Database Systems Lab

SESSION 3

Building single-level persistent primary index for a data file

In this lab session, you will build a PERSISTENT single-level primary index as part of the Personal Data Store (PDS) implementation. You are expected to build on the PDS implementation you created from SESSION 2.

Complete the following tasks:

```
Modify the PDS function as per the following:
// pds_create
// create an empty datafile using fopen in wb mode.
// close the file
int pds_create(char *repo_name);
// pds open
// Open the data file and index file in rb+ mode
// Update the fields of PDS Repoinfo appropriately
// Read the number of records form the index file
// Load the index into the array and store in ndx array by reading index entries from the index file
// Close only the index file
int pds_open( char *repo_name, int rec_size );
// pds_load_ndx
// Internal function used by pds_open to read index entries into ndx_array
int pds_load_ndx();
// put_rec_by_key
// Seek to the end of the data file
// Create an index entry with the current data file location using ftell
// Add index entry to ndx_array using offset returned by ftell
// Increment record count
// Write the record at the end of the file
int put_rec_by_key( int key, void *rec );
// get_rec_by_key
// Search for index entry in ndx_array
// Seek to the file location based on offset in index entry
// Read the record from the current location
int get_rec_by_key( int key, void *rec );
// pds close
// Open the index file in wb mode (write mode, not append mode)
// Store the number of records
// Unload the ndx_array into the index file by traversing it (overwrite the entire index file)
// Close the index file and data file
int pds_close();
```

Testing

- a. The following driver program is given to you:
 - pds_tester.c (generic testing with input data file like testcase.in)
- b. Test your program thoroughly with the above driver program by creating your own test input files

Commands

• Use the following command for creating pds_tester executable:

```
gcc -o pds_tester contact.c roll_number_pds.c pds_tester.c
```

For testing using pds_tester, use the following command:

```
pds_tester public_testcase.in
```

Submission

Upload ONLY the following file to LMS:

• roll_number_pds.c

YOU ARE NOT EXPECTED CHANGE ANY OF THE FILES GIVEN TO YOU