1、

Main.f90

```fortran
Program Main

implicit none

integer                          :: u, i, j
real(4), dimension(5,3)          :: m
real(4), dimension(3,5)          :: n
real(4), dimension(5,5)          :: Res

u = 50

open(unit = u, file='M.dat', status = 'old')

do i = 1, 5
  read(u, *) M(i, 1), M(i, 2), M(i, 3)
enddo
close(u)

u = 55

open(unit = u, file='N.dat', status = 'old')

do i = 1, 3
  read(u, *) N(i, 1), N(i, 2), N(i, 3), N(i, 4), N(i, 5)
enddo
close(u)

call Matrix_mutip(M, N, Res)

u = 65
open(unit = u, file = 'MN.dat', status = 'replace')
do i = 1, 5
  write(u, '(f9.2, f9.2, f9.2, f9.2, f9.2)') Res(i, 1), Res(i, 2), Res(i, 3),Res(i, 4), Res(i, 5)
enddo

End Program Main
```

Matrix_mutip.f90

```fortran
subroutine Matrix_mutip(m, n, res)
  implicit none
  integer                    ::i, j, k
  real(4), dimension(5,3)::M
  real(4), dimension(3,5)::N
  real(4), dimension(5,5)::Res
  real(4)                    ::temp

  do i = 1, 5
    do j = 1, 5
      temp = 0.
      do k = 1, 3
        temp = temp + (m(i, k) * n(k, j))
      enddo
      res(i, j) = temp
    enddo
  enddo

end subroutine Matrix_mutip
```

```
[ese-zhangyx@login03 fortran_demo1]$ [ese-zhangyx@login03 fortran_demo1]$ gfortran Main.f90 Matrix_mutip.f90 -o Main.x
[ese-zhangyx@login03 fortran_demo1]$ ./Main.x
[ese-zhangyx@login03 fortran_demo1]$ ls
!                DoWhileTest.f90  HelloWorld.x         Main.f90       M.dat    PrecisionTest.f90  TestLeapYear.x        Variab
DoLoopTest.f90   fortran_demo2    IfElseTest.f90       Main.x         MN.dat   TestArray.f90      TestRelationalOps.f90
DoLoopTest.x     HelloWorld.f90   ImplicitTypeTest.f90 Matrix_mutip.f90 N.dat  TestLeapYear.f90   TestUndeclared.f90
[ese-zhangyx@login03 fortran_demo1]$ vim MN.dat
```

OpenSSH SSH client

```
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
```

"MN.dat" 5L, 230C

2、

```
[ese-zhangyx@login03 fortran_demo1]$ vim Declination_angle.f90
[ese-zhangyx@login03 fortran_demo1]$ vim Solar_elevation_angle.f90
[ese-zhangyx@login03 fortran_demo1]$ ar rcvf libsea.a Declination_angle.o Solar_hour_angle.o
r - Declination_angle.o
r - Solar_hour_angle.o
[ese-zhangyx@login03 fortran_demo1]$ gfortran Solar_elevation_angle.f90 -o Q2.x -L . -lsea
[ese-zhangyx@login03 fortran_demo1]$ ./Q2.x
 the SEA is    36.459915083363938
[ese-zhangyx@login03 fortran_demo1]$
```