**6.6: Seitentauschverfahren**

**Optimal**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Seite | 1 | 2 | 3 | 4 | 6 | 3 | 2 | 1 | 6 | 5 | 4 | 3 | 1 | 2 |
| Kachel 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Kachel 2 |  | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Kachel 3 |  |  | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Kachel 4 |  |  |  | 4 | 6 | 6 | 6 | 6 | 6 | 5 | 4 | 4 | 4 | 4 |
| Stack | 1 | 1,2 | 1,2,3 | 4,1,2,3 | 6,1,2,3 | 6,1,2,3 | 6,1,2,3 | 6,1,2,3 | 6,1,2,3 | 5,1,2,3 | 4,1,2,3 | 4,1,2,3 | 4,1,2,3 | 4,1,2,3 |

Anzahl der Seitenfehler: 3

**FIFO**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Seite | 1 | 2 | 3 | 4 | 6 | 3 | 2 | 1 | 6 | 5 | 4 | 3 | 1 | 2 |
| Kachel 1 | 1 | 1 | 1 | 1 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 2 |
| Kachel 2 |  | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Kachel 3 |  |  | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 5 | 5 | 5 | 5 | 5 |
| Kachel 4 |  |  |  | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 3 | 3 | 3 |
| Stack | 1 | 1,2 | 1,2,3 | 1,2,3,4 | 2,3,4,6 | 2,3,4,6 | 2,3,4,6 | 3,4,6,1 | 3,4,6,1 | 4,6,1,5 | 4,6,1,5 | 6,1,5,3 | 6,1,5,3 | 1,5,3,2 |

Anzahl der Seitenfehler: 5

**LRU**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Seite | 1 | 2 | 3 | 4 | 6 | 3 | 2 | 1 | 6 | 5 | 4 | 3 | 1 | 2 |
| Kachel 1 | 1 | 1 | 1 | 1 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 1 | 1 |
| Kachel 2 |  | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 4 | 4 | 4 | 4 |
| Kachel 3 |  |  | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 5 | 5 | 5 | 5 | 2 |
| Kachel 4 |  |  |  | 4 | 4 | 4 | 4 | 1 | 1 | 1 | 1 | 3 | 3 | 3 |
| Stack | 1 | 1,2 | 1,2,3 | 1,2,3,4 | 2,3,4,6 | 2,4,6,3 | 4,6,3,2 | 6,3,2,1 | 3,2,1,6 | 2,1,6,5 | 1,6,5,4 | 6,5,4,3 | 5,4,3,1 | 4,3,1,2 |

Anzahl der Seitenfehler: 7

**LFU**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Seite | 1 | 2 | 3 | 4 | 6 | 3 | 2 | 1 | 6 | 5 | 4 | 3 | 1 | 2 |
| Kachel 1 | 1 | 1 | 1 | 1 | 6 | 6 | 6 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Kachel 2 |  | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 3 | 3 | 3 |
| Kachel 3 |  |  | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 5 | 4 | 4 | 4 | 4 |
| Kachel 4 |  |  |  | 4 | 4 | 4 | 4 | 4 | 6 | 6 | 6 | 6 | 6 | 2 |
| Stack | 1 | 1,2 | 1,2,3 | 1,2,3,4 | 6,2,3,4 | 6,2,4,3 | 6,4,3,2 | 4,3,2,1 | 3,2,1,6 | 5,2,1,6 | 2,1,6,4 | 1,6,4,3 | 6,4,1,3 | 4,1,3,2 |

Anzahl der Seitenfehler: 7

**6.7: Buddy Verfahren**

a1 = malloc(57 MB);



A1(57)

64

a2 = malloc(7 MB);



32

A2(7)

8

16

A1(57)

a3 = malloc(26 MB);



A3(26)

A2(7)

8

16

A1(57)

a4 = malloc(42 MB); Allokation nicht möglich! Kein passender Speicherbereich verfügbar!



A3(26)

A2(7)

8

16

A1(57)

free(a1);



A3(26)

A2(7)

8

16

64

free(a2);



32

A3(26)

64

a5 = malloc(32 MB);



A5(32)

A3(26)

64

free(a3);



A5(32)

32

64