Homework 8

Problem 1

```
int main(){
    int fd1, fd2, fd3;
    char *buf1=(char*)malloc(10);
    char *buf2=(char*)malloc(10);
    fd1 = open("a.txt", O_RDWR, 0);
    fd2 = open("b.txt", O_RDWR|O_APPEND, 0);
    fd3 = open("a.txt", O_RDWR, 0);
    if(fork()==0){
        read(fd2, buf1, 2);
        dup2(fd1, fd2);
        read(fd2, buf1, 1);
        exit(0);
    }
    waitpid(-1, NULL, 0);
    read(fd2, buf1, 3);
    write(fd1, buf1, 3);
    read(fd1, buf1, 10);
    printf("%s\n", buf1);
    read(fd3, buf2, 10);
    dup2(fd2, 1);
    printf("%s\n", buf2);
    free(buf1);
    free(buf2);
    exit(0);
}
```

a. txt

```
abcdefg
```

b. txt

```
0123456789
```

1. What will the contents of a.txt and b.txt be after the program completes?
2. What will be printed on stdout?

Problem 2

1. Please give three implementations of the following function, one uses *getnameinfo*, one uses *inet_ntop, ntohs* and one uses only *ntohs*:

   void print_sin(const struct sockaddr_in *addr);

   given an IPv4 address struct, print it as "x.x.x.x:port"
   (e.g. 127.0.0.1:1234)

   Note: For simplicity, you do NOT need to take care of error handling.

2. Assume we initialize addr as following:

   ```
   struct sockaddr_in addr;
   memset(&addr, 0, sizeof(addr));
   addr.sin_family = AF_INET;
   addr.sin_addr.s_addr = 0x13784293;
   addr.sin_port = 12387;
   ```

   What's the output of print_sin? Why the port number is not 12387?