**Systemprogrammierung Blatt5 Theorie**

**Gruppenmitglieder:**

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**5.1:**

a)FCFS/FIFO:

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Zeitpunkt | 0 | 1 | 2 | 2 | 2 | 3 | 4 | 4 | 4 | 5 | 5 |
| Freigaben |  | F1=3 | F2=13 |  |  | F3=6 | F4=2 |  |  | F5=4 |  |
| Anforderungen |  |  |  | A1=10 | A2=6 |  |  | A3=7 | A4=1 |  | A5=4 |
| Aktuell freie Einheiten | 0 | 3 | 16 | 6 | 0 | 6 | 8 | 1 | 0 | 4 | 0 |

Durchschnittliche Wartezeit: (2+2+4+4+5)/5=3,4

b)First-Fit-Request:

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Zeitpunkt | 0 | 1 | 1 | 2 | 2 | 2 | 3 | 3 | 4 | 5 | 5 |
| Freigaben |  | F1=3 |  | F2=13 |  |  | F3=6 |  | F4=2 | F5=4 |  |
| Anforderungen |  |  | A4=1 |  | A1=10 | A5=4 |  | A2=6 |  |  | A3=7 |
| Aktuell freie Einheiten | 0 | 3 | 2 | 15 | 5 | 1 | 7 | 1 | 3 | 7 | 0 |

Durchschnittliche Wartezeit: (1+2+2+3+5)/5=2,6

b)Best-Fit-Request:

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Zeitpunkt | 0 | 1 | 1 | 2 | 2 | 2 | 3 | 3 | 4 | 5 | 5 |
| Freigaben |  | F1=3 |  | F2=13 |  |  | F3=6 |  | F4=2 | F5=4 |  |
| Anforderungen |  |  | A4=1 |  | A1=10 | A5=4 |  | A3=7 |  |  | A2=6 |
| Aktuell freie Einheiten | 0 | 3 | 2 | 15 | 5 | 1 | 7 | 0 | 2 | 6 | 0 |

Durchschnittliche Wartezeit: (1+2+2+3+5)/5=2,6

b)Best-Fit-Request mit dynamischem Fenster Lmax=3:

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Zeitpunkt | 0 | 1 | 2 | 2 | 2 | 3 | 3 | 3 | 4 | 5 | 5 |
| Freigaben |  | F1=3 | F2=13 |  |  | F3=6 |  |  | F4=2 | F5=4 |  |
| Anforderungen |  |  |  | A1=10 | A2=6 |  | A5=4 | A4=1 |  |  | A3=7 |
| Aktuell freie Einheiten | 0 | 3 | 16 | 6 | 0 | 6 | 2 | 1 | 3 | 7 | 0 |
| Fenstergröße | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 1 | 1 | 1 | 3 |

Durchschnittliche Wartezeit: (2+2+3+3+5)/5=3

**5.2:**

v= G=

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Zeitpunkt** | **Anfrage** | **B** | **R** | **f** | **Bankier-Algor.** | **Sichere Reihenfolge** |
| 0 | - |  |  |  | Sicher | P1,P2,P3,P4 |
| 1 | P1:(A,3) |  |  |  | Sicher | P1,P2,P3,P4 |
| 2 | P1:(D,2) |  |  |  | Sicher | P1,P2,P3,P4 |
| 3 | P2:(B,3) |  |  |  | Sicher | P1,P2,P3,P4 |
| 4 | P2:(D,1) |  |  |  | Sicher | P1,P2,P3,P4 |
| 5 | P3:(C,3) |  |  |  | Sicher | P2,P3,P1,P4 |

In Zeitpunkt 6 wird Prozess 3 blockiert (jetzt rot), denn er fordert 2 Einheiten von B, obwohl nur eine frei ist.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 6 | P3:(B,2) |  |  |  | - | - |
| 7 | Release:  P1:(A,3) |  |  |  | - | - |

In Zeitpunkt 8 wird Prozess 1 blockiert (jetzt rot), denn er fordert 3 Einheiten von c, obwohl nur eine frei ist.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 8 | P1:(C,3) |  |  |  | - | - |
| 9 | P4:(B,1) |  |  |  | Unsicher | - |

Wegen des unsicheren Zustands wird P4 blockiert und die Anfrage nicht ausgeführt.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 9 | - |  |  |  | - | - |
| 10 | P4:(D,1)  (blockiert) |  |  |  | - | - |
| 11 | P3:(C,1)  (blockiert) |  |  |  | - | - |
| 12 | Release:  P3:(C,1)  (blockiert) |  |  |  | - | - |
| 13 | P2:(A,1) |  |  |  | Sicher | P2 |
| 14 | Release:  P2:(B,3) |  |  |  | - | - |
| 15 | P1:(D,1)  (blockiert) |  |  |  | - | - |
| 16 | Release:  P1:(C,3)  (blockiert) |  |  |  | - | - |
| 17 | P4:(D,2)  (blockiert) |  |  |  | - | - |
| 18 | Release:  P4:(D,2)  (blockiert) |  |  |  | - | - |
| 19 | Release:  P3:(B,2)  (blockiert) |  |  |  | - | - |
| 20 | Exit:  P3  (blockiert) |  |  |  | - | - |
| 21 | Release:  P1:(D,3)  (blockiert) |  |  |  | - | - |
| 22 | Exit:  P1  (blockiert) |  |  |  | - | - |
| 23 | Release:  P2:(A,1) |  |  |  | - | - |
| 24 | Release:  P2:(D,1) |  |  |  | - | - |
| 25 | Exit:  P2 |  |  |  | - | - |
| 26 | Release:  P4:(D,3)  (blockiert) |  |  |  | - | - |
| 27 | Exit:  P4  (blockiert) |  |  |  | - | - |