SP Handwriting Assignment 2

Student ID: B03902048

(a) Please give the meaning of command:

```
./a.out < infile 2>&1 > outfile
```

Ans:
The file descriptor 2 is *stderr* and 1 is *stdout*. At first, the content of infile will be redirect as the *stdin*. Then *stderr* will be redirect to *stdout*. And the *stderr* output by *a.out* will be shown on the screen. But *stdout* output by *a.out* will be redirect to the outfile.

```
int main(void) {
    char buf[4096];
    fgets(buf, 4096, stdin);
    fprintf(stdout, "STDOUT_%s", buf);
    fprintf(stderr, "STDERR_%s", buf);
    return 0;
}
```

after the above code running as a.out in that command,
infile: hi
outfile : STDOUT_hi
screen : STDERR_hi

(b) Please use *dup()* or *dup2()* to do the redirections of the command:

```
./a.out < infile 2>&1 > outfile
```

in the following program fragment. Error checking could be ignored.

```
int main(int argc, char *argv[]){
    int fd1, fd2;
    fd1 = open(infile, O_RDONLY);
    fd2 = open(outfile, O_WRONLY | O_CREAT, 0666);

    // my own code between

    dup2(fd1, 0); // redirect the message from infile to stdin
    close(fd1);

    dup2(1, 2); // redirect the message from stderr to stdout

    dup2(fd2, 1); // redirect the message from stdout to outfile
    close(fd2);

    // my own code between

    execlp("./a.out", "./a.out", (char *)0);
    return 0;
}
```