**OS experiment no. 08**

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**Exp No:** 08

**Date:**

**Q1. Implement Least Recently Used (LRU) page replacement algorithm.**

**Solution:**

**CODE(PYTHON):**

def incrTime():

    for frame in lru:

        lru[frame] += 1

lru = {}

hits = 0

faults = 0

frames = int(input("Enter the Number of Frames:"))

pages = [int(x) for x in input("Enter the Pages with a Space: ").split(" ")]

for page in pages:

    if page in lru.keys():

        hits += 1

        incrTime()

        lru[page] = 0

    else:

        faults += 1

        incrTime()

        if(len(lru) < frames):

            lru[page] = 0

        else:

            key = max(lru, key=lru.get)

            del(lru[key])

            lru[page] = 0

print("No of Frames: "+str(frames))

print(lru)

print("Pages: ")

print(pages)

print("Faults: "+str(faults))

print("Average Ratio of Page Faults: "+str(faults/len(pages)))

print("Hits: "+str(hits))

print("Average Ratio of Page Hits: "+str(hits/len(pages)))

**OUTPUT:**

Enter the Number of Frames:3

Enter the Pages with a Space: 1 4 5 1 4 2 5 8 7 2

No of Frames: 3

{8: 2, 7: 1, 2: 0}

Pages:

[1, 4, 5, 1, 4, 2, 5, 8, 7, 2]

Faults: 8

Average Ratio of Page Faults: 0.8

Hits: 2

Average Ratio of Page Hits: 0.2

**Outcome:** CO3: Understand I/O management, memory management and file management

**Conclusion:** We learnt and implemented LRU (Least Recently Used) Page replacement Algorithm and calculated the average ratio of page faults and Page Hits.