

```
! 主程式說明
c 執行本程式前必須先 "依序" 執行 ELEMENT 目錄下列 8 個程式
c 注意:各 *.in 的內容要正確一致，執行後
c 並將 node_element.dat 及 xyz.dat 檔複製至 3dwavemaker 目錄下
```

```
C 1. SURFACE.F
C 2. PADDLE .F
C 3. RIGHT .F
C 4. LEFT .F
C 5. BEACH .F
C 6. BOTTOM.F(OR TERRIAN.F)
C 7. NODE .F
c 8. xyz .f
```

```
! parameter(ni1=41,nj1=21,ni2=2,nj2=21,ni3=2 ,nj3=21,
! / ni4=2 ,nj4=21,ni5=2,nj5=21,ni6=21,nj6=11,b6=1)
```

```
! parameter(ni11=ni1-1,nj11=nj1-1,ni21=ni2-1,nj21=nj2-1,ni31=ni3-1,
! / nj31=nj3-1,ni41=ni4-1,nj41=nj4-1,ni51=ni5-1,nj51=nj5-1,
! / ni61=ni6-1,nj61=nj6-1)
```

```
! parameter(nt1=ni1*nj1,nt2=ni2*nj2,nt3=ni3*nj3,
! / nt4=ni4*nj4,nt5=ni5*nj5,nt6=ni6*nj6)
```

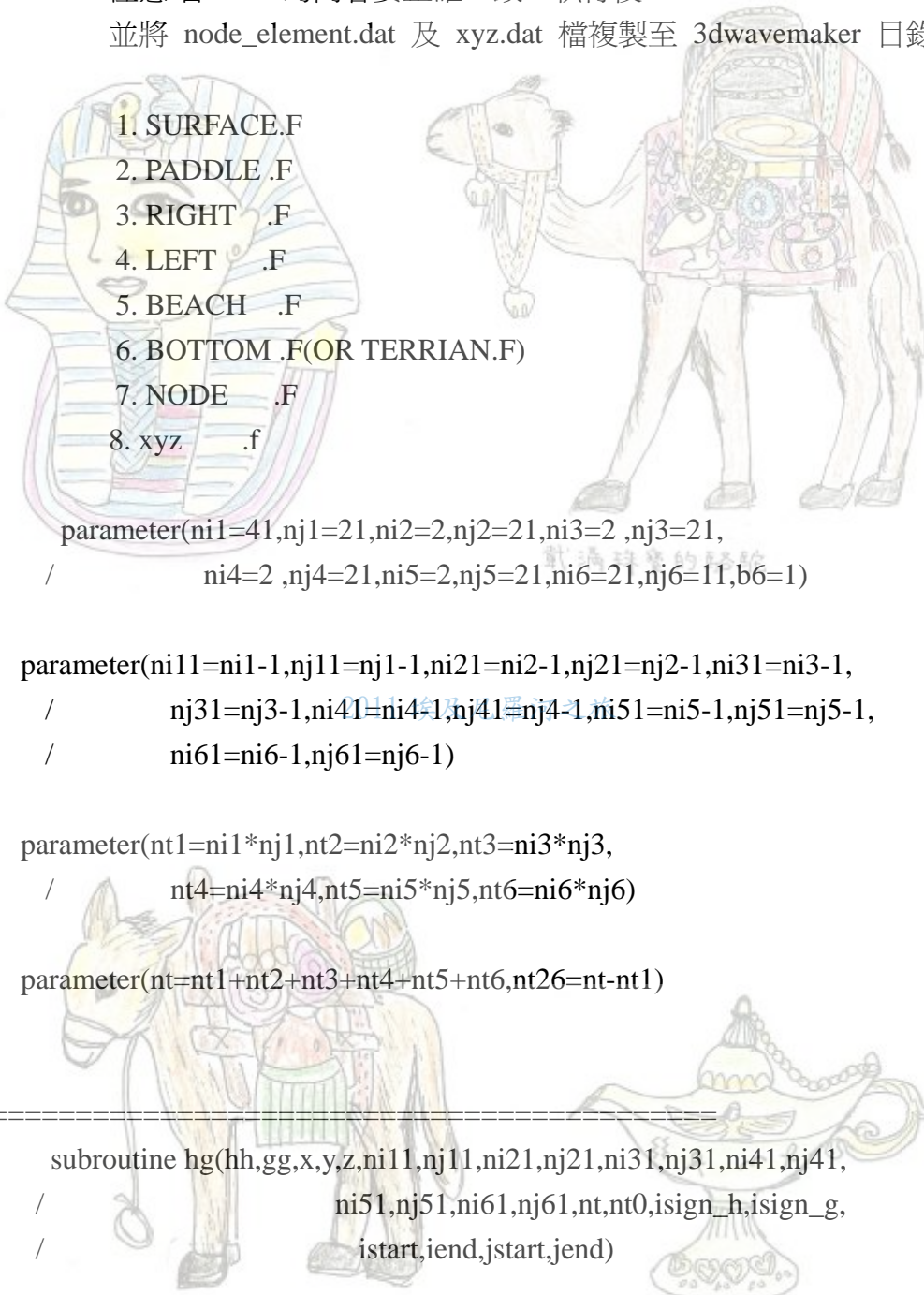
```
! parameter(nt=nt1+nt2+nt3+nt4+nt5+nt6,nt26=nt-nt1)
```

```
c=====
subroutine hg(hh,gg,x,y,z,ni11,nj11,ni21,nj21,ni31,nj31,ni41,nj41,
/ ni51,nj51,ni61,nj61,nt,nt0,isign_h,isign_g,
/ istart,iend,jstart,jend)
```

```
real x(nt),y(nt),z(nt),XX(4),YY(4),ZZ(4)
```

```
real hh(nt0,nt0),gg(nt0,nt0)
```

```
real xg(4),yg(4),zg(4),p(2),e(2),h(4),g(4)
```



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! 使用暫存檔 unit=200

```
OPEN(UNIT=1,FILE='1.apf',FORM='UNFORMATTED',status='UNKNOWN')
OPEN(UNIT=2,FILE='2.apf',FORM='UNFORMATTED',status='UNKNOWN')
OPEN(UNIT=3,FILE='3.apf',FORM='UNFORMATTED',status='UNKNOWN')
OPEN(UNIT=4,FILE='4.apf',FORM='UNFORMATTED',status='UNKNOWN')
OPEN(UNIT=5,FILE='5.apf',FORM='UNFORMATTED',status='UNKNOWN')
OPEN(UNIT=6,FILE='6.apf',FORM='UNFORMATTED',status='UNKNOWN')
OPEN(UNIT=7,FILE='7.apf',FORM='UNFORMATTED',status='UNKNOWN')
OPEN(UNIT=8,FILE='8.apf',FORM='UNFORMATTED',status='UNKNOWN')
OPEN(UNIT=9,FILE='9.apf',FORM='UNFORMATTED',status='UNKNOWN')
OPEN(UNIT=10,FILE='10.apf',FORM='UNFORMATTED',status='UNKNOWN')
OPEN(UNIT=11,FILE='11.apf',FORM='UNFORMATTED',status='UNKNOWN')
OPEN(UNIT=12,FILE='12.apf',FORM='UNFORMATTED',status='UNKNOWN')
OPEN(UNIT=13,FILE='13.apf',FORM='UNFORMATTED',status='UNKNOWN')
OPEN(UNIT=14,FILE='14.apf',FORM='UNFORMATTED',status='UNKNOWN')
OPEN(UNIT=15,FILE='15.apf',FORM='UNFORMATTED',status='UNKNOWN')
OPEN(UNIT=16,FILE='16.apf',FORM='UNFORMATTED',status='UNKNOWN')
OPEN(UNIT=17,FILE='17.apf',FORM='UNFORMATTED',status='UNKNOWN')
OPEN(UNIT=18,FILE='18.apf',FORM='UNFORMATTED',status='UNKNOWN')
OPEN(UNIT=19,FILE='19.apf',FORM='UNFORMATTED',status='UNKNOWN')
OPEN(UNIT=20,FILE='20.apf',FORM='UNFORMATTED',status='UNKNOWN')
OPEN(UNIT=21,FILE='21.apf',FORM='UNFORMATTED',status='UNKNOWN')
OPEN(UNIT=22,FILE='22.apf',FORM='UNFORMATTED',status='UNKNOWN')
OPEN(UNIT=23,FILE='23.apf',FORM='UNFORMATTED',status='UNKNOWN')
OPEN(UNIT=24,FILE='24.apf',FORM='UNFORMATTED',status='UNKNOWN')
OPEN(UNIT=25,FILE='25.apf',FORM='UNFORMATTED',status='UNKNOWN')
OPEN(UNIT=26,FILE='26.apf',FORM='UNFORMATTED',status='UNKNOWN')
OPEN(UNIT=27,FILE='27.apf',FORM='UNFORMATTED',status='UNKNOWN')
OPEN(UNIT=28,FILE='28.apf',FORM='UNFORMATTED',status='UNKNOWN')
OPEN(UNIT=29,FILE='29.apf',FORM='UNFORMATTED',status='UNKNOWN')
OPEN(UNIT=30,FILE='30.apf',FORM='UNFORMATTED',status='UNKNOWN')
OPEN(UNIT=31,FILE='31.apf',FORM='UNFORMATTED',status='UNKNOWN')
OPEN(UNIT=32,FILE='32.apf',FORM='UNFORMATTED',status='UNKNOWN')
```

ni1=ni11+1

$$nj1=nj11+1$$

$$ni2=ni21+1$$

$$nj2=nj21+1$$

$$ni3=ni31+1$$

$$nj3=nj31+1$$

$$ni4=ni41+1$$

$$nj4=nj41+1$$

$$ni5=ni51+1$$

$$nj5=nj51+1$$

$$ni6=ni61+1$$

$$nj6=nj61+1$$

$$nt1=ni1*nj1$$

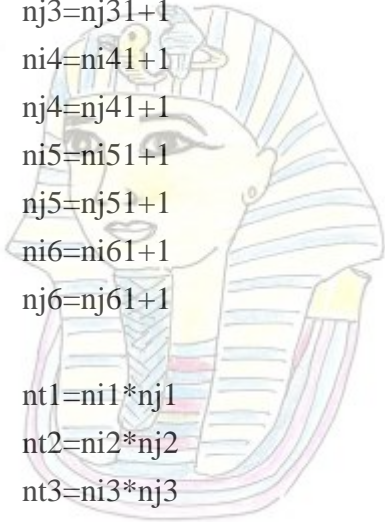
$$nt2=ni2*nj2$$

$$nt3=ni3*nj3$$

$$nt4=ni4*nj4$$

$$nt5=ni5*nj5$$

$$nt6=ni6*nj6$$



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$$nt26=nt-nt1$$

$$nn1=nt1/6$$

$$nn2=nn1$$

$$nn3=nn1$$

$$nn4=nn1$$

$$nn5=nn1$$

$$nn6=nt1-nn1*5$$

$$nn7=nt2+nt3+nt4+nt5$$

$$nn8=nt6$$

c=====

$$pai=3.1415927$$

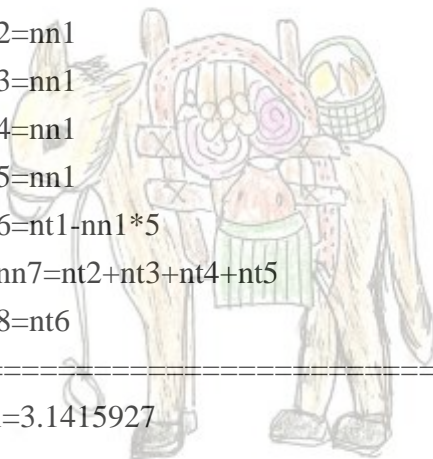
rewind 7
載有貨品的驢子

rewind 8

do ii=istart,iend

if(ii.eq.1) is=1

if(ii.eq.1) ie=nn1

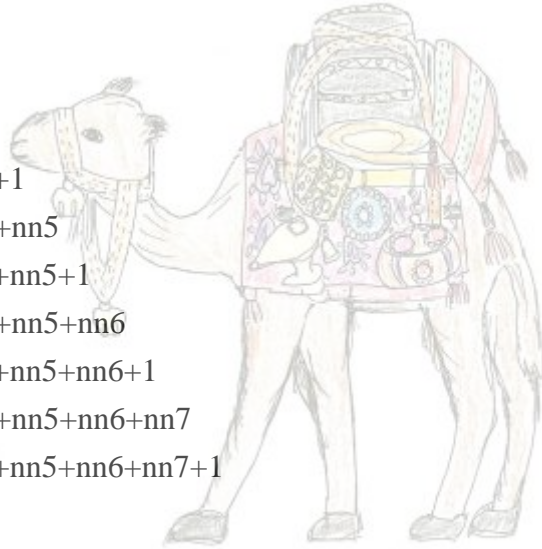


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if(ii.eq.2) is=nn1+1
if(ii.eq.2) ie=nn1+nn2
if(ii.eq.3) is=nn1+nn2+1
if(ii.eq.3) ie=nn1+nn2+nn3
if(ii.eq.4) is=nn1+nn2+nn3+1
if(ii.eq.4) ie=nn1+nn2+nn3+nn4
if(ii.eq.5) is=nn1+nn2+nn3+nn4+1
if(ii.eq.5) ie=nn1+nn2+nn3+nn4+nn5
if(ii.eq.6) is=nn1+nn2+nn3+nn4+nn5+1
if(ii.eq.6) ie=nn1+nn2+nn3+nn4+nn5+nn6
if(ii.eq.7) is=nn1+nn2+nn3+nn4+nn5+nn6+1
if(ii.eq.7) ie=nn1+nn2+nn3+nn4+nn5+nn6+nn7
if(ii.eq.8) is=nn1+nn2+nn3+nn4+nn5+nn6+nn7+1
if(ii.eq.8) ie=nt

```



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do jj=jstart,jend

