Database Systems Lab

SESSION 4

Table scan: Linear search on a non-indexed field

In this lab session, you will build search in Personal Data Store (PDS) based on a non-indexed field.
You are expected to read the data from the data file one block at a time and do a linear search in each block until the requisite record is found.

Complete the following tasks:

Modify the PDS function as per the following:

A) rollno_pds.c Changes

// pds_open
No change from Session 3

// pds_load_ndx
No change from Session 3

// put_rec_by_key
No change from Session 3

// get_rec_by_key rename to **get_rec_by_ndx_key**
No change from Session 3

// pds_close
No change from Session 3

// get_rec_by_non_ndx_key
This is a new search function you need to add to PDS for the purpose of searching based on a key field on which an index does not exist. This function actually does a full table scan by reading the data file until the desired record is found.

```
int get_rec_by_non_ndx_key(
      void *key, /* The search key */
      void *rec, /* The output record */
      int (*matcher)(void *rec, void *key), /*Function pointer for
      matching*/
      int *io_count /* Count of the number of records read */
);
```

B) rollno_contact.c Changes

Add the following functions to contact.c

```
// Use get_rec_by_non_ndx_key function to search contact
int search_contact_by_phone( struct Contact *c, char *phone );
```

```
//Return 0 if phone of the contact matches with phone parameter
// Return 1 if phone of the contact does NOT match
// Return > 1 in case of any other error
int match_contact_phone( struct Contact *c, char *phone );
```

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 bst.c rollno_contact.c roll_pds.c pds_tester.c
```

For testing using pds_tester, use the following command:

```
pds_tester testcase.in
```

Submission

Upload the following to LMS as a zipped file (IMTXXXXXXX.zip):

- rollno_pds.c
- rollno_contact.c

Make sure you only use with the bst.c provided to you.

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