OS 作業系統 HW3

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環境:Ubuntu 18.4

語言:C++

8.25:

程式碼:HW3_8_25.cpp

執行檔:HW3_8-25.out

strace 檔:HW3_8_25.strace

執行結果:

```
bigdata@master:~/Desktop/OSPlace/HW3$ strace -o ./HW3_8_25.strace ./HW3_8_25.out
 19986
argc:19986
page number=4
offset=3602
```

strace:

```
bigdata@master:~/Desktop/OSPlace/HW3$ cat HW3_8_25.strace
execve("./HW3_8_25.out", ["./HW3_8_25.out", "19986"], [/* 68 vars */]) = 0
brk(NULL)                               = 0x1059000
access("/etc/ld.so.nohwcap", F_OK)      = -1 ENOENT (No such file or directory)
access("/etc/ld.so.preload", R_OK)      = -1 ENOENT (No such file or directory)
open("/etc/ld.so.cache", O_RDONLY|O_CLOEXEC) = 3
fstat(3, {st_mode=S_IFREG|0644, st_size=89874, ...}) = 0
mmap(NULL, 89874, PROT_READ, MAP_PRIVATE, 3, 0) = 0x7f3fb28b7000
close(3)                                = 0
access("/etc/ld.so.nohwcap", F_OK)      = -1 ENOENT (No such file or directory)
open("/usr/lib/x86_64-linux-gnu/libstdc++.so.6", O_RDONLY|O_CLOEXEC) = 3
read(3, "\177ELF\2\1\1\3\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0 \235\10\0\0\0\0\0"..., 8
32) = 832
fstat(3, {st_mode=S_IFREG|0644, st_size=1566440, ...}) = 0
mmap(NULL, 4096, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_ANONYMOUS, -1, 0) = 0x7f3
fb28b6000
mmap(NULL, 3675136, PROT_READ|PROT_EXEC, MAP_PRIVATE|MAP_DENYWRITE, 3, 0) = 0x7f
3fb2326000
mprotect(0x7f3fb2498000, 2097152, PROT_NONE) = 0
mmap(0x7f3fb2698000, 49152, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|MAP_DENY
```

Code:

```cpp
1 #include <iostream>
2 #include <stdio.h>
3 #include <stdlib.h>
4 #include <string.h>
5 using namespace std;
6
7
8 int main(int argc,char *argv[]){
9 cout<<"argc:"<<argv[1]<<endl;
10 unsigned long page;
11 unsigned long offset;SS
12 unsigned long address=atol(argv[1]);
13
14 page = address /4096;
15 offset=address % 4096;
16
17 cout<<"page number="<<page<<endl;
18 cout<<"offset="<<offset<<endl;
19
20 return 0;
21 }
```

9.26:

程式碼:HW3_9_26.cpp

執行檔:HW3_9-26.out

執行結果:

```
bigdata@master:~/Desktop/OSPlace/HW3$ ./HW3_9_26.out
n:30
FIFO-page-faults: 19
```

Code:

```cpp
 1 #include<iostream>
 2 #include<deque>
 3 #include <stdio.h>
 4 #include <stdlib.h>
 5 #include <time.h>
 6 int FIFO(int frameSize,int n){
 7         int pages[n];
 8         srand (time(NULL));
 9         for(int i=0;i<n;i++){
10                 pages[i]=rand()%10+1;
11                 //std::cout<<pages[i]<<std::endl;
12         }
13
14         std::deque<int> frames;
15         int pageFaults = 0;
16         for(int i=0; i < n;i++){
17                 bool run = false;
18                 for(std::deque<int>::iterator it = frames.begin();it!=frames.end();it++){
19                     if(*it == pages[i])
20                         run = true;
21                 }
22                 if(run == false){
23                     pageFaults++;
24                     if(frames.size() != frameSize)
25                         frames.push_back(pages[i]);
26                 else{
27                         frames.pop_front();
28                         frames.push_back(pages[i]);
29                 }
30                 }
31         }
32         return pageFaults;
33
34 }
35
36 int main(){
37         int n=30;
38         std::cout<<"n:"<<n<<std::endl;
39         int pageFaults=FIFO(4,n);
40         std::cout << "FIFO-page-faults: " << pageFaults << std::endl;
41 }
```