```

```

if(jj.eq.1) js=1

```

```

if(jj.eq.1) je=nn1

```

```

if(jj.eq.2) js=nn1+1

```

```

if(jj.eq.2) je=nn1+nn2    2011 埃及尼羅河之旅

```

```

if(jj.eq.3) js=nn1+nn2+1

```

```

if(jj.eq.3) je=nn1+nn2+nn3

```

```

if(jj.eq.4) js=nn1+nn2+nn3+1

```

```

if(jj.eq.4) je=nn1+nn2+nn3+nn4

```

```

if(jj.eq.5) js=nn1+nn2+nn3+nn4+1

```

```

if(jj.eq.5) je=nn1+nn2+nn3+nn4+nn5

```

```

if(jj.eq.6) js=nn1+nn2+nn3+nn4+nn5+1

```

```

if(jj.eq.6) je=nn1+nn2+nn3+nn4+nn5+nn6

```

```

if(jj.eq.7) js=nn1+nn2+nn3+nn4+nn5+nn6+1

```

```

if(jj.eq.7) je=nn1+nn2+nn3+nn4+nn5+nn6+nn7

```

```

if(jj.eq.8) js=nn1+nn2+nn3+nn4+nn5+nn6+nn7+1

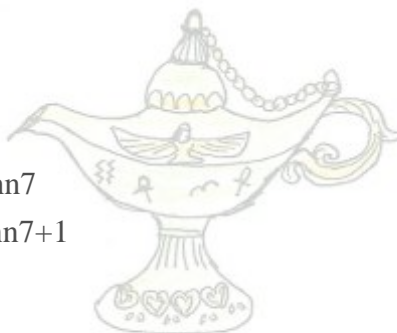
```

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if(jj.eq.8) je=nt

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do i=is,ie

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if(ii.eq.1) ix=i

```

```

if(ii.eq.2) ix=i-nn1

```

```

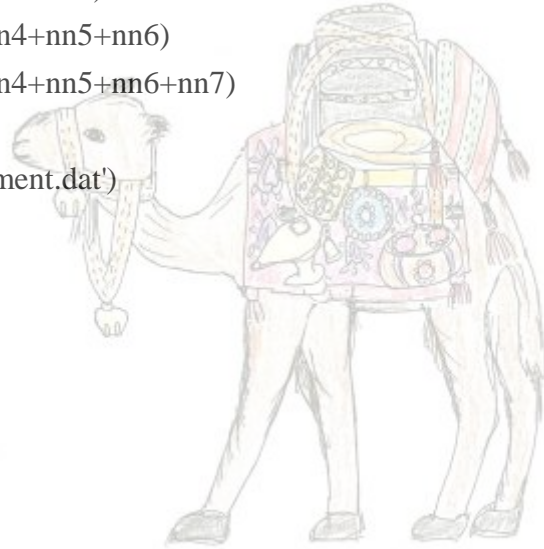
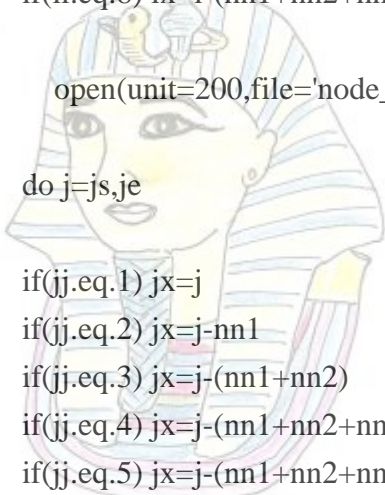
if(ii.eq.3) ix=i-(nn1+nn2)

```

```

if(ii.eq.4) ix=i-(nn1+nn2+nn3)
if(ii.eq.5) ix=i-(nn1+nn2+nn3+nn4)
if(ii.eq.6) ix=i-(nn1+nn2+nn3+nn4+nn5)
if(ii.eq.7) ix=i-(nn1+nn2+nn3+nn4+nn5+nn6)
if(ii.eq.8) ix=i-(nn1+nn2+nn3+nn4+nn5+nn6+nn7)

```



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open(unit=200,file='node_element.dat')
do j=js,je
if(jj.eq.1) jx=j
if(jj.eq.2) jx=j-nn1
if(jj.eq.3) jx=j-(nn1+nn2)
if(jj.eq.4) jx=j-(nn1+nn2+nn3)
if(jj.eq.5) jx=j-(nn1+nn2+nn3+nn4)
if(jj.eq.6) jx=j-(nn1+nn2+nn3+nn4+nn5)
if(jj.eq.7) jx=j-(nn1+nn2+nn3+nn4+nn5+nn6)
if(jj.eq.8) jx=j-(nn1+nn2+nn3+nn4+nn5+nn6+nn7)

```

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```
do k=1,4
```

```
read(200,201) nojk,ki,kj
```

```
if(nojk.eq.0) then
```

```
h(k)=0
```

```
g(k)=0
```

```
end if
```

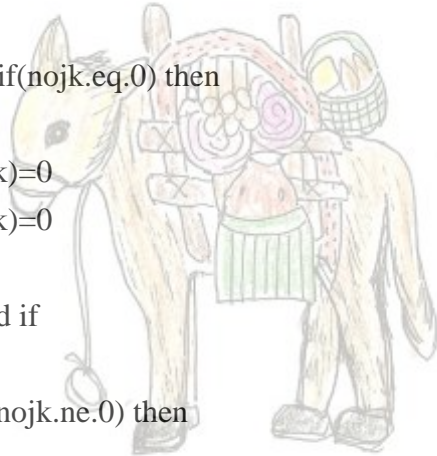
```
if(nojk.ne.0) then
```

```
if(i.eq.j) then
```

```
h(k)=0
```

```
if(nojk.eq.1) then
```

```
nstart=0
```



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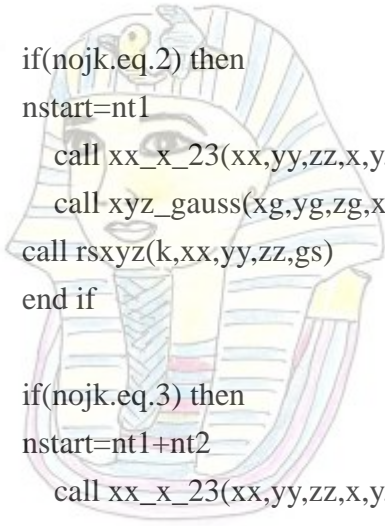
call xx_x_1(xx,yy,zz,x,y,z,nt,nj11,ki,kj,nstart)
call xyz_gauss(xg,yg,zg,xx,yy,zz)
call rsxyz(k,xx,yy,zz,gs)
end if

```

```

if(nojk.eq.2) then
nstart=nt1
call xx_x_23(xx,yy,zz,x,y,z,nt,nj21,ki,kj,nstart)
call xyz_gauss(xg,yg,zg,xx,yy,zz)
call rsxyz(k,xx,yy,zz,gs)
end if

```



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```

if(nojk.eq.3) then
nstart=nt1+nt2
call xx_x_23(xx,yy,zz,x,y,z,nt,nj31,ki,kj,nstart)
call xyz_gauss(xg,yg,zg,xx,yy,zz)
call rsxyz(k,xx,yy,zz,gs)
end if

```

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```

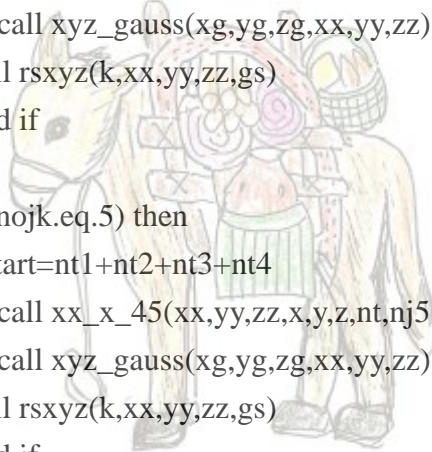
if(nojk.eq.4) then
nstart=nt1+nt2+nt3
call xx_x_45(xx,yy,zz,x,y,z,nt,nj41,ki,kj,nstart)
call xyz_gauss(xg,yg,zg,xx,yy,zz)
call rsxyz(k,xx,yy,zz,gs)
end if

```

```

if(nojk.eq.5) then
nstart=nt1+nt2+nt3+nt4
call xx_x_45(xx,yy,zz,x,y,z,nt,nj51,ki,kj,nstart)
call xyz_gauss(xg,yg,zg,xx,yy,zz)
call rsxyz(k,xx,yy,zz,gs)
end if

