

## 2. implementation of mprotect() in Gentoo linux.

```
#include <stdio.h>
#include <stdlib.h>
#include <unistd.h>
#include <sys/mman.h>
#include <string.h>
#include <errno.h>

int main()
{
    long pagesize = sysconf(_SC_PAGESIZE);

    // Allocate a page-aligned memory block
    void *addr = aligned_alloc(pagesize, pagesize);
    if (addr == NULL)
    {
        perror("aligned_alloc failed");
        return 1;
    }

    // Write some data into the memory
    strcpy((char *)addr, "Hello, Gentoo!");

    // Make memory read-only using mprotect
    if (mprotect(addr, pagesize, PROT_READ) == -1)
    {
        perror("mprotect failed");
        free(addr);
        return 1;
    }

    printf("Memory set to read-only. Trying to write...\n");

    // This should cause a segmentation fault if uncommented

    strcpy((char *)addr, "This should fail!");

    printf("Current memory contents: %s\n", (char *)addr);

    free(addr);
    return 0;
}
```