- Makefile:裡面包含了 all、test、clean，使用的是老師 pdf 裡面的方式。

  All： 編譯 master.cpp 和 mmv.cpp。

```
all:
    g++ master.cpp -o master.out
    g++ mmv.cpp -o mmv.out
```

  Test： 測試無參數和有參數兩種方式去使用 master 分別產生 happy.tmp 和 happy2.tmp。

```
test:
    cat blake.txt
    ls
    ./master.out
    cat happy.tmp
    ls
    ./master.out blake.txt happy2.tmp
    cat happy2.tmp
```

  Clean:清除所有.out 和.tmp 檔。

```
clean:
    rm -rf master.out mmv.out happy.tmp happy2.tmp
```

- Blake.txt： 詩詞文字檔。

```
To see a World in a Grain of Sand
And a Heaven in a Wild Flower,
Hold Infinity in the palm of your hand
And Eternity in an hour.
```

- Master.cpp: fork()一個子程序去執行 mmv.cpp。會先判斷好參數是 happy 還是 happy2。

```cpp
int main(int argc, char* argv[]) {
    pid_t pid = fork();
    if(pid<0){
        cout<<"error"<<endl;
    }
    else if (pid == 0) {
        cout<<"Successful (#"<<getpid()<<")!"<<endl;
        char* buffer[4];
        buffer[0]=argv[0];
        buffer[1]=(char*)"blake.txt";
        buffer[2]=(char*)"happy.tmp";
        buffer[3]=NULL;
        if(argc==3){
            buffer[2]=(char*)"happy2.tmp";
        }
        int a;
        a=execv("mmv.out",buffer);
    }
    else{
        wait(NULL);
    }
    return 0;
}
```

- Mmv.cpp:在 blake 文字檔前加上一行字放到 happy.tmp 和 happy2.tmp 裡。

```cpp
int main(int argc, char* argv[]) {
    int fileread=open(argv[1],O_RDONLY);
    int filewrite=open(argv[2],O_WRONLY|O_CREAT,0777);
    if (fileread ==-1)
    {
        cout << argv[1]<<" can not open." << endl;
    }
    if (filewrite ==-1)
    {
        cout <<argv[2] <<" can not open." << endl;
    }
    write(filewrite,"\\\\----Say Hello to s1081420!----\\\\\n",sizeof("\\\\----Say Hello to s1081420!----\\\\\n"));
    struct stat buf;
    stat(argv[1], &buf);
    char* tmp[10000];
    read(fileread,tmp,buf.st_size);
    write(filewrite,tmp,buf.st_size);
    close(filewrite);
    close(fileread);
    return 0;
}
```