```



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```

if(nojk.eq.6) then
nstart=nt1+nt2+nt3+nt4+nt5
call xx_x_6(xx,yy,zz,x,y,z,nt,nj61,ki,kj,nstart)
call xyz_gauss(xg,yg,zg,xx,yy,zz)
call rsxyz(k,xx,yy,zz,gs)

```

end if

call ggg(g,x,y,z,xg,yg,zg,gs,nt,i,k)

end if

if(i.ne.j) then

if(nojk.eq.1) then

nstart=0

call xx_x_1(xx,yy,zz,x,y,z,nt,nj11,ki,kj,nstart)

CALL normal(XX,YY,ZZ,XN,YN,ZN,A)

call xyz_gauss(xg,yg,zg,xx,yy,zz)

call h_g(h,g,xg,yg,zg,x,y,z,xn,yn,zn,a,nt,i,k)

end if



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if(nojk.eq.2) then

nstart=nt1

call xx_x_23(xx,yy,zz,x,y,z,nt,nj21,ki,kj,nstart)

CALL normal(XX,YY,ZZ,XN,YN,ZN,A)

call xyz_gauss(xg,yg,zg,xx,yy,zz)

call h_g(h,g,xg,yg,zg,x,y,z,xn,yn,zn,a,nt,i,k)

end if

if(nojk.eq.3) then

nstart=nt1+nt2

call xx_x_23(xx,yy,zz,x,y,z,nt,nj31,ki,kj,nstart)

CALL normal(XX,YY,ZZ,XN,YN,ZN,A)

call xyz_gauss(xg,yg,zg,xx,yy,zz)

call h_g(h,g,xg,yg,zg,x,y,z,xn,yn,zn,a,nt,i,k)

end if

if(nojk.eq.4) then

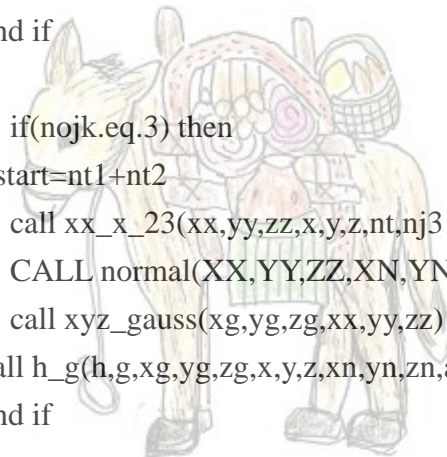
nstart=nt1+nt2+nt3

call xx_x_45(xx,yy,zz,x,y,z,nt,nj41,ki,kj,nstart)

CALL normal(XX,YY,ZZ,XN,YN,ZN,A)

call xyz_gauss(xg,yg,zg,xx,yy,zz)

call h_g(h,g,xg,yg,zg,x,y,z,xn,yn,zn,a,nt,i,k)



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end if

if(nojk.eq.5) then

nstart=nt1+nt2+nt3+nt4

call xx_x_45(xx,yy,zz,x,y,z,nt,nj51,ki,kj,nstart)

call xyz_gauss(xg,yg,zg,xx,yy,zz)

CALL normal(XX,YY,ZZ,XN,YN,ZN,A)

call h_g(h,g,xg,yg,zg,x,y,z,xn,yn,zn,a,nt,i,k)

end if

if(nojk.eq.6) then

nstart=nt1+nt2+nt3+nt4+nt5

call xx_x_6(xx,yy,zz,x,y,z,nt,nj61,ki,kj,nstart)

call xyz_gauss(xg,yg,zg,xx,yy,zz)

CALL normal(XX,YY,ZZ,XN,YN,ZN,A)

call h_g(h,g,xg,yg,zg,x,y,z,xn,yn,zn,a,nt,i,k)

end if

end if

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end if

end do

hh(ix,jx)=h(1)+h(2)+h(3)+h(4)

if(i.eq.j) hh(ix,jx)=hh(ix,jx)+1

icheck=0

do ik=1,4

if(h(ik).eq.0) icheck=icheck+1

end do

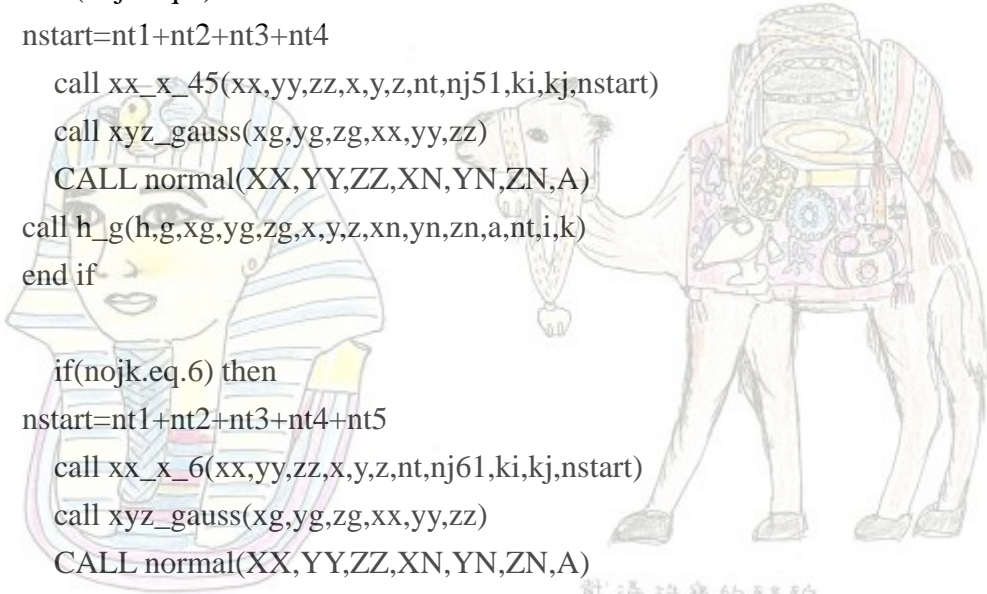
if(icheck.eq.2) hh(ix,jx)=hh(ix,jx)*2

if(icheck.eq.3) hh(ix,jx)=hh(ix,jx)*4

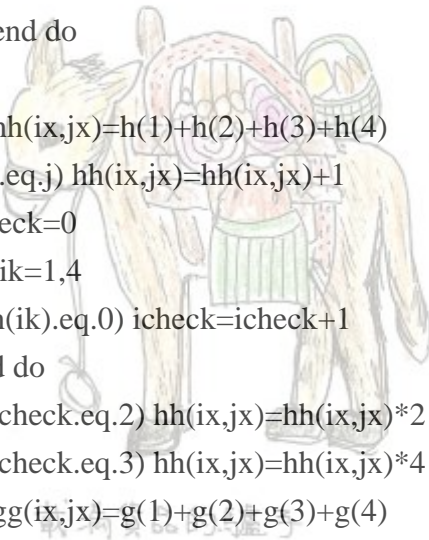
gg(ix,jx)=g(1)+g(2)+g(3)+g(4)

end do

close(200)



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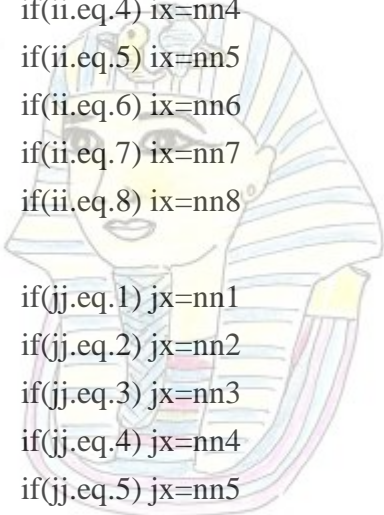
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end do
if(ii.eq.1) ix=nn1
if(ii.eq.2) ix=nn2
if(ii.eq.3) ix=nn3
if(ii.eq.4) ix=nn4
if(ii.eq.5) ix=nn5
if(ii.eq.6) ix=nn6
if(ii.eq.7) ix=nn7
if(ii.eq.8) ix=nn8

if(jj.eq.1) jx=nn1
if(jj.eq.2) jx=nn2
if(jj.eq.3) jx=nn3
if(jj.eq.4) jx=nn4
if(jj.eq.5) jx=nn5
if(jj.eq.6) jx=nn6
if(jj.eq.7) jx=nn7
if(jj.eq.8) jx=nn8

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if(isign_h.eq.1)then

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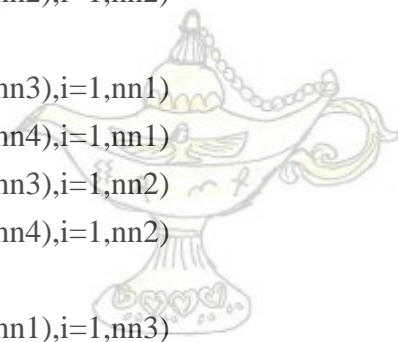
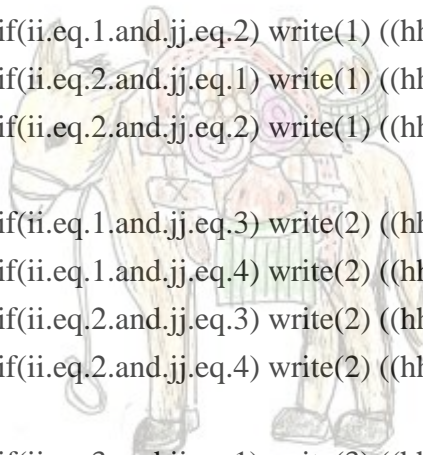
if(ii.eq.1.and.jj.eq.1) write(1) ((hh(i,j),j=1,nn1),i=1,nn1)
if(ii.eq.1.and.jj.eq.2) write(1) ((hh(i,j),j=1,nn2),i=1,nn1)
if(ii.eq.2.and.jj.eq.1) write(1) ((hh(i,j),j=1,nn1),i=1,nn2)
if(ii.eq.2.and.jj.eq.2) write(1) ((hh(i,j),j=1,nn2),i=1,nn2)

if(ii.eq.1.and.jj.eq.3) write(2) ((hh(i,j),j=1,nn3),i=1,nn1)
if(ii.eq.1.and.jj.eq.4) write(2) ((hh(i,j),j=1,nn4),i=1,nn1)
if(ii.eq.2.and.jj.eq.3) write(2) ((hh(i,j),j=1,nn3),i=1,nn2)
if(ii.eq.2.and.jj.eq.4) write(2) ((hh(i,j),j=1,nn4),i=1,nn2)

if(ii.eq.3.and.jj.eq.1) write(3) ((hh(i,j),j=1,nn1),i=1,nn3)
if(ii.eq.3.and.jj.eq.2) write(3) ((hh(i,j),j=1,nn2),i=1,nn3)
if(ii.eq.4.and.jj.eq.1) write(3) ((hh(i,j),j=1,nn1),i=1,nn4)
if(ii.eq.4.and.jj.eq.2) write(3) ((hh(i,j),j=1,nn2),i=1,nn4)

if(ii.eq.3.and.jj.eq.3) write(4) ((hh(i,j),j=1,nn3),i=1,nn3)
if(ii.eq.3.and.jj.eq.4) write(4) ((hh(i,j),j=1,nn4),i=1,nn3)

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if(ii.eq.4.and.jj.eq.3) write(4) ((hh(i,j),j=1,nn3),i=1,nn4)
if(ii.eq.4.and.jj.eq.4) write(4) ((hh(i,j),j=1,nn4),i=1,nn4)

if(ii.eq.1.and.jj.eq.5) write(5) ((hh(i,j),j=1,nn5),i=1,nn1)
if(ii.eq.1.and.jj.eq.6) write(5) ((hh(i,j),j=1,nn6),i=1,nn1)
if(ii.eq.2.and.jj.eq.5) write(5) ((hh(i,j),j=1,nn5),i=1,nn2)
if(ii.eq.2.and.jj.eq.6) write(5) ((hh(i,j),j=1,nn6),i=1,nn2)

if(ii.eq.1.and.jj.eq.7) write(6) ((hh(i,j),j=1,nn7),i=1,nn1)
if(ii.eq.1.and.jj.eq.8) write(6) ((hh(i,j),j=1,nn8),i=1,nn1)
if(ii.eq.2.and.jj.eq.7) write(6) ((hh(i,j),j=1,nn7),i=1,nn2)
if(ii.eq.2.and.jj.eq.8) write(6) ((hh(i,j),j=1,nn8),i=1,nn2)

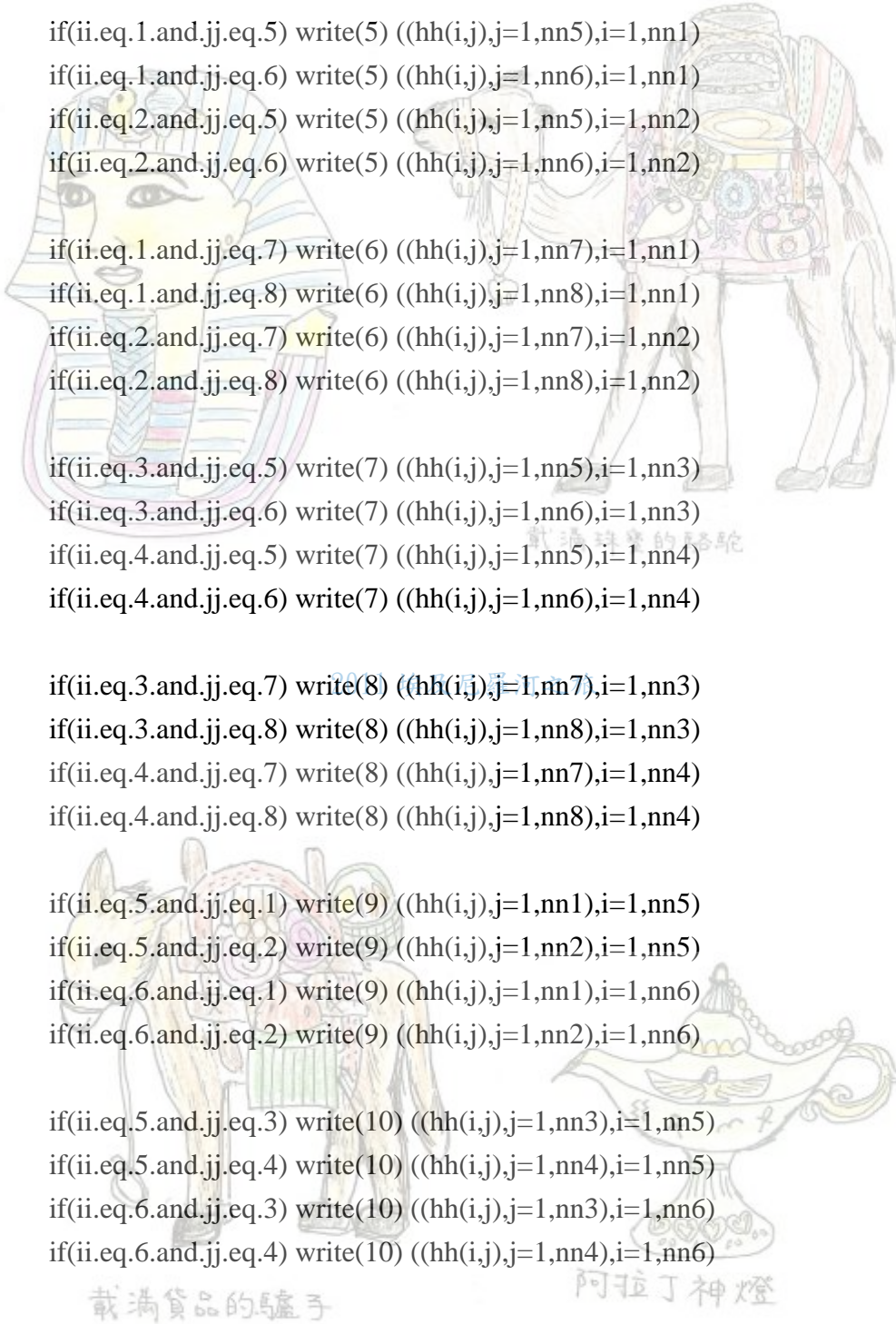
if(ii.eq.3.and.jj.eq.5) write(7) ((hh(i,j),j=1,nn5),i=1,nn3)
if(ii.eq.3.and.jj.eq.6) write(7) ((hh(i,j),j=1,nn6),i=1,nn3)
if(ii.eq.4.and.jj.eq.5) write(7) ((hh(i,j),j=1,nn5),i=1,nn4)
if(ii.eq.4.and.jj.eq.6) write(7) ((hh(i,j),j=1,nn6),i=1,nn4)

if(ii.eq.3.and.jj.eq.7) write(8) ((hh(i,j),j=1,nn7),i=1,nn3)
if(ii.eq.3.and.jj.eq.8) write(8) ((hh(i,j),j=1,nn8),i=1,nn3)
if(ii.eq.4.and.jj.eq.7) write(8) ((hh(i,j),j=1,nn7),i=1,nn4)
if(ii.eq.4.and.jj.eq.8) write(8) ((hh(i,j),j=1,nn8),i=1,nn4)

if(ii.eq.5.and.jj.eq.1) write(9) ((hh(i,j),j=1,nn1),i=1,nn5)
if(ii.eq.5.and.jj.eq.2) write(9) ((hh(i,j),j=1,nn2),i=1,nn5)
if(ii.eq.6.and.jj.eq.1) write(9) ((hh(i,j),j=1,nn1),i=1,nn6)
if(ii.eq.6.and.jj.eq.2) write(9) ((hh(i,j),j=1,nn2),i=1,nn6)

if(ii.eq.5.and.jj.eq.3) write(10) ((hh(i,j),j=1,nn3),i=1,nn5)
if(ii.eq.5.and.jj.eq.4) write(10) ((hh(i,j),j=1,nn4),i=1,nn5)
if(ii.eq.6.and.jj.eq.3) write(10) ((hh(i,j),j=1,nn3),i=1,nn6)
if(ii.eq.6.and.jj.eq.4) write(10) ((hh(i,j),j=1,nn4),i=1,nn6)

if(ii.eq.7.and.jj.eq.1) write(11) ((hh(i,j),j=1,nn1),i=1,nn7)
if(ii.eq.7.and.jj.eq.2) write(11) ((hh(i,j),j=1,nn2),i=1,nn7)
if(ii.eq.8.and.jj.eq.1) write(11) ((hh(i,j),j=1,nn1),i=1,nn8)
if(ii.eq.8.and.jj.eq.2) write(11) ((hh(i,j),j=1,nn2),i=1,nn8)



```
if(ii.eq.7.and.jj.eq.3) write(12) ((hh(i,j),j=1,nn3),i=1,nn7)
if(ii.eq.7.and.jj.eq.4) write(12) ((hh(i,j),j=1,nn4),i=1,nn7)
if(ii.eq.8.and.jj.eq.3) write(12) ((hh(i,j),j=1,nn3),i=1,nn8)
if(ii.eq.8.and.jj.eq.4) write(12) ((hh(i,j),j=1,nn4),i=1,nn8)
```

```
if(ii.eq.5.and.jj.eq.5) write(13) ((hh(i,j),j=1,nn5),i=1,nn5)
if(ii.eq.5.and.jj.eq.6) write(13) ((hh(i,j),j=1,nn6),i=1,nn5)
if(ii.eq.6.and.jj.eq.5) write(13) ((hh(i,j),j=1,nn5),i=1,nn6)
if(ii.eq.6.and.jj.eq.6) write(13) ((hh(i,j),j=1,nn6),i=1,nn6)
```

```
if(ii.eq.5.and.jj.eq.7) write(14) ((hh(i,j),j=1,nn7),i=1,nn5)
if(ii.eq.5.and.jj.eq.8) write(14) ((hh(i,j),j=1,nn8),i=1,nn5)
if(ii.eq.6.and.jj.eq.7) write(14) ((hh(i,j),j=1,nn7),i=1,nn6)
if(ii.eq.6.and.jj.eq.8) write(14) ((hh(i,j),j=1,nn8),i=1,nn6)
```

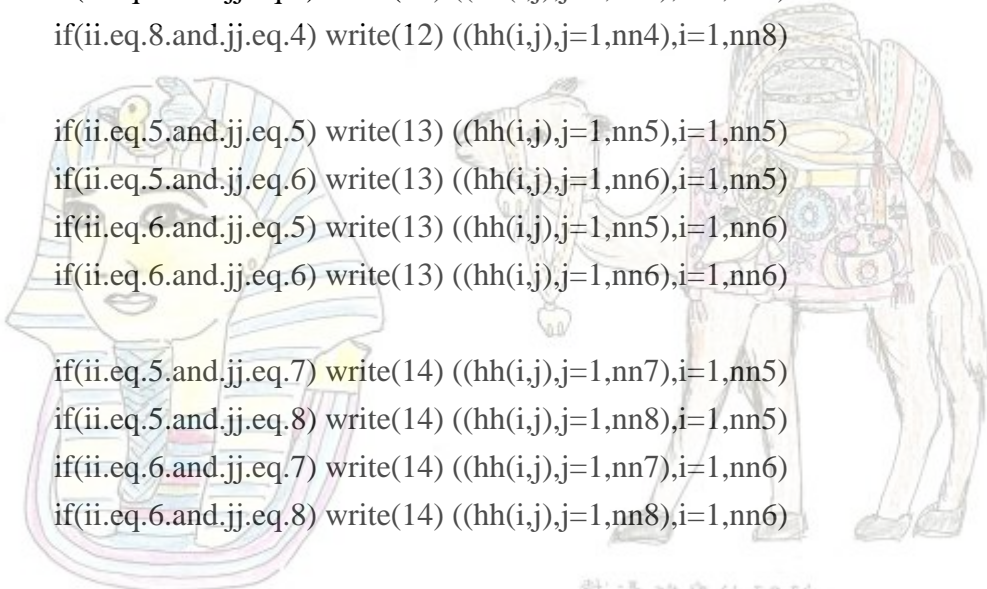
```
if(ii.eq.7.and.jj.eq.5) write(15) ((hh(i,j),j=1,nn5),i=1,nn7)
if(ii.eq.7.and.jj.eq.6) write(15) ((hh(i,j),j=1,nn6),i=1,nn7)
if(ii.eq.8.and.jj.eq.5) write(15) ((hh(i,j),j=1,nn5),i=1,nn8)
if(ii.eq.8.and.jj.eq.6) write(15) ((hh(i,j),j=1,nn6),i=1,nn8)
```

