

附錄七：數字系列試題產生程式

```
set mxloops=50000.
set width=132.
matrix.
*compute bar=make(50,1,1).
compute typemat=make(50,1,0).
compute itmat=make(50,20,0).
compute start1=make(50,1,0).
compute start2=make(50,1,0).
compute sequen1=make(50,5,0).
compute sequen2=make(50,3,0).
loop i=1 to 50.
compute type=trunc(uniform(1,1)*6+1).
*print i /title='Item'.
compute typemat(i,1)=type.
*print type.
do if (type = 1).
  compute seq=trunc(uniform(1,3)*3+1).
  loop ii=1 to ncol(seq).
    compute sequen1(i,ii)=seq(ii).
  end loop.
* print seq.
  compute starter=trunc(uniform(1,1)*20+1)+20.
  compute start1(i,:)=starter.
* print starter.
  compute step=1.
* print step.
  compute it=make(1,20,0).
  loop j=1 to 20.
    compute seqk=mod(j,ncol(seq)).
    do if (seqk = 0).
      compute seqk = ncol(seq).
    end if.
* print seqk.
    do if (j = 1).
      do if (seq(1,seqk)=1).
        compute it(1,1)=starter+step.
      else if (seq(1,seqk)=2).
        compute it(1,1)=starter-step.
      else if (seq(1,seqk)=3).
        compute it(1,1)=starter.
      end if.
    else.
      do if (seq(1,seqk)=1).
        compute it(1,j)=it(1,j-1)+step.
      else if (seq(1,seqk)=2).
        compute it(1,j)=it(1,j-1)-step.
      else if (seq(1,seqk)=3).
```

```

        compute it(1,j)=it(1,j-1).
    end if.
end if.
end loop.
*print it.
compute itmat(i,:)=it.
*print /space=3.
else if (type = 2).
    compute seq=trunc(uniform(1,4)*3+1).
    loop ii=1 to ncol(seq).
        compute sequen1(i,ii)=seq(ii).
    end loop.
* print seq.
    compute starter=trunc(uniform(1,1)*20+1)+20.
    compute start1(i,:)=starter.
* print starter.
    compute step=1.
* print step.
    compute it=make(1,20,0).
    loop j=1 to 20.
        compute seqk=mod(j,ncol(seq)).
        do if (seqk = 0).
            compute seqk = ncol(seq).
        end if.
* print seqk.
        do if (j = 1).
            do if (seq(1,seqk)=1).
                compute it(1,1)=starter+step.
            else if (seq(1,seqk)=2).
                compute it(1,1)=starter-step.
            else if (seq(1,seqk)=3).
                compute it(1,1)=starter.
            end if.
        else.
            do if (seq(1,seqk)=1).
                compute it(1,j)=it(1,j-1)+step.
            else if (seq(1,seqk)=2).
                compute it(1,j)=it(1,j-1)-step.
            else if (seq(1,seqk)=3).
                compute it(1,j)=it(1,j-1).
            end if.
        end if.
    end loop.
*print it.
compute itmat(i,:)=it.
*print /space=3.
else if (type = 3).
    compute seq=trunc(uniform(1,5)*3+1).
    loop ii=1 to ncol(seq).

```

```

    compute sequen1(i,ii)=seq(ii).
end loop.
* print seq.
compute starter=trunc(uniform(1,1)*20+1)+20.
compute start1(i,:)=starter.
* print starter.
compute step=1.
* print step.
compute it=make(1,20,0).
loop j=1 to 20.
    compute seqk=mod(j,ncol(seq)).
    do if (seqk = 0).
        compute seqk = ncol(seq).
    end if.
* print seqk.
do if (j = 1).
    do if (seq(1,seqk)=1).
        compute it(1,1)=starter+step.
    else if (seq(1,seqk)=2).
        compute it(1,1)=starter-step.
    else if (seq(1,seqk)=3).
        compute it(1,1)=starter.
    end if.
else.
    do if (seq(1,seqk)=1).
        compute it(1,j)=it(1,j-1)+step.
    else if (seq(1,seqk)=2).
        compute it(1,j)=it(1,j-1)-step.
    else if (seq(1,seqk)=3).
        compute it(1,j)=it(1,j-1).
    end if.
end if.
end loop.
*print it.
compute itmat(i,:)=it.
*print /space=3.
else if (type = 4).
    compute seq1=trunc(uniform(1,2)*3+1).
    compute seq2=trunc(uniform(1,2)*3+1).
    loop ii=1 to ncol(seq1).
        compute sequen1(i,ii)=seq1(ii).
    end loop.
    loop ii=1 to ncol(seq2).
        compute sequen2(i,ii)=seq2(ii).
    end loop.
* print seq1.
* print seq2.
compute starter1=trunc(uniform(1,1)*20+1)+20.
compute starter2=trunc(uniform(1,1)*20+1)+20.

