regions from huge histopathological pictures.

OpenSlide library is loaded correctly, especially on Windows systems where the DLL directory must be specified. In case of need, this configuration ensures compatibility with the Windows OS through adding the OpenSlide DLL directory to the system path. This is needed to allow access to OpenSlide functionality without running into problems with loading libraries.

Thereafter, a slide object loads a WSI file so that region extraction and subsequent processing can be performed on it later on. Using OpenSlide's `open_slide` function, a TIFF formatted WSI file is loaded.

The part of interest is extracted and processed. This involves normalization and separation into Hematoxylin and Eosin (H&E) components. Extract a 1024x1024 pixel region from position (16000, 16000) at the highest resolution level (level 0). Then normalize the extracted region, and compute its H&E images with a `norm_hne` function.

The script also contains an option to detect and handle blank or low-information tiles through use of pixel value statistics. It computes the

average as well as standard deviation in each image in a given list which helps us to find those slides that have no information enough e.g., blank slides.

DeeperZoomGenerator from OpenSlide, on the other hand, implements essential tiling functionalities that efficiently generate image tiles in multiple level scales. The code creates an object of DeepZoomGenerator with slide by setting 2048-pixel tile size without overlapping. This generator has multi-resolution access to the slide enabling hierarchical tiling.
The script at the end of the analysis, iterates through the generated tiles and saves them locally after processing. The tiles are pulled out at level 17, they are changed to RGB format and saved as high quality JPEG images. One can consider including normalization or other image techniques during this process before saving the tiles.

OpenSlide is a popular library used for managing digital slide data, which provides mechanisms for performing operations such as reading the summary information of a slide or extracting a region from a slide. For example, large histological images on slides can be divided into smaller portions referred to as “tiles” using OpenSlide library. The `DeepZoomGenerator` is an efficient way to handle WSI data making it suitable for high-throughput pathological image analysis projects.