```
if(ii.eq.7.and.jj.eq.7) write(16) ((hh(i,j),j=1,nn7),i=1,nn7)
if(ii.eq.7.and.jj.eq.8) write(16) ((hh(i,j),j=1,nn8),i=1,nn7)
if(ii.eq.8.and.jj.eq.7) write(16) ((hh(i,j),j=1,nn7),i=1,nn8)
if(ii.eq.8.and.jj.eq.8) write(16) ((hh(i,j),j=1,nn8),i=1,nn8)
end if
```

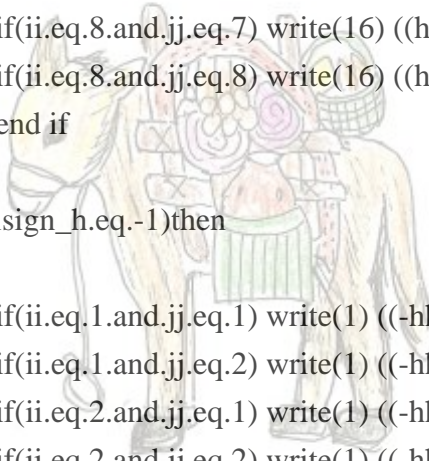
```
if(isign_h.eq.-1)then
```

```
if(ii.eq.1.and.jj.eq.1) write(1) ((-hh(i,j),j=1,nn1),i=1,nn1)
if(ii.eq.1.and.jj.eq.2) write(1) ((-hh(i,j),j=1,nn2),i=1,nn1)
if(ii.eq.2.and.jj.eq.1) write(1) ((-hh(i,j),j=1,nn1),i=1,nn2)
if(ii.eq.2.and.jj.eq.2) write(1) ((-hh(i,j),j=1,nn2),i=1,nn2)
```

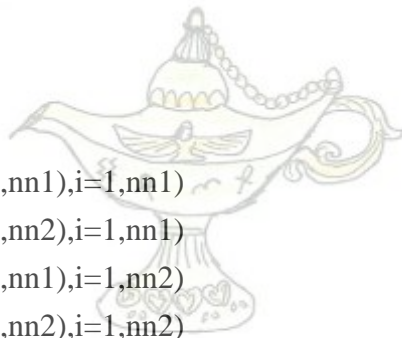
```
if(ii.eq.1.and.jj.eq.3) write(2) ((-hh(i,j),j=1,nn3),i=1,nn1)
if(ii.eq.1.and.jj.eq.4) write(2) ((-hh(i,j),j=1,nn4),i=1,nn1)
if(ii.eq.2.and.jj.eq.3) write(2) ((-hh(i,j),j=1,nn3),i=1,nn2)
if(ii.eq.2.and.jj.eq.4) write(2) ((-hh(i,j),j=1,nn4),i=1,nn2)
```



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if(ii.eq.3.and.jj.eq.1) write(3) ((-hh(i,j),j=1,nn1),i=1,nn3)
if(ii.eq.3.and.jj.eq.2) write(3) ((-hh(i,j),j=1,nn2),i=1,nn3)
if(ii.eq.4.and.jj.eq.1) write(3) ((-hh(i,j),j=1,nn1),i=1,nn4)
if(ii.eq.4.and.jj.eq.2) write(3) ((-hh(i,j),j=1,nn2),i=1,nn4)

if(ii.eq.3.and.jj.eq.3) write(4) ((-hh(i,j),j=1,nn3),i=1,nn3)
if(ii.eq.3.and.jj.eq.4) write(4) ((-hh(i,j),j=1,nn4),i=1,nn3)
if(ii.eq.4.and.jj.eq.3) write(4) ((-hh(i,j),j=1,nn3),i=1,nn4)
if(ii.eq.4.and.jj.eq.4) write(4) ((-hh(i,j),j=1,nn4),i=1,nn4)

if(ii.eq.1.and.jj.eq.5) write(5) ((-hh(i,j),j=1,nn5),i=1,nn1)
if(ii.eq.1.and.jj.eq.6) write(5) ((-hh(i,j),j=1,nn6),i=1,nn1)
if(ii.eq.2.and.jj.eq.5) write(5) ((-hh(i,j),j=1,nn5),i=1,nn2)
if(ii.eq.2.and.jj.eq.6) write(5) ((-hh(i,j),j=1,nn6),i=1,nn2)

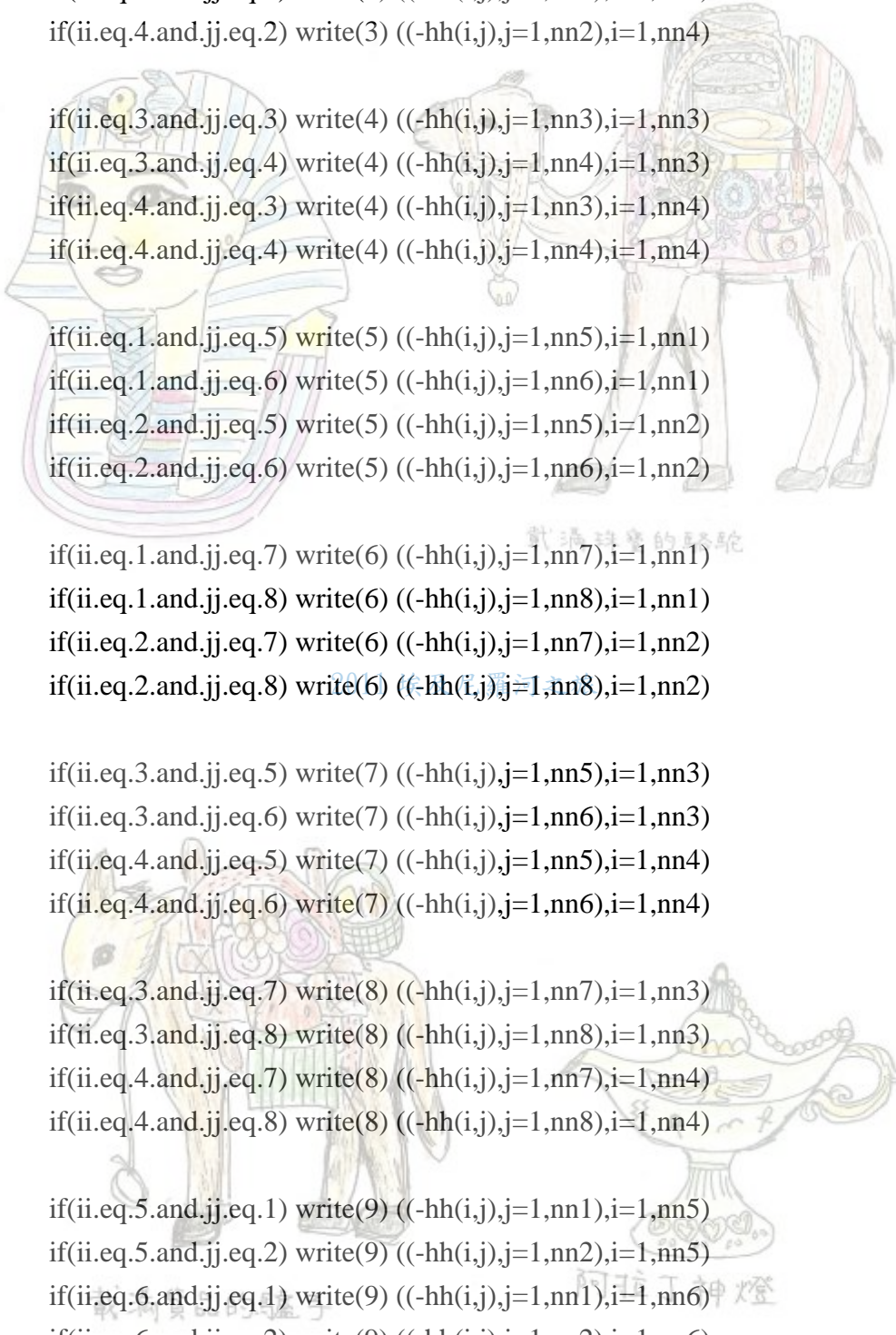
if(ii.eq.1.and.jj.eq.7) write(6) ((-hh(i,j),j=1,nn7),i=1,nn1)
if(ii.eq.1.and.jj.eq.8) write(6) ((-hh(i,j),j=1,nn8),i=1,nn1)
if(ii.eq.2.and.jj.eq.7) write(6) ((-hh(i,j),j=1,nn7),i=1,nn2)
if(ii.eq.2.and.jj.eq.8) write(6) ((-hh(i,j),j=1,nn8),i=1,nn2)

if(ii.eq.3.and.jj.eq.5) write(7) ((-hh(i,j),j=1,nn5),i=1,nn3)
if(ii.eq.3.and.jj.eq.6) write(7) ((-hh(i,j),j=1,nn6),i=1,nn3)
if(ii.eq.4.and.jj.eq.5) write(7) ((-hh(i,j),j=1,nn5),i=1,nn4)
if(ii.eq.4.and.jj.eq.6) write(7) ((-hh(i,j),j=1,nn6),i=1,nn4)

if(ii.eq.3.and.jj.eq.7) write(8) ((-hh(i,j),j=1,nn7),i=1,nn3)
if(ii.eq.3.and.jj.eq.8) write(8) ((-hh(i,j),j=1,nn8),i=1,nn3)
if(ii.eq.4.and.jj.eq.7) write(8) ((-hh(i,j),j=1,nn7),i=1,nn4)
if(ii.eq.4.and.jj.eq.8) write(8) ((-hh(i,j),j=1,nn8),i=1,nn4)

if(ii.eq.5.and.jj.eq.1) write(9) ((-hh(i,j),j=1,nn1),i=1,nn5)
if(ii.eq.5.and.jj.eq.2) write(9) ((-hh(i,j),j=1,nn2),i=1,nn5)
if(ii.eq.6.and.jj.eq.1) write(9) ((-hh(i,j),j=1,nn1),i=1,nn6)
if(ii.eq.6.and.jj.eq.2) write(9) ((-hh(i,j),j=1,nn2),i=1,nn6)

if(ii.eq.5.and.jj.eq.3) write(10) ((-hh(i,j),j=1,nn3),i=1,nn5)
if(ii.eq.5.and.jj.eq.4) write(10) ((-hh(i,j),j=1,nn4),i=1,nn5)
if(ii.eq.6.and.jj.eq.3) write(10) ((-hh(i,j),j=1,nn3),i=1,nn6)



```
if(ii.eq.6.and.jj.eq.4) write(10) ((-hh(i,j),j=1,nn4),i=1,nn6)
```

```
if(ii.eq.7.and.jj.eq.1) write(11) ((-hh(i,j),j=1,nn1),i=1,nn7)
```

```
if(ii.eq.7.and.jj.eq.2) write(11) ((-hh(i,j),j=1,nn2),i=1,nn7)
```

```
if(ii.eq.8.and.jj.eq.1) write(11) ((-hh(i,j),j=1,nn1),i=1,nn8)
```

```
if(ii.eq.8.and.jj.eq.2) write(11) ((-hh(i,j),j=1,nn2),i=1,nn8)
```

```
if(ii.eq.7.and.jj.eq.3) write(12) ((-hh(i,j),j=1,nn3),i=1,nn7)
```

```
if(ii.eq.7.and.jj.eq.4) write(12) ((-hh(i,j),j=1,nn4),i=1,nn7)
```

```
if(ii.eq.8.and.jj.eq.3) write(12) ((-hh(i,j),j=1,nn3),i=1,nn8)
```

```
if(ii.eq.8.and.jj.eq.4) write(12) ((-hh(i,j),j=1,nn4),i=1,nn8)
```

```
if(ii.eq.5.and.jj.eq.5) write(13) ((-hh(i,j),j=1,nn5),i=1,nn5)
```

```
if(ii.eq.5.and.jj.eq.6) write(13) ((-hh(i,j),j=1,nn6),i=1,nn5)
```

```
if(ii.eq.6.and.jj.eq.5) write(13) ((-hh(i,j),j=1,nn5),i=1,nn6)
```

```
if(ii.eq.6.and.jj.eq.6) write(13) ((-hh(i,j),j=1,nn6),i=1,nn6)
```

```
if(ii.eq.5.and.jj.eq.7) write(14) ((-hh(i,j),j=1,nn7),i=1,nn5)
```

```
if(ii.eq.5.and.jj.eq.8) write(14) ((-hh(i,j),j=1,nn8),i=1,nn5)
```

```
if(ii.eq.6.and.jj.eq.7) write(14) ((-hh(i,j),j=1,nn7),i=1,nn6)
```

```
if(ii.eq.6.and.jj.eq.8) write(14) ((-hh(i,j),j=1,nn8),i=1,nn6)
```

```
if(ii.eq.7.and.jj.eq.5) write(15) ((-hh(i,j),j=1,nn5),i=1,nn7)
```

```
if(ii.eq.7.and.jj.eq.6) write(15) ((-hh(i,j),j=1,nn6),i=1,nn7)
```

```
if(ii.eq.8.and.jj.eq.5) write(15) ((-hh(i,j),j=1,nn5),i=1,nn8)
```

```
if(ii.eq.8.and.jj.eq.6) write(15) ((-hh(i,j),j=1,nn6),i=1,nn8)
```

```
if(ii.eq.7.and.jj.eq.7) write(16) ((-hh(i,j),j=1,nn7),i=1,nn7)
```

```
if(ii.eq.7.and.jj.eq.8) write(16) ((-hh(i,j),j=1,nn8),i=1,nn7)
```

```
if(ii.eq.8.and.jj.eq.7) write(16) ((-hh(i,j),j=1,nn7),i=1,nn8)
```

```
if(ii.eq.8.and.jj.eq.8) write(16) ((-hh(i,j),j=1,nn8),i=1,nn8)
```

```
end if
```

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```
if(isign_g.eq.1)then
```

```
if(ii.eq.1.and.jj.eq.1) write(17) ((gg(i,j),j=1,nn1),i=1,nn1)
```

```
if(ii.eq.1.and.jj.eq.2) write(17) ((gg(i,j),j=1,nn2),i=1,nn1)
```

```
if(ii.eq.2.and.jj.eq.1) write(17) ((gg(i,j),j=1,nn1),i=1,nn2)
```

