**1、新建名为自己学号的文本文件，并将名为 test_file_1.txt 的文件中第 200-300 个字符及最后 100 个字符 copy 到新建的文件中。（需要考虑异常情况的处理，文件在"已共享的文件"中）**

源代码为：

```
cdq-2013210364@puppy: ~/Workspace/CProgram/homework5
 1 #include<fcntl.h>
 2 #include<sys/types.h>
 3 #include<sys/stat.h>
 4 #include<unistd.h>
 5 #include<stdlib.h>
 6 #include<stdio.h>
 7
 8 int main(void){
 9     int newfile, openfile;
10     char buffer[1000];
11     int nread;
12
13     newfile = open("2013210364.txt", O_CREAT|O_WRONLY, S_IRUSR|S_IWUSR|S_IRGRP|S_IROTH);
14     openfile = open("test_file_1.txt", O_RDONLY);
15     lseek(openfile, 200, SEEK_SET);
16     nread = read(openfile, buffer, 100);
17     if(nread == -1){
18         write(2, "read error\n", 11);
19     }
20     buffer[100] = '\0';
21     printf("200--300的字符为：\n%s\n开始写入到文件中\n", buffer);
22     if((write(newfile, buffer, 100)) != 100){
23         write(2, "write error\n", 12);
24     }
25     printf("写入200--300个字符结束\n");
26
27     lseek(openfile, -100, SEEK_END);
28     nread = read(openfile, buffer, 100);
29     if(nread == -1){
30         write(2, "read error\n", 11);
31     }
32     buffer[100] = '\0';
33     printf("倒数100个字符为：\n%s\n开始写入到文件中\n", buffer);
34     if((write(newfile, buffer, 100)) != 100){
35         write(2, "write error\n", 12);
36     }
37     printf("写入后100个字符结束\n");
38     write(1, "program end\n", 12);
39     close(openfile);
40     close(newfile);
```

运行结果：（注意由于文件是 windows 下的换行格式所以每行最后还有两个看不见的字符）

**2、将名为 test_file_1.txt 的文件打开，获取它的类型并显示其相关时间信息后。然后将它的长度截断至你学号尾号的长度，但维持它的访问时间和修改时间不变。**

源代码：



```
 1 #include<sys/stat.h>
 2 #include<sys/types.h>
 3 #include<unistd.h>
 4 #include<fcntl.h>
 5 #include<stdio.h>
 6 #include<stdlib.h>
 7 #include<time.h>
 8 #include<utime.h>
 9
10 int main(void){
11     int fp;
12     struct stat buf;
13     struct utimbuf timebuf;
14     struct tm * timeinfo;
15     char buffer [128];
16     fp = open("test_file_1.txt", O_RDWR);
17     fstat(fp, &buf);
18
19     timeinfo = localtime (&(buf.st_atime));
20     strftime (buffer,sizeof(buffer),"%Y/%m/%d %H:%M:%S",timeinfo);
21     printf("上次被访问的时间为： %s\n", buffer);
22
23     timeinfo = localtime (&(buf.st_ctime));
24     strftime (buffer,sizeof(buffer),"%Y/%m/%d %H:%M:%S",timeinfo);
25     printf("上次属性被修改的时间为： %s\n", buffer);
26
27     timeinfo = localtime (&(buf.st_mtime));
28     strftime (buffer,sizeof(buffer),"%Y/%m/%d %H:%M:%S",timeinfo);
29     printf("上次内容被修改的时间为： %s\n", buffer);
30     if(ftruncate(fp, 364) == -1){
31         printf("failed\n");
32     }
33     timebuf.actime = buf.st_atime;
34     timebuf.modtime = buf.st_mtime;
35     utime("test_file_1.txt", &timebuf);
36     close(fp);
37     exit(0);
38 }
```

运行结果（执行两次，但是访问时间和内容修改时间没有改变）：



```
cdq-2013210364@puppy:~/Workspace/CProgram/homework5$ vim src/getTest1Info.c
cdq-2013210364@puppy:~/Workspace/CProgram/homework5$ bin/getTest1Info
上次被访问的时间为： 2016/04/06 18:00:16
上次属性被修改的时间为： 2016/04/06 18:00:16
上次内容被修改的时间为： 2016/04/06 11:05:37
cdq-2013210364@puppy:~/Workspace/CProgram/homework5$ bin/getTest1Info
上次被访问的时间为： 2016/04/06 18:03:45
上次属性被修改的时间为： 2016/04/06 18:03:44
上次内容被修改的时间为： 2016/04/06 11:05:37
cdq-2013210364@puppy:~/Workspace/CProgram/homework5$
```

截断后的文件：

```
1       2012210028       141301   2013
2       2012210045       141301   2013
3       2012210601       141301   2013
4       2013210004       141301   2013
5       2013210014       141301   2013
6       2013210015       141301   2013
7       2013210017       141301   2013
8       2013210022       141301   2013
9       2013210026       141301   2013
10      2013210035       141301   2013
11      2013210037       141301   2013
12      2013210039       141301   2013
13      2013210053       141301   2013
14      2013210075       141301   2
```

