Problem Set 18

CS 411

Due at the beginning of class on the first class day of the following week.
Sections 14.1–4

1. Consider a file system that uses a modified contiguous-allocation scheme with support for extents. A file is a collection of extents, with each extent corresponding to a contiguous set of blocks. A key issue in such systems is the degree of variability in the size of the extents. What are the advantages and disadvantages of the following schemes?

    (a) All extents are of the same size, and the size is predetermined.

    (b) Extents can be of any size and are allocated dynamically.

    (c) Extents can be of a few fixed sizes, and these sizes are predetermined.

2. Contrast the performance of the three techniques for allocating disk blocks (contiguous, linked, and indexed) for both sequential and random file access.

3. What are the advantages of the variant of linked allocation that uses a FAT to chain together the blocks of a file?