Unit test :

Scenario : No of threads 3

File and operations to be performed and expected output are as follows

No Filename Operation to be performed Expected result

1) a pin to cache File should get created & should get added to cache

2) a read from cache File contents should be read from cache as file exist in cache

3) b write to cache New file b should get created and data to be written to cache

buffer. Make associated bit dirty.

4) c unpin from cache Should fail with file doesnt exist in cache.

5) b flush if dirty Since b is dirty , contents should get flushed to local storage

6) a pin to cache File already pinned to cache.

Eventually all requests should get processed

A typical implementation of the scenario described above is performed in main(). Output is as follows.

**koshy@ubuntu:~/Desktop/new$ make**

**gcc -ggdb -Wall -w -DDEBUG=1 -o file\_cache file\_cache.h file\_cache.c main.c -lpthread**

**koshy@ubuntu:~/Desktop/new$ ./file\_cache**

**Currently adding request for file a**

**Added request with id '0' to the reques\_list**

**Starting thread '0'**

**thread '0' has pthread\_mutex\_lock**

**In function get\_req()**

**Request list not empty. 1 request pending to be processed**

**Pin files a to cache**

**Starting file\_cache\_pin\_files**

**File currently searched is a**

**Begin searching cache, in search\_cache()**

**File a not found in cache. Adding it to cache.**

**Starting add\_to\_cache()**

**Adding file a to cache**

**fptr is 3**

**File a doesn't exist in local file\_system. Creating new**

**Starting thread '1'**

**thread '1' has pthread\_mutex\_lock**

**thread '1' waiting before pthread\_cond\_wait**

**Name of newly added file is a**

**Contents of newly added file**

**Cache count is : 1**

**File a successfully added to cache => expected output 1**

**Request processed for file a**

**thread '0' waiting before pthread\_cond\_wait**

**Starting thread '2'**

**thread '2' has pthread\_mutex\_lock**

**thread '2' waiting before pthread\_cond\_wait**

**Currently adding request for file a**

**Added request with id '1' to the reques\_list**

**thread '1' after pthread\_cond\_wait**

**In function get\_req()**

**Request list not empty. 1 request pending to be processed**

**Read data from file a from cache**

**Begin searching cache, in search\_cache()**

**File a exist in cache**

**Request processed for file a => expected output 2**

**thread '1' waiting before pthread\_cond\_wait**

**Currently adding request for file b**

**Added request with id '2' to the reques\_list**

**thread '0' after pthread\_cond\_wait**

**In function get\_req()**

**Request list not empty. 1 request pending to be processed**

**Write data to cache for file b**

**File to be changed is b => expected output 3**

**Currently adding request for file c**

**Added request with id '3' to the reques\_list**

**thread '2' after pthread\_cond\_wait**

**In function get\_req()**

**Request list not empty. 1 request pending to be processed**

**Unpin file c from cache => expected output 4**

**Currently adding request for file b**

**Added request with id '4' to the reques\_list**

**thread '1' after pthread\_cond\_wait**

**In function get\_req()**

**Request list not empty. 1 request pending to be processed**

**Flush all dirty cache**

**Request processed for file b => expected output 5**

**thread '1' waiting before pthread\_cond\_wait**

**Currently adding request for file a**

**Added request with id '5' to the reques\_list**

**thread '1' after pthread\_cond\_wait**

**In function get\_req()**

**Request list not empty. 1 request pending to be processed**

**Pin files a to cache**

**Starting file\_cache\_pin\_files**

**File currently searched is a**

**Begin searching cache, in search\_cache()**

**File a already exist in cache**

**Request processed for file a => expected output 6**

**thread '1' waiting before pthread\_cond\_wait**

**All request processed => All request processed eventually**

**koshy@ubuntu:~/Desktop/new$**