3、在你的主目录下创建名为你的学号的文件夹，并改变其为当前目录。将 test_file_1.txt

和 test_file_2.txt 文件 cope 到当前目录，并读取当前目录文件，显示当前目录下文件的名称

及相关时间、大小等信息。

```c
#include<sys/types.h>
#include<sys/stat.h>
#include<dirent.h>
#include<stdio.h>
#include<fcntl.h>
#include <time.h>

int main(){
    int oldfile, newfile;
    char block[1024];
    int nread;
    DIR *dir;
    struct dirent *ptr;
    struct stat buf;
    struct tm * timeinfo;
    char buffer [128];

    oldfile = open("/home/cdq-2013210364/Workspace/CProgram/homework5/test_file_1.txt", O_RDONLY);
    mkdir("2013210364", S_IRUSR|S_IWUSR|S_IXUSR|S_IRGRP|S_IWGRP|S_IXGRP|S_IROTH|S_IXOTH);
    chdir("2013210364");
    newfile = open("test_file_1.txt", O_CREAT|O_RDWR,S_IRUSR|S_IWUSR|S_IRGRP|S_IWGRP|S_IROTH);
    while((nread = read(oldfile, block, sizeof(block))) > 0){
        write(newfile, block, nread);
    }
    oldfile = open("/home/cdq-2013210364/Workspace/CProgram/homework5/test_file_2.txt", O_RDONLY);
    newfile = open("test_file_2.txt", O_CREAT|O_RDWR,S_IRUSR|S_IWUSR|S_IRGRP|S_IWGRP|S_IROTH);
    while((nread = read(oldfile, block, sizeof(block))) > 0){
        write(newfile, block, nread);
    }
    dir = opendir(".");
    while((ptr = readdir(dir)) != NULL)
    {
        stat(ptr->d_name, &buf);
        printf("--------------------\n");
        printf("文件名:%s\n", ptr->d_name);
        printf("文件大小:%d\n", buf.st_size);
        timeinfo = localtime (&(buf.st_atime));
        strftime (buffer,sizeof(buffer),"%Y/%m/%d %H:%M:%S",timeinfo);
        printf("上次被访问时间:%s\n", buffer);
        timeinfo = localtime (&(buf.st_mtime));

        timeinfo = localtime (&(buf.st_mtime));
        strftime (buffer,sizeof(buffer),"%Y/%m/%d %H:%M:%S",timeinfo);
        printf("上次内容被修改时间:%s\n", buffer);
        timeinfo = localtime (&(buf.st_ctime));
        strftime (buffer,sizeof(buffer),"%Y/%m/%d %H:%M:%S",timeinfo);
        printf("上次属性被改变时间:%s\n", buffer);
    }
    closedir(dir);
    close(oldfile);
    close(newfile);
}
```

运行结果：



```
cdq-2013210364@puppy: ~/Workspace/CProgram/homework5/2013210364
cdq-2013210364@puppy:~/Workspace/CProgram/homework5$ ls
2013210364.txt  bin  homework5.docx  ~$mework5.docx  src  test_file_1.txt  test_file_2.txt
cdq-2013210364@puppy:~/Workspace/CProgram/homework5$ bin/mkmydir
--------------------
文件名：test_file_2.txt
文件大小：80
上次被访问时间：2016/04/06 18:07:46
上次内容被修改时间：2016/04/06 18:07:46
上次属性被改变时间：2016/04/06 18:07:46
--------------------
文件名：..
文件大小：4096
上次被访问时间：2016/04/06 18:07:41
上次内容被修改时间：2016/04/06 18:07:46
上次属性被改变时间：2016/04/06 18:07:46
--------------------
文件名：.
文件大小：4096
上次被访问时间：2016/04/06 18:07:46
上次内容被修改时间：2016/04/06 18:07:46
上次属性被改变时间：2016/04/06 18:07:46
--------------------
文件名：test_file_1.txt
文件大小：364
上次被访问时间：2016/04/06 18:07:46
上次内容被修改时间：2016/04/06 18:07:46
上次属性被改变时间：2016/04/06 18:07:46
cdq-2013210364@puppy:~/Workspace/CProgram/homework5$ ls
2013210364  2013210364.txt  bin  homework5.docx  ~$mework5.docx  src  test_file_1.txt  test_file_2.txt
cdq-2013210364@puppy:~/Workspace/CProgram/homework5$ cd 2013210364/
cdq-2013210364@puppy:~/Workspace/CProgram/homework5/2013210364$ ls
test_file_1.txt  test_file_2.txt
cdq-2013210364@puppy:~/Workspace/CProgram/homework5/2013210364$ ll
总用量 16
drwxrwxr-x 2 cdq-2013210364 cdq-2013210364 4096  4月   6 18:07 ./
drwxrwxr-x 5 cdq-2013210364 cdq-2013210364 4096  4月   6 18:07 ../
-rw-rw-r-- 1 cdq-2013210364 cdq-2013210364  364  4月   6 18:07 test_file_1.txt
-rw-rw-r-- 1 cdq-2013210364 cdq-2013210364   80  4月   6 18:07 test_file_2.txt
```