if(ii.eq.2.and.jj.eq.2) write(17) ((gg(i,j),j=1,nn2),i=1,nn2)

if(ii.eq.1.and.jj.eq.3) write(18) ((gg(i,j),j=1,nn3),i=1,nn1)

if(ii.eq.1.and.jj.eq.4) write(18) ((gg(i,j),j=1,nn4),i=1,nn1)

if(ii.eq.2.and.jj.eq.3) write(18) ((gg(i,j),j=1,nn3),i=1,nn2)

if(ii.eq.2.and.jj.eq.4) write(18) ((gg(i,j),j=1,nn4),i=1,nn2)

if(ii.eq.3.and.jj.eq.1) write(19) ((gg(i,j),j=1,nn1),i=1,nn3)

if(ii.eq.3.and.jj.eq.2) write(19) ((gg(i,j),j=1,nn2),i=1,nn3)

if(ii.eq.4.and.jj.eq.1) write(19) ((gg(i,j),j=1,nn1),i=1,nn4)

if(ii.eq.4.and.jj.eq.2) write(19) ((gg(i,j),j=1,nn2),i=1,nn4)

if(ii.eq.3.and.jj.eq.3) write(20) ((gg(i,j),j=1,nn3),i=1,nn3)

if(ii.eq.3.and.jj.eq.4) write(20) ((gg(i,j),j=1,nn4),i=1,nn3)

if(ii.eq.4.and.jj.eq.3) write(20) ((gg(i,j),j=1,nn3),i=1,nn4)

if(ii.eq.4.and.jj.eq.4) write(20) ((gg(i,j),j=1,nn4),i=1,nn4)

if(ii.eq.1.and.jj.eq.5) write(21) ((gg(i,j),j=1,nn5),i=1,nn1)

if(ii.eq.1.and.jj.eq.6) write(21) ((gg(i,j),j=1,nn6),i=1,nn1)

if(ii.eq.2.and.jj.eq.5) write(21) ((gg(i,j),j=1,nn5),i=1,nn2)

if(ii.eq.2.and.jj.eq.6) write(21) ((gg(i,j),j=1,nn6),i=1,nn2)

if(ii.eq.1.and.jj.eq.7) write(22) ((gg(i,j),j=1,nn7),i=1,nn1)

if(ii.eq.1.and.jj.eq.8) write(22) ((gg(i,j),j=1,nn8),i=1,nn1)

if(ii.eq.2.and.jj.eq.7) write(22) ((gg(i,j),j=1,nn7),i=1,nn2)

if(ii.eq.2.and.jj.eq.8) write(22) ((gg(i,j),j=1,nn8),i=1,nn2)

if(ii.eq.3.and.jj.eq.5) write(23) ((gg(i,j),j=1,nn5),i=1,nn3)

if(ii.eq.3.and.jj.eq.6) write(23) ((gg(i,j),j=1,nn6),i=1,nn3)

if(ii.eq.4.and.jj.eq.5) write(23) ((gg(i,j),j=1,nn5),i=1,nn4)

if(ii.eq.4.and.jj.eq.6) write(23) ((gg(i,j),j=1,nn6),i=1,nn4)

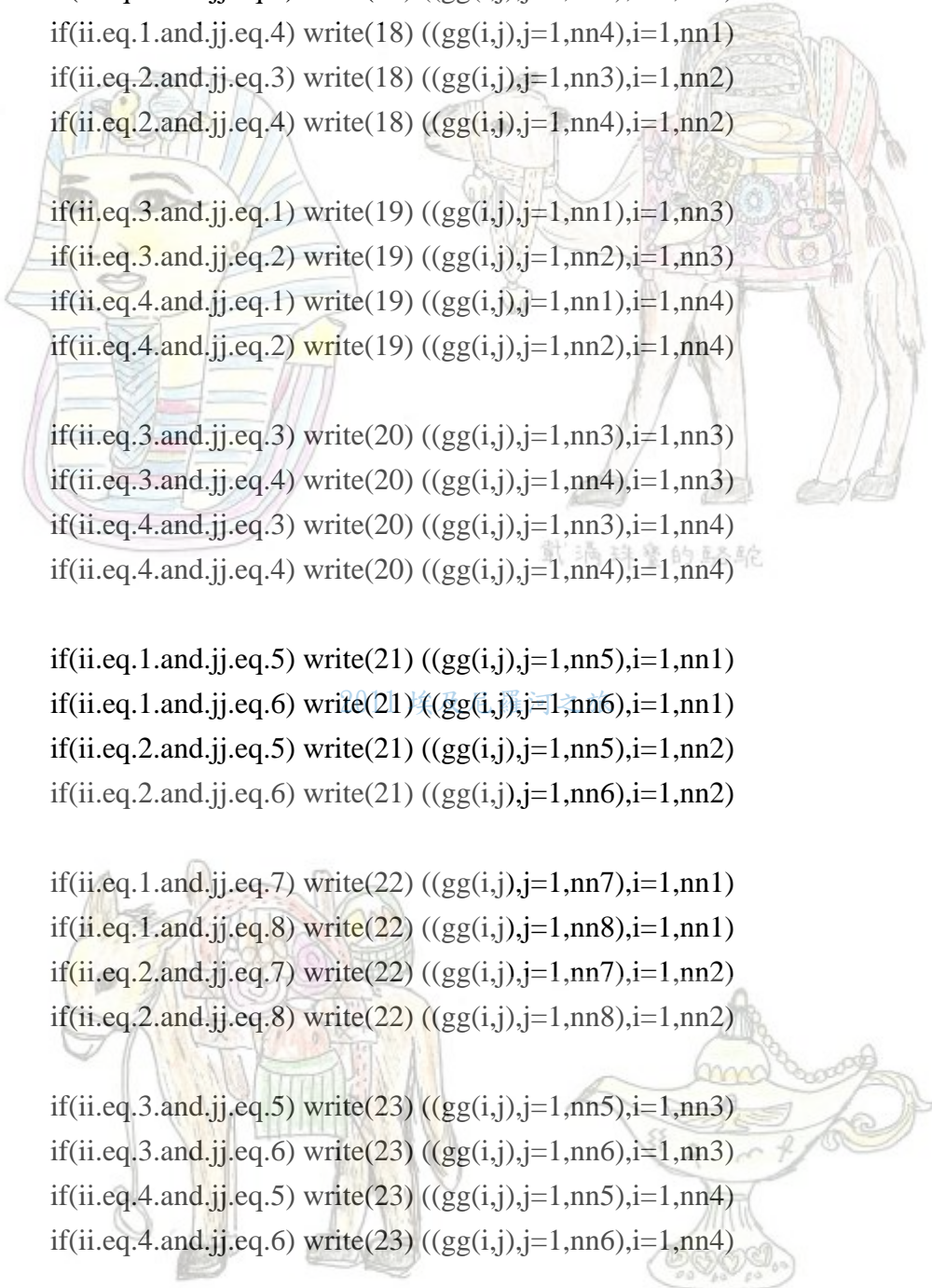
if(ii.eq.3.and.jj.eq.7) write(24) ((gg(i,j),j=1,nn7),i=1,nn3)

if(ii.eq.3.and.jj.eq.8) write(24) ((gg(i,j),j=1,nn8),i=1,nn3)

if(ii.eq.4.and.jj.eq.7) write(24) ((gg(i,j),j=1,nn7),i=1,nn4)

if(ii.eq.4.and.jj.eq.8) write(24) ((gg(i,j),j=1,nn8),i=1,nn4)

if(ii.eq.5.and.jj.eq.1) write(25) ((gg(i,j),j=1,nn1),i=1,nn5)



if(ii.eq.5.and.jj.eq.2) write(25) ((gg(i,j),j=1,nn2),i=1,nn5)
if(ii.eq.6.and.jj.eq.1) write(25) ((gg(i,j),j=1,nn1),i=1,nn6)
if(ii.eq.6.and.jj.eq.2) write(25) ((gg(i,j),j=1,nn2),i=1,nn6)

if(ii.eq.5.and.jj.eq.3) write(26) ((gg(i,j),j=1,nn3),i=1,nn5)
if(ii.eq.5.and.jj.eq.4) write(26) ((gg(i,j),j=1,nn4),i=1,nn5)
if(ii.eq.6.and.jj.eq.3) write(26) ((gg(i,j),j=1,nn3),i=1,nn6)
if(ii.eq.6.and.jj.eq.4) write(26) ((gg(i,j),j=1,nn4),i=1,nn6)

if(ii.eq.7.and.jj.eq.1) write(27) ((gg(i,j),j=1,nn1),i=1,nn7)
if(ii.eq.7.and.jj.eq.2) write(27) ((gg(i,j),j=1,nn2),i=1,nn7)
if(ii.eq.8.and.jj.eq.1) write(27) ((gg(i,j),j=1,nn1),i=1,nn8)
if(ii.eq.8.and.jj.eq.2) write(27) ((gg(i,j),j=1,nn2),i=1,nn8)

if(ii.eq.7.and.jj.eq.3) write(28) ((gg(i,j),j=1,nn3),i=1,nn7)
if(ii.eq.7.and.jj.eq.4) write(28) ((gg(i,j),j=1,nn4),i=1,nn7)
if(ii.eq.8.and.jj.eq.3) write(28) ((gg(i,j),j=1,nn3),i=1,nn8)
if(ii.eq.8.and.jj.eq.4) write(28) ((gg(i,j),j=1,nn4),i=1,nn8)

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if(ii.eq.5.and.jj.eq.5) write(29) ((gg(i,j),j=1,nn5),i=1,nn5)
if(ii.eq.5.and.jj.eq.6) write(29) ((gg(i,j),j=1,nn6),i=1,nn5)
if(ii.eq.6.and.jj.eq.5) write(29) ((gg(i,j),j=1,nn5),i=1,nn6)
if(ii.eq.6.and.jj.eq.6) write(29) ((gg(i,j),j=1,nn6),i=1,nn6)

if(ii.eq.5.and.jj.eq.7) write(30) ((gg(i,j),j=1,nn7),i=1,nn5)
if(ii.eq.5.and.jj.eq.8) write(30) ((gg(i,j),j=1,nn8),i=1,nn5)
if(ii.eq.6.and.jj.eq.7) write(30) ((gg(i,j),j=1,nn7),i=1,nn6)
if(ii.eq.6.and.jj.eq.8) write(30) ((gg(i,j),j=1,nn8),i=1,nn6)

if(ii.eq.7.and.jj.eq.5) write(31) ((gg(i,j),j=1,nn5),i=1,nn7)
if(ii.eq.7.and.jj.eq.6) write(31) ((gg(i,j),j=1,nn6),i=1,nn7)
if(ii.eq.8.and.jj.eq.5) write(31) ((gg(i,j),j=1,nn5),i=1,nn8)
if(ii.eq.8.and.jj.eq.6) write(31) ((gg(i,j),j=1,nn6),i=1,nn8)

if(ii.eq.7.and.jj.eq.7) write(32) ((gg(i,j),j=1,nn7),i=1,nn7)
if(ii.eq.7.and.jj.eq.8) write(32) ((gg(i,j),j=1,nn8),i=1,nn7)
if(ii.eq.8.and.jj.eq.7) write(32) ((gg(i,j),j=1,nn7),i=1,nn8)
if(ii.eq.8.and.jj.eq.8) write(32) ((gg(i,j),j=1,nn8),i=1,nn8)

end if

if(isign_g.eq.-1)then

if(ii.eq.1.and.jj.eq.1) write(17) ((-gg(i,j),j=1,nn1),i=1,nn1)

if(ii.eq.1.and.jj.eq.2) write(17) ((-gg(i,j),j=1,nn2),i=1,nn1)

if(ii.eq.2.and.jj.eq.1) write(17) ((-gg(i,j),j=1,nn1),i=1,nn2)

if(ii.eq.2.and.jj.eq.2) write(17) ((-gg(i,j),j=1,nn2),i=1,nn2)

if(ii.eq.1.and.jj.eq.3) write(18) ((-gg(i,j),j=1,nn3),i=1,nn1)

if(ii.eq.1.and.jj.eq.4) write(18) ((-gg(i,j),j=1,nn4),i=1,nn1)

if(ii.eq.2.and.jj.eq.3) write(18) ((-gg(i,j),j=1,nn3),i=1,nn2)

if(ii.eq.2.and.jj.eq.4) write(18) ((-gg(i,j),j=1,nn4),i=1,nn2)

if(ii.eq.3.and.jj.eq.1) write(19) ((-gg(i,j),j=1,nn1),i=1,nn3)

if(ii.eq.3.and.jj.eq.2) write(19) ((-gg(i,j),j=1,nn2),i=1,nn3)

if(ii.eq.4.and.jj.eq.1) write(19) ((-gg(i,j),j=1,nn1),i=1,nn4)

if(ii.eq.4.and.jj.eq.2) write(19) ((-gg(i,j),j=1,nn2),i=1,nn4)

if(ii.eq.3.and.jj.eq.3) write(20) ((-gg(i,j),j=1,nn3),i=1,nn3)

if(ii.eq.3.and.jj.eq.4) write(20) ((-gg(i,j),j=1,nn4),i=1,nn3)

if(ii.eq.4.and.jj.eq.3) write(20) ((-gg(i,j),j=1,nn3),i=1,nn4)

if(ii.eq.4.and.jj.eq.4) write(20) ((-gg(i,j),j=1,nn4),i=1,nn4)

if(ii.eq.1.and.jj.eq.5) write(21) ((-gg(i,j),j=1,nn5),i=1,nn1)

if(ii.eq.1.and.jj.eq.6) write(21) ((-gg(i,j),j=1,nn6),i=1,nn1)

if(ii.eq.2.and.jj.eq.5) write(21) ((-gg(i,j),j=1,nn5),i=1,nn2)

if(ii.eq.2.and.jj.eq.6) write(21) ((-gg(i,j),j=1,nn6),i=1,nn2)

if(ii.eq.1.and.jj.eq.7) write(22) ((-gg(i,j),j=1,nn7),i=1,nn1)

if(ii.eq.1.and.jj.eq.8) write(22) ((-gg(i,j),j=1,nn8),i=1,nn1)

