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Course Code: MCA-102

Course Name: Data and File Structures

Assignment - 3
(Based on Unit - IV)

Marks

- Q1. Write a 'C' program which receives first and last name of 10 students, and then stores the names in a text file "name.txt". After storing the records (names), the program accesses the "name.txt" file to retrieve the students' names and then stores the students' first name in one file "first.txt" and last name in another file "last.txt" in an alphabetical sorted manner. (4)
- Q2. List various types of operations performed on a file. Discuss the updating process of a sequential file by considering suitable example. (4)
- Q3. Suppose that we have records with the keys: A S O R T I N G A N D M E R G I N G E X A M P L E B Y S U N I L P R A T A P S I N G H on an input tape. These are to be sorted and put onto an output tape. Perform sorting using 3-way merge sort, with memory capacity 3. (4)
- Q4. Demonstrate the insertion of keys 28, 5, 19, 15, 33, 12, 17, 77, 20 into a hash table with 9 slots and collisions resolved by linear probing. Let the hash function be $h(k) = k \bmod 9$. (4)
- Q5. Perform 2-way polyphase merge sorting on the following data elements which are stored in tape drive T_1 : 55, 94, 11, 16, 12, 35, 17, 99, 28, 58, 41, 75, 22, 84, 44, 56, 79, 91, 72, 20, 69, 19, 71, 33, 29, 66, 13, 88, 15, 21, 25, 36, 95, 48, 39, 47, 85, 62, 51. Initially, T_2 and T_3 are empty, and $M = 3$. Draw table at each pass. (4)