Presented is a graph-based approach to image segmentation which can be applied to either grayscale or color images. The assumption is that nearby pixels with similar colors or grayscale intensities may belong to the same region or segment of the image. A graph representation for an image is derived from the similarity between the pixels, and then partitioned by a computationally efficient graph clustering method, which first identifies representative nodes for each cluster and then expands them to obtain complete clusters of the graph. A comparison with the well known normalized cut method shows that this approach can be faster and produces segmentations that are in better agreement with the visual assessment of the original images.