if(ii.eq.2.and.jj.eq.7) write(22) ((-gg(i,j),j=1,nn7),i=1,nn2)

if(ii.eq.2.and.jj.eq.8) write(22) ((-gg(i,j),j=1,nn8),i=1,nn2)

if(ii.eq.3.and.jj.eq.5) write(23) ((-gg(i,j),j=1,nn5),i=1,nn3)

if(ii.eq.3.and.jj.eq.6) write(23) ((-gg(i,j),j=1,nn6),i=1,nn3)

if(ii.eq.4.and.jj.eq.5) write(23) ((-gg(i,j),j=1,nn5),i=1,nn4)

if(ii.eq.4.and.jj.eq.6) write(23) ((-gg(i,j),j=1,nn6),i=1,nn4)

if(ii.eq.3.and.jj.eq.7) write(24) ((-gg(i,j),j=1,nn7),i=1,nn3)

if(ii.eq.3.and.jj.eq.8) write(24) ((-gg(i,j),j=1,nn8),i=1,nn3)

if(ii.eq.4.and.jj.eq.7) write(24) ((-gg(i,j),j=1,nn7),i=1,nn4)

if(ii.eq.4.and.jj.eq.8) write(24) ((-gg(i,j),j=1,nn8),i=1,nn4)

if(ii.eq.5.and.jj.eq.1) write(25) ((-gg(i,j),j=1,nn1),i=1,nn5)

if(ii.eq.5.and.jj.eq.2) write(25) ((-gg(i,j),j=1,nn2),i=1,nn5)

if(ii.eq.6.and.jj.eq.1) write(25) ((-gg(i,j),j=1,nn1),i=1,nn6)

if(ii.eq.6.and.jj.eq.2) write(25) ((-gg(i,j),j=1,nn2),i=1,nn6)

if(ii.eq.5.and.jj.eq.3) write(26) ((-gg(i,j),j=1,nn3),i=1,nn5)

if(ii.eq.5.and.jj.eq.4) write(26) ((-gg(i,j),j=1,nn4),i=1,nn5)

if(ii.eq.6.and.jj.eq.3) write(26) ((-gg(i,j),j=1,nn3),i=1,nn6)

if(ii.eq.6.and.jj.eq.4) write(26) ((-gg(i,j),j=1,nn4),i=1,nn6)

if(ii.eq.7.and.jj.eq.1) write(27) ((-gg(i,j),j=1,nn1),i=1,nn7)

if(ii.eq.7.and.jj.eq.2) write(27) ((-gg(i,j),j=1,nn2),i=1,nn7)

if(ii.eq.8.and.jj.eq.1) write(27) ((-gg(i,j),j=1,nn1),i=1,nn8)

if(ii.eq.8.and.jj.eq.2) write(27) ((-gg(i,j),j=1,nn2),i=1,nn8)

if(ii.eq.7.and.jj.eq.3) write(28) ((-gg(i,j),j=1,nn3),i=1,nn7)

if(ii.eq.7.and.jj.eq.4) write(28) ((-gg(i,j),j=1,nn4),i=1,nn7)

if(ii.eq.8.and.jj.eq.3) write(28) ((-gg(i,j),j=1,nn3),i=1,nn8)

if(ii.eq.8.and.jj.eq.4) write(28) ((-gg(i,j),j=1,nn4),i=1,nn8)

if(ii.eq.5.and.jj.eq.5) write(29) ((-gg(i,j),j=1,nn5),i=1,nn5)

if(ii.eq.5.and.jj.eq.6) write(29) ((-gg(i,j),j=1,nn6),i=1,nn5)

if(ii.eq.6.and.jj.eq.5) write(29) ((-gg(i,j),j=1,nn5),i=1,nn6)

if(ii.eq.6.and.jj.eq.6) write(29) ((-gg(i,j),j=1,nn6),i=1,nn6)

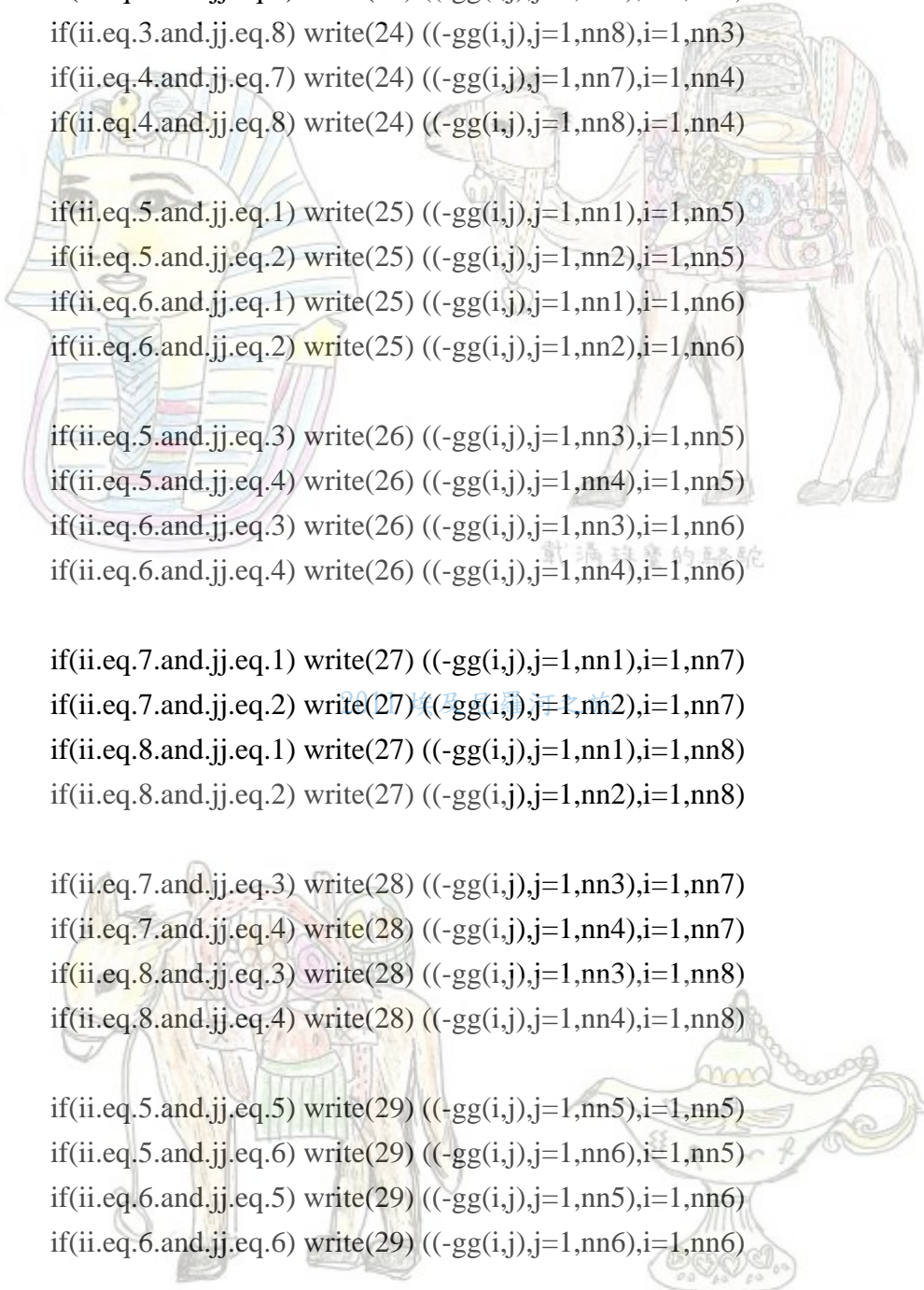
if(ii.eq.5.and.jj.eq.7) write(30) ((-gg(i,j),j=1,nn7),i=1,nn5)

if(ii.eq.5.and.jj.eq.8) write(30) ((-gg(i,j),j=1,nn8),i=1,nn5)

if(ii.eq.6.and.jj.eq.7) write(30) ((-gg(i,j),j=1,nn7),i=1,nn6)

if(ii.eq.6.and.jj.eq.8) write(30) ((-gg(i,j),j=1,nn8),i=1,nn6)

if(ii.eq.7.and.jj.eq.5) write(31) ((-gg(i,j),j=1,nn5),i=1,nn7)



if(ii.eq.7.and.jj.eq.6) write(31) ((-gg(i,j),j=1,nn6),i=1,nn7)

if(ii.eq.8.and.jj.eq.5) write(31) ((-gg(i,j),j=1,nn5),i=1,nn8)

if(ii.eq.8.and.jj.eq.6) write(31) ((-gg(i,j),j=1,nn6),i=1,nn8)

if(ii.eq.7.and.jj.eq.7) write(32) ((-gg(i,j),j=1,nn7),i=1,nn7)

if(ii.eq.7.and.jj.eq.8) write(32) ((-gg(i,j),j=1,nn8),i=1,nn7)

if(ii.eq.8.and.jj.eq.7) write(32) ((-gg(i,j),j=1,nn7),i=1,nn8)

if(ii.eq.8.and.jj.eq.8) write(32) ((-gg(i,j),j=1,nn8),i=1,nn8)

end do

end do

close(1)

close(2)

close(3)

close(4)

close(5)

close(6)

close(7)

close(8)

close(9)

close(10)

close(11)

close(12)

close(13)

close(14)

close(15)

close(16)

close(17)

close(18)

close(19)

close(20)

close(21)

close(22) 載滿貨品的驢子

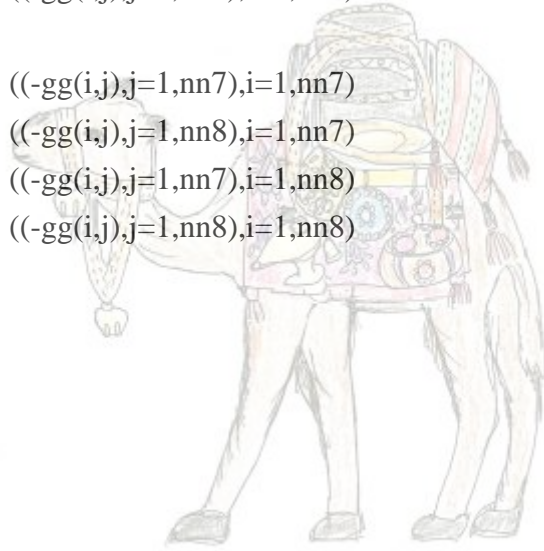
close(23)

close(24)

close(25)

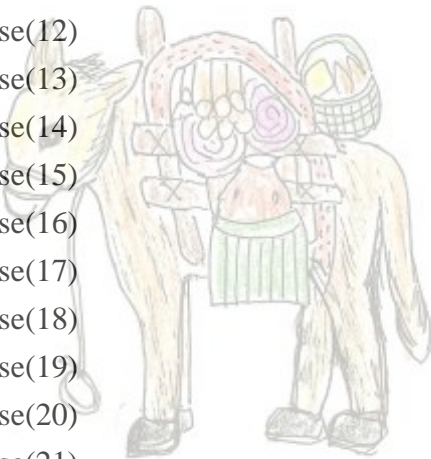
close(26)

close(27)



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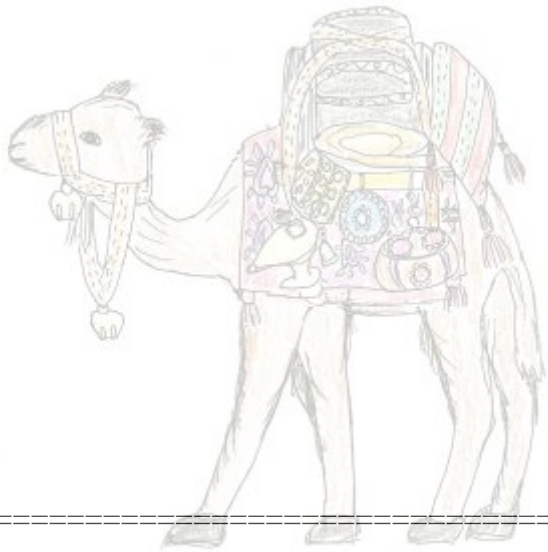
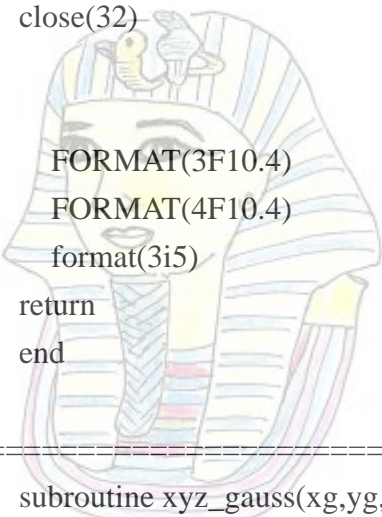


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```

close(28)
close(29)
close(30)
close(31)
close(32)
4  FORMAT(3F10.4)
2  FORMAT(4F10.4)
201 format(3i5)
return
end
c-----
subroutine xyz_gauss(xg,yg,zg,xx,yy,zz)

```



載滿珠寶的駱駝

```

real xg(4),yg(4),zg(4),xx(4),yy(4),zz(4),p(2,2),e(2,2)

```

```

qr=1./sqrt(3.)

```

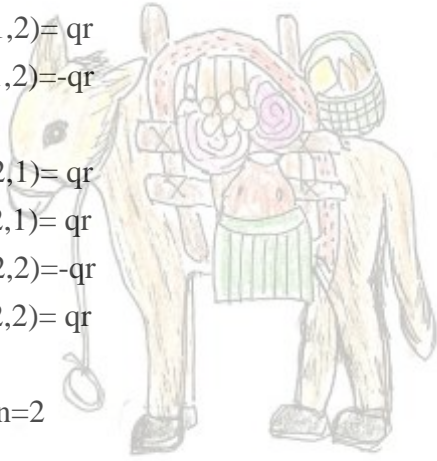
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```

p(1,1)=-qr
e(1,1)=-qr
p(1,2)= qr
e(1,2)=-qr

p(2,1)= qr
e(2,1)= qr
p(2,2)=-qr
e(2,2)= qr

