

# ESE5023 Assignment 06 Report

李骏垚 12132451

为方便源代码编译执行，我编写了 Makefile 文件

使用

```
make
```

可以构建可执行文件 Main.x 和 Solar\_elevation\_angle.x

使用

```
make clean
```

可以清理可执行文件以及构建使用的 .o .a 文件

## 1. Matrix multiplication

结果截图：

```
[ese-lijy@login02 ~]$ ./Main.x
matrix M:
19.48 15.79 19.28
19.28 12.92 15.86
15.86 11.29 14.04
11.93 18.60 18.23
19.28 12.92 15.86
matrix N:
 7.72  4.11  1.44  4.80  5.55
 5.55  4.80  4.04  0.59  8.58
 0.59  8.58  2.26  7.72  4.11
subroutine allocated!
result of M*N:
 249.40  321.28  135.42  251.66  322.83
 229.90  277.34  115.80  222.61  283.04
 193.38  239.84  100.18  191.18  242.60
 206.09  294.73  133.52  208.97  300.72
 229.90  277.34  115.80  222.61  283.04
[ese-lijy@login02 ~]$ cat MN.dat
 249.40  321.28  135.42  251.66  322.83
 229.90  277.34  115.80  222.61  283.04
 193.38  239.84  100.18  191.18  242.60
 206.09  294.73  133.52  208.97  300.72
 229.90  277.34  115.80  222.61  283.04
[ese-lijy@login02 ~]$
```

## 2. Calculate the Solar Elevation Angle

结果截图：

```
[ese-lijy@login02 ~]$ ./Solar_elevation_angle.x
SEA = 36.544
[ese-lijy@login02 ~]$
```

libsea.a 生成结果在目录下：

```

[ese-lijy@login02 ~]$ ll
total 527
drwxr-xr-x 9 ese-lijy ese-ouycc 4096 Dec  8 02:04 data_demo
lrwxrwxrwx 1 ese-lijy ese-ouycc  10 Dec  8 01:25 data_demo_link -> data_demo/
-rw-r--r-- 1 ese-lijy ese-ouycc  674 Dec 22 02:35 Declination_angle.f90
-rw-r--r-- 1 ese-lijy ese-ouycc  935 Dec 22 14:39 declination_angle_module.mod
-rw-r--r-- 1 ese-lijy ese-ouycc 2176 Dec 22 14:39 Declination_angle.o
-rw-r--r-- 1 ese-lijy ese-ouycc   0 Dec  1 20:27 err.log
-rw-r--r-- 1 ese-lijy ese-ouycc   0 Dec  1 20:44 err_t2.log
drwxr-xr-x 2 ese-lijy ese-ouycc 4096 Nov  2 18:48 exam
drwxr-xr-x 2 ese-lijy ese-ouycc 4096 Dec 21 12:46 fortran_demo1
drwxr-xr-x 2 ese-lijy ese-ouycc 4096 Dec 21 12:20 homework
-rw-r--r-- 1 ese-lijy ese-ouycc 1818 Dec  1 20:27 job.log
-rw-r--r-- 1 ese-lijy ese-ouycc  384 Dec  1 19:56 job.lsf
-rw-r--r-- 1 ese-lijy ese-ouycc 1823 Dec  1 20:44 job_t2.log
-rw-r--r-- 1 ese-lijy ese-ouycc  389 Dec  1 20:28 jobt2.lsf
-rw-r--r-- 1 ese-lijy ese-ouycc 5054 Dec 22 14:39 libsea.a
-rw-r--r-- 1 ese-lijy ese-ouycc 1187 Dec 22 02:35 Main.f90
-rw-r--r-- 1 ese-lijy ese-ouycc 9824 Dec 22 14:39 Main.o
-rwxr-xr-x 1 ese-lijy ese-ouycc 17880 Dec 22 14:39 Main.x
-rw-r--r-- 1 ese-lijy ese-ouycc  843 Dec 22 02:35 Makefile
-rw-r--r-- 1 ese-lijy ese-ouycc 1104 Dec 22 02:35 Matrix_multip_module.f90
-rw-r--r-- 1 ese-lijy ese-ouycc 1168 Dec 22 14:39 matrix_multip_module.mod
-rw-r--r-- 1 ese-lijy ese-ouycc 2656 Dec 22 14:39 Matrix_multip_module.o
-rw-r--r-- 1 ese-lijy ese-ouycc  230 Dec 22 14:39 MN.dat
drwxr-xr-x 2 ese-lijy ese-ouycc 4096 Dec  3 17:55 mpi_demo
-rwxr-xr-x 1 ese-lijy ese-ouycc   79 Dec  8 02:30 pdb_size.sh
-rw-r--r-- 1 ese-lijy ese-ouycc   45 Dec  1 20:27 result.log
-rw-r--r-- 1 ese-lijy ese-ouycc   50 Dec  1 20:44 result_t2.log
-rw-r--r-- 1 ese-lijy ese-ouycc 1113 Dec 22 02:35 Solar_elevation_angle.f90
-rw-r--r-- 1 ese-lijy ese-ouycc 3936 Dec 22 14:39 Solar_elevation_angle.o
-rwxr-xr-x 1 ese-lijy ese-ouycc 13520 Dec 22 14:39 Solar_elevation_angle.x
-rw-r--r-- 1 ese-lijy ese-ouycc   779 Dec 22 02:35 Solar_hour_angle.f90
-rw-r--r-- 1 ese-lijy ese-ouycc 1290 Dec 22 14:39 solar_hour_angle_module.mod
-rw-r--r-- 1 ese-lijy ese-ouycc 2480 Dec 22 14:39 Solar_hour_angle.o
-rw-r--r-- 1 ese-lijy ese-ouycc  206 Dec  1 20:30 t2.py
-rw-r--r-- 1 ese-lijy ese-ouycc  222 Dec  1 19:49 test.py
[ese-lijy@login02 ~]$

```

具体的编译命令可见 Makefile 文件