```



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```

do l=1,n
do m=1,n

```

```

f1=(1-p(1,m)-e(1,m)+p(1,m)*e(1,m))/4.
f2=(1+p(1,m)-e(1,m)-p(1,m)*e(1,m))/4
f3=(1+p(1,m)+e(1,m)+p(1,m)*e(1,m))/4.

```

$$f4=(1-p(l,m)+e(l,m)-p(l,m)*e(l,m))/4.$$

$$lm=m+n*(l-1)$$

$$xg(lm)=f1*xx(1)+f2*xx(2)+f3*xx(3)+f4*xx(4)$$

$$yg(lm)=f1*yy(1)+f2*yy(2)+f3*yy(3)+f4*yy(4)$$

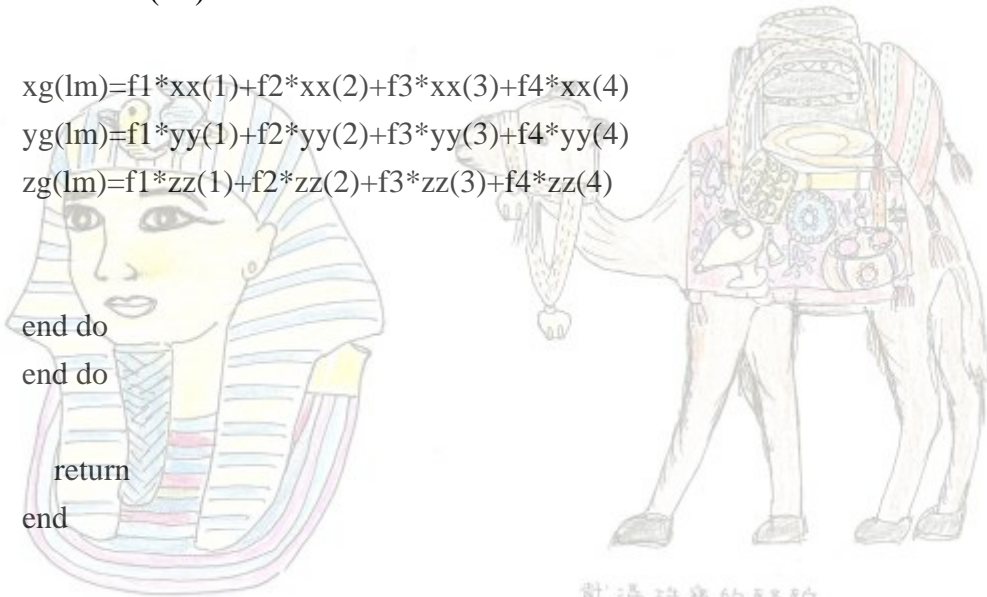
$$zg(lm)=f1*zz(1)+f2*zz(2)+f3*zz(3)+f4*zz(4)$$

end do

end do

return

end



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c=====

subroutine rsxyz(k,xx,yy,zz,gs)

real xx(4),yy(4),zz(4) 2011 埃及尼羅河之旅

if(k.eq.1) pc=-1

if(k.eq.2) pc=1

if(k.eq.3) pc=1

if(k.eq.4) pc=-1

$$rx=.25*((-1+pc)*xx(1)-(-1+pc)*xx(2)+(1+pc)*xx(3)+(1+pc)*xx(4))$$

$$ry=.25*((-1+pc)*yy(1)-(-1+pc)*yy(2)+(1+pc)*yy(3)+(1+pc)*yy(4))$$

$$rz=.25*((-1+pc)*zz(1)-(-1+pc)*zz(2)+(1+pc)*zz(3)+(1+pc)*zz(4))$$

if(k.eq.1.or.k.eq.2) then

$$rsx=.5*(xx(3)-xx(4))$$

$$rsy=.5*(yy(3)-yy(4))$$

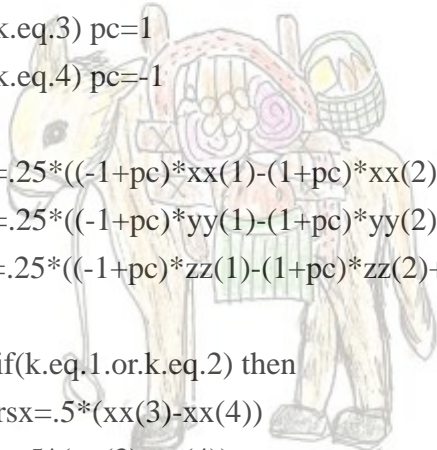
$$rsz=.5*(zz(3)-zz(4))$$

end if

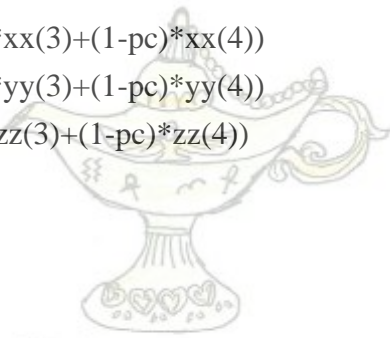
if(k.eq.3.or.k.eq.4) then

$$rsx=.5*(xx(2)-xx(1))$$

$$rsy=.5*(yy(2)-yy(1))$$



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```
rsz=.5*(zz(2)-zz(1))
```

```
end if
```

```
gs1=rsy*rz-rsz*ry
```

```
gs2=rsz*rx-rsx*rz
```

```
gs3=rsx*ry-rsy*rx
```

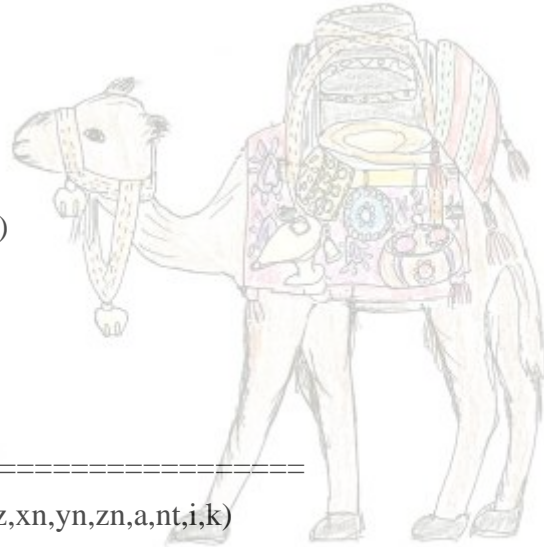
```
gs=sqrt(gs1**2+gs2**2+gs3**2)
```

```
return
```

```
end
```

```
c=====
subroutine h_g(h,g,xg,yg,zg,x,y,z,xn,yn,zn,a,nt,i,k)
```

```
real x(nt),y(nt),z(nt)
```



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```
real h(4),g(4),xg(4),yg(4),zg(4),p(2,2),e(2,2)
```

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```
n=2
```

```
wl=1
```

```
wm=1
```

```
qr=1./sqrt(3.)
```

```
p(1,1)=-qr
```

```
e(1,1)=-qr
```

```
p(1,2)= qr
```

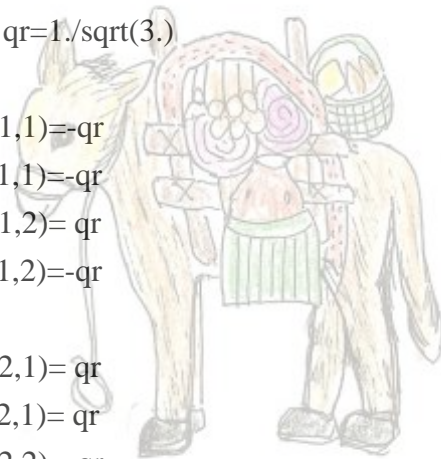
```
e(1,2)=-qr
```

```
p(2,1)= qr
```

```
e(2,1)= qr
```

```
p(2,2)=-qr
```

```
e(2,2)=qr
```



載滿貨品的驢子



阿拉丁神燈

```
pai=3.1415927
```

```
h(k)=0
```

```
g(k)=0
```

```
do l=1,n
do m=1,n
lm=m+n*(l-1)
```

```
rilm=(x(i)-xg(lm))**2+(y(i)-yg(lm))**2+(z(i)-zg(lm))**2
rilm2=sqrt(rilm)
```

```
rn=(xg(lm)-x(i))*xn+(yg(lm)-y(i))*yn+(zg(lm)-z(i))*zn
rn=rn/rilm2
```

```
if(k.eq.1) then
h(k)=h(k)+w1*wm*(1-p(l,m)-e(l,m)+p(l,m)*e(l,m))/rilm*rn*a
g(k)=g(k)+w1*wm*(1-p(l,m)-e(l,m)+p(l,m)*e(l,m))/rilm2*a
end if
```

```
if(k.eq.2) then
h(k)=h(k)+w1*wm*(1+p(l,m)-e(l,m)-p(l,m)*e(l,m))/rilm*rn*a
g(k)=g(k)+w1*wm*(1+p(l,m)-e(l,m)-p(l,m)*e(l,m))/rilm2*a
end if
```

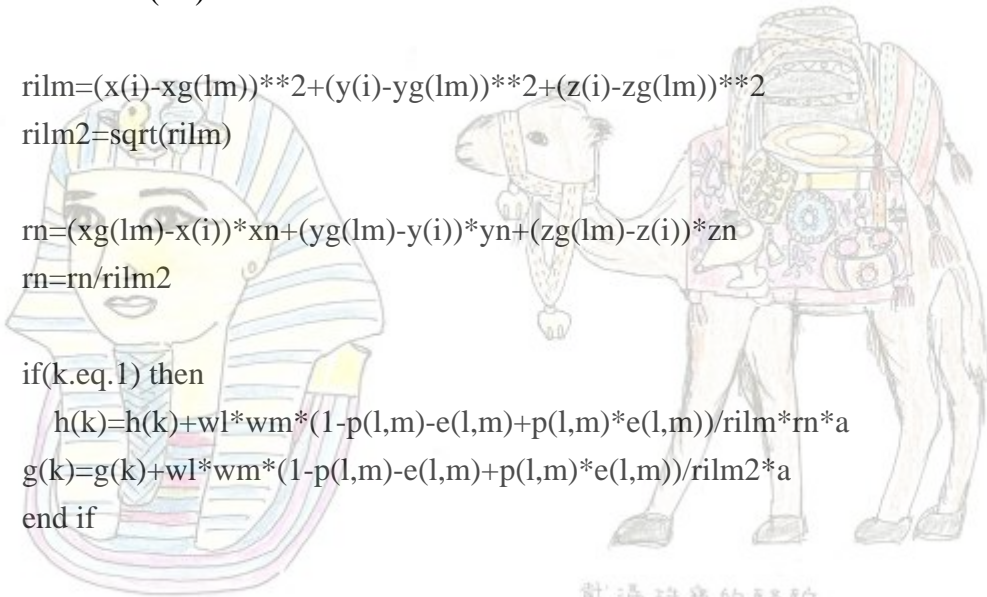
```
if(k.eq.3) then
h(k)=h(k)+w1*wm*(1+p(l,m)+e(l,m)+p(l,m)*e(l,m))/rilm*rn*a
g(k)=g(k)+w1*wm*(1+p(l,m)+e(l,m)+p(l,m)*e(l,m))/rilm2*a
end if
```

```
if(k.eq.4) then
h(k)=h(k)+w1*wm*(1-p(l,m)+e(l,m)-p(l,m)*e(l,m))/rilm*rn*a
g(k)=g(k)+w1*wm*(1-p(l,m)+e(l,m)-p(l,m)*e(l,m))/rilm2*a
end if
```

```
end do
end do
```

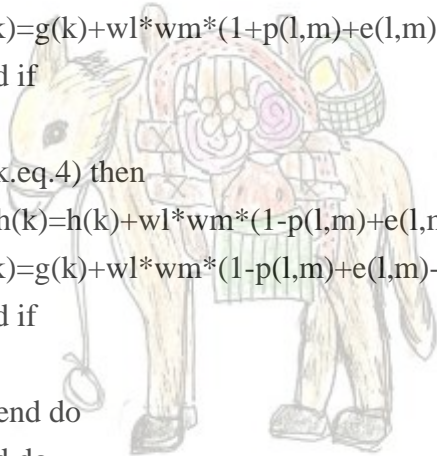
```
h(k)=-1./8/pai*h(k)
g(k)= 1./8/pai*g(k)
```

```
return
end
```

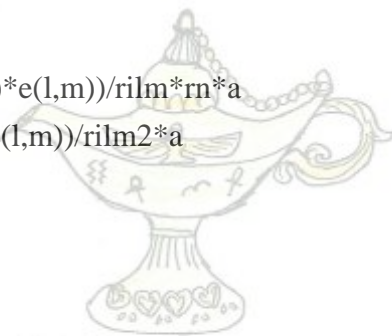


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=====

```
subroutine ggg(g,x,y,z,xg,yg,zg,gs,nt,i,k)
```

```
real x(nt),y(nt),z(nt)
```

```
real g(4),xg(4),yg(4),zg(4),p(2,2),e(2,2)
```

```
n=2
```

```
wl=1
```

```
wm=1
```

```
qr=1./sqrt(3.)
```

```
p(1,1)=-qr
```

```
e(1,1)=-qr
```

```
p(1,2)= qr
```

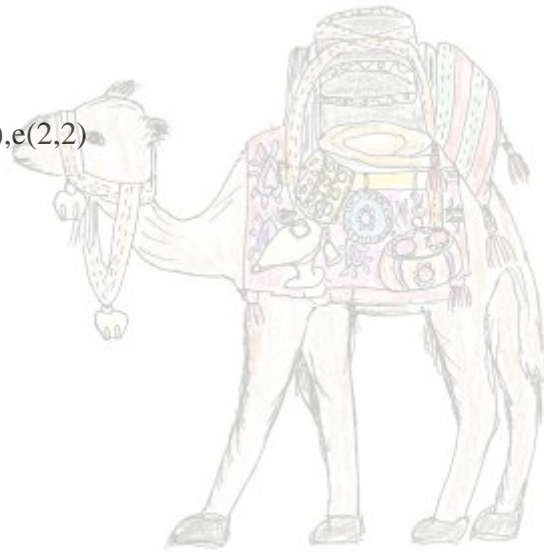
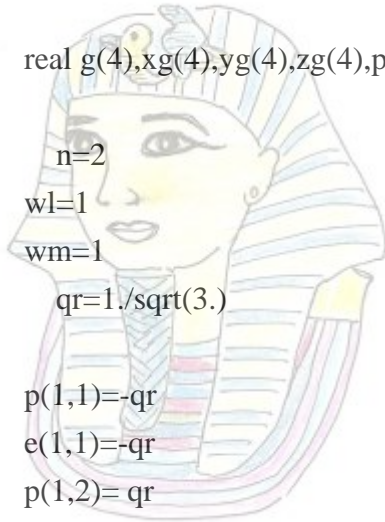
```
e(1,2)=-qr
```

```
p(2,1)= qr
```

```
e(2,1)= qr
```

```
p(2,2)=-qr
```

```
e(2,2)= qr
```



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```
pai=3.1415927
```

```
g(k)=0
```

```
do l=1,n
```

```
do m=1,n
```

```
lm=m+n*(l-1)
```

```
rilm=(x(i)-xg(lm))**2+(y(i)-yg(lm))**2+(z(i)-zg(lm))**2
```

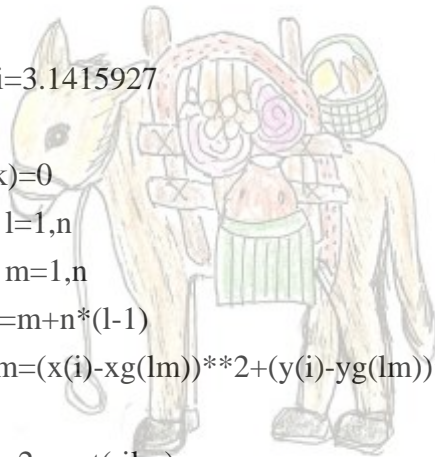
```
rilm2=sqrt(rilm)
```

```
if(k.eq.1) then
```

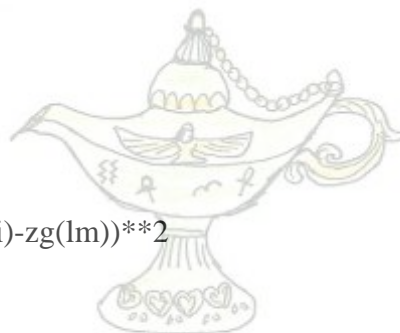
```
g(k)=g(k)+wl*wm*(1-p(l,m)-e(l,m)+p(l,m)*e(l,m))/rilm2*gs
```

```
end if
```

```
if(k.eq.2) then
```



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```

g(k)=g(k)+w1*wm*(1+p(l,m)-e(l,m)-p(l,m)*e(l,m))/rilm2*gs
end if

```

```

if(k.eq.3) then
g(k)=g(k)+w1*wm*(1+p(l,m)+e(l,m)+p(l,m)*e(l,m))/rilm2*gs
end if

```

```

if(k.eq.4) then
g(k)=g(k)+w1*wm*(1-p(l,m)+e(l,m)-p(l,m)*e(l,m))/rilm2*gs
end if

```

```

end do
end do

```

```

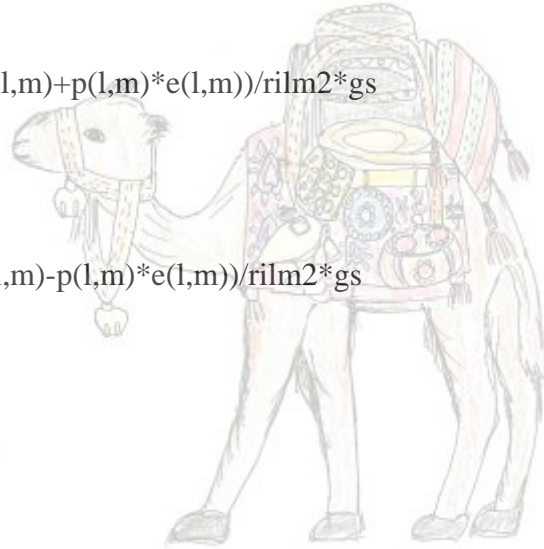
g(k)=1./8/pai*g(k)

```

```

return
end

```



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C*****

```

SUBROUTINE normal(XX,YY,ZZ,XN,YN,ZN,A)

```

```

REAL XX(4),YY(4),ZZ(4)

```

```

R1=XX(3)-XX(1)

```

```

R2=YY(3)-YY(1)

```

```

R3=ZZ(3)-ZZ(1)

```

```

R4=XX(4)-XX(2)

```

```

R5=YY(4)-YY(2)

```

```

R6=ZZ(4)-ZZ(2)

```

```

R=SQRT((R5*R3-R6*R2)**2+(R6*R1-R4*R3)**2+(R4*R2-R5*R1)**2)

```

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```

XN=(R5*R3-R6*R2)/R

```

```

YN=(R6*R1-R4*R3)/R

```

```

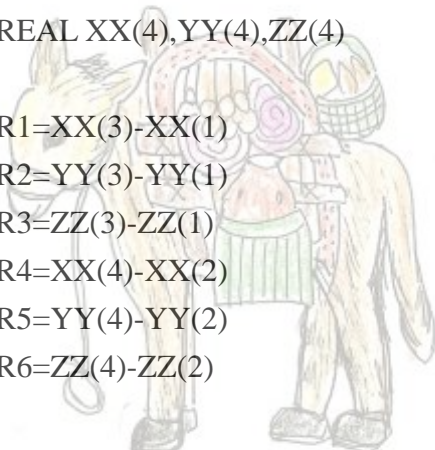
ZN=(R4*R2-R5*R1)/R

```

```

T1=XX(2)-XX(1)

```



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T2=YY(2)-YY(1)

T3=ZZ(2)-ZZ(1)

T4=XX(4)-XX(1)

T5=YY(4)-YY(1)

T6=ZZ(4)-ZZ(1)

R=.5*SQRT((T2*R3-T3*R2)**2+(T3*R1-T1*R3)**2+(T1*R2-T2*R1)**2)

T=.5*SQRT((R2*T6-R3*T5)**2+(R3*T4-R1*T6)**2+(R1*T5-R2*T4)**2)

A=R+T

RETURN

END

c-----
subroutine xx_x_1(xx,yy,zz,x,y,z,nt,nj_1,ki,kj,nstart)

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real x(nt),y(nt),z(nt)

real xx(4),yy(4),zz(4) 2011 埃及尼羅河之旅

i1=kj+1+(nj_1+1)*(ki-1)+nstart

i2=kj +(nj_1+1)*(ki-1)+nstart

i3=kj +(nj_1+1)*ki+nstart

i4=kj+1+(nj_1+1)*ki+nstart

c i1=kj +(nj_1+1)*ki+nstart

c i2=kj+1+(nj_1+1)*ki+nstart

c i3=kj+1+(nj_1+1)*(ki-1)+nstart

c i4=kj +(nj_1+1)*(ki-1)+nstart

xx(1)=x(i1)

xx(2)=x(i2)

xx(3)=x(i3)

xx(4)=x(i4)

yy(1)=y(i1)

yy(2)=y(i2)

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yy(3)=y(i3)

yy(4)=y(i4)

zz(1)=z(i1)

zz(2)=z(i2)

zz(3)=z(i3)

zz(4)=z(i4)

return

end

=====

subroutine xx_x_23(xx,yy,zz,x,y,z,nt,nj_1,ki,kj,nstart)

real x(nt),y(nt),z(nt),xx(4),yy(4),zz(4)

i1=kj+1+(nj_1+1)*ki+nstart

i2=kj +(nj_1+1)*ki+nstart

i3=kj +(nj_1+1)*(ki-1)+nstart

i4=kj+1+(nj_1+1)*(ki-1)+nstart

xx(1)=x(i1)

xx(2)=x(i2)

xx(3)=x(i3)

xx(4)=x(i4)

yy(1)=y(i1)

yy(2)=y(i2)

yy(3)=y(i3)

yy(4)=y(i4)

zz(1)=z(i1)

zz(2)=z(i2)

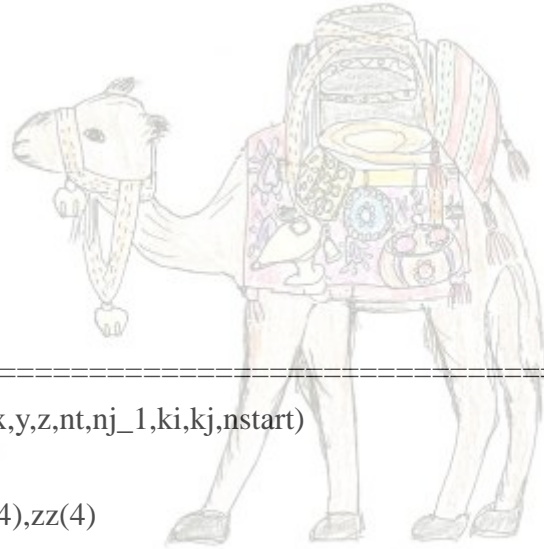
zz(3)=z(i3)

zz(4)=z(i4)

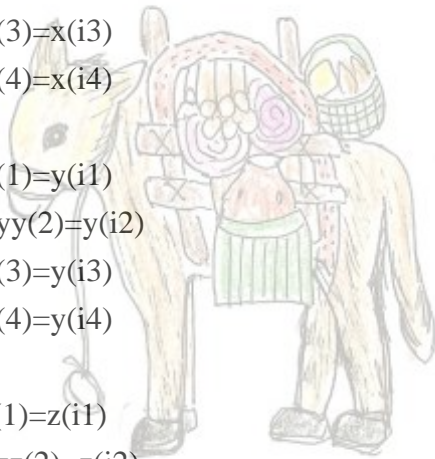
return

end

=====



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```
subroutine xx_x_45(xx,yy,zz,x,y,z,nt,nj_1,ki,kj,nstart)
```

```
real x(nt),y(nt),z(nt),xx(4),yy(4),zz(4)
```

```
i1=kj +(nj_1+1)*ki+nstart  
i2=kj+1+(nj_1+1)*ki+nstart  
i3=kj+1+(nj_1+1)*(ki-1)+nstart  
i4=kj +(nj_1+1)*(ki-1)+nstart
```

```
xx(1)=x(i1)
```

```
xx(2)=x(i2)
```

```
xx(3)=x(i3)
```

```
xx(4)=x(i4)
```

```
yy(1)=y(i1)
```

```
yy(2)=y(i2)
```

```
yy(3)=y(i3)
```

```
yy(4)=y(i4)
```



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```
zz(1)=z(i1)
```

```
zz(2)=z(i2)
```

```
zz(3)=z(i3)
```

```
zz(4)=z(i4)
```

```
return
```

```
end
```

```
subroutine xx_x_6(xx,yy,zz,x,y,z,nt,nj_1,ki,kj,nstart)
```

```
real x(nt),y(nt),z(nt)
```

```
real xx(4),yy(4),zz(4)
```

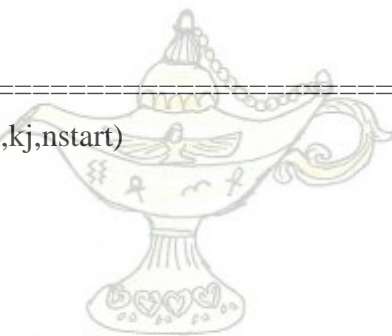
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```
i1=kj +(nj_1+1)*(ki-1)+nstart
```

```
i2=kj+1+(nj_1+1)*(ki-1)+nstart
```

```
i3=kj+1+(nj_1+1)*ki+nstart
```

```
i4=kj +(nj_1+1)*ki+nstart
```



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```

xx(1)=x(i1)
  xx(2)=x(i2)
xx(3)=x(i3)
xx(4)=x(i4)

```

```

yy(1)=y(i1)
  yy(2)=y(i2)
yy(3)=y(i3)
yy(4)=y(i4)

```

```

zz(1)=z(i1)
  zz(2)=z(i2)
zz(3)=z(i3)
zz(4)=z(i4)

```

```

return
end

```



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=====

```

subroutine dx_1(y,z,nt,ni,nj,nstart) 及尼羅河之旅
real y(nt),z(nt)

```

```

do i =1,ni

```

```

  do jj=1,nj
    j=jj+nj*(i-1)+nstart
    y(j)=y(jj)
  end do

```

```

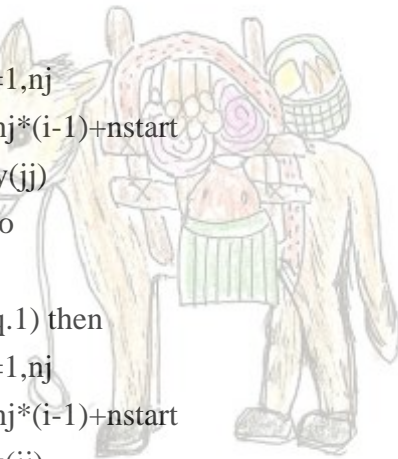
  if(i.eq.1) then
    do jj=1,nj
      j=jj+nj*(i-1)+nstart
      z(j)=z(jj)
    end do
  end if
end do

```

```

return
end

```



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=====

```
subroutine dx_15(y,z,nt,ni,nj,nstart)
```

```
real y(nt),z(nt)
```

```
do i=1,ni
```

```
do jj=1,nj/2+1
```

```
j=2*(jj-1)+1+nj*(i-1)+nstart
```

```
y(j)=y(jj)
```

```
end do
```

```
if(i.eq.1) then
```

```
do jj=1,nj/2+1
```

```
j=2*(jj-1)+1+nj*(i-1)+nstart
```

```
z(j)=z(jj)
```

```
end do
```

```
end if
```

```
end do
```

```
return
```

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```
end
```

=====

```
subroutine dx_2(y,z,nt,ni,nj,nstart)
```

```
real y(nt),z(nt)
```

```
do i=1,ni
```

```
do jj=1,nj/4+1
```

```
j=4*(jj-1)+1+nj*(i-1)+nstart
```

```
y(j)=y(jj)
```

```
end do
```

```
if(i.eq.1) then
```

```
do jj=1,nj/4+1
```

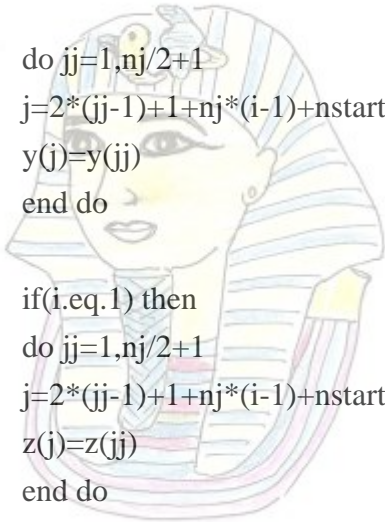
```
j=4*(jj-1)+1+nj*(i-1)+nstart
```

```
z(j)=z(jj)
```

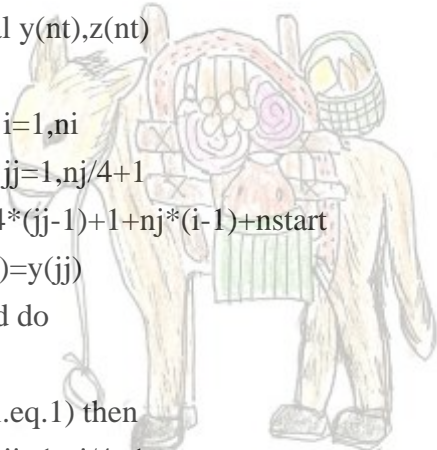
```
end do
```

```
end if
```

```
end do
```



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return
end



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