```

```

compute start1(i,:)=starter1.
compute start2(i,:)=starter2.
* print starter1.
* print starter2.
compute step=1.
* print step.
compute it=make(1,20,0).
loop j=1 to 20 by 2.
  compute seqk1=mod((j+1)/2,ncol(seq1)).
  do if (seqk1 = 0).
    compute seqk1 = ncol(seq1).
  end if.
* print seqk1.
  do if (j = 1).
    do if (seq1(1,seqk1)=1).
      compute it(1,1)=starter1+step.
    else if (seq1(1,seqk1)=2).
      compute it(1,1)=starter1-step.
    else if (seq1(1,seqk1)=3).
      compute it(1,1)=starter1.
    end if.
  else.
    do if (seq1(1,seqk1)=1).
      compute it(1,j)=it(1,j-2)+step.
    else if (seq1(1,seqk1)=2).
      compute it(1,j)=it(1,j-2)-step.
    else if (seq1(1,seqk1)=3).
      compute it(1,j)=it(1,j-2).
    end if.
  end if.
end loop.
loop j=2 to 20 by 2.
  compute seqk2=mod(j/2,ncol(seq2)).
  do if (seqk2 = 0).
    compute seqk2 = ncol(seq2).
  end if.
* print seqk2.
  do if (j = 2).
    do if (seq2(1,seqk2)=1).
      compute it(1,2)=starter2+step.
    else if (seq2(1,seqk2)=2).
      compute it(1,2)=starter2-step.
    else if (seq2(1,seqk2)=3).
      compute it(1,2)=starter2.
    end if.
  else.
    do if (seq2(1,seqk2)=1).
      compute it(1,j)=it(1,j-2)+step.
    else if (seq2(1,seqk2)=2).

```

```

        compute it(1,j)=it(1,j-2)-step.
    else if (seq2(1,seqk2)=3).
        compute it(1,j)=it(1,j-2).
    end if.
end if.
end loop.
*print it.
compute itmat(i,:)=it.
*print /space=3.
else if (type = 5).
    compute seq1=trunc(uniform(1,2)*3+1).
    compute seq2=trunc(uniform(1,3)*3+1).
    loop ii=1 to ncol(seq1).
        compute sequen1(i,ii)=seq1(ii).
    end loop.
    loop ii=1 to ncol(seq2).
        compute sequen2(i,ii)=seq2(ii).
    end loop.
* print seq1.
* print seq2.
    compute starter1=trunc(uniform(1,1)*20+1)+20.
    compute starter2=trunc(uniform(1,1)*20+1)+20.
    compute start1(i,:)=starter1.
    compute start2(i,:)=starter2.
* print starter1.
* print starter2.
    compute step=1.
* print step.
    compute it=make(1,20,0).
    loop j=1 to 20 by 2.
        compute seqk1=mod((j+1)/2,ncol(seq1)).
        do if (seqk1 = 0).
            compute seqk1 = ncol(seq1).
        end if.
* print seqk1.
        do if (j = 1).
            do if (seq1(1,seqk1)=1).
                compute it(1,1)=starter1+step.
            else if (seq1(1,seqk1)=2).
                compute it(1,1)=starter1-step.
            else if (seq1(1,seqk1)=3).
                compute it(1,1)=starter1.
            end if.
        else.
            do if (seq1(1,seqk1)=1).
                compute it(1,j)=it(1,j-2)+step.
            else if (seq1(1,seqk1)=2).
                compute it(1,j)=it(1,j-2)-step.
            else if (seq1(1,seqk1)=3).

```

```

        compute it(1,j)=it(1,j-2).
    end if.
end if.
end loop.
loop j=2 to 20 by 2.
    compute seqk2=mod(j/2,ncol(seq2)).
    do if (seqk2 = 0).
        compute seqk2 = ncol(seq2).
    end if.
* print seqk2.
    do if (j = 2).
        do if (seq2(1,seqk2)=1).
            compute it(1,2)=starter2+step.
        else if (seq2(1,seqk2)=2).
            compute it(1,2)=starter2-step.
        else if (seq2(1,seqk2)=3).
            compute it(1,2)=starter2.
        end if.
    else.
        do if (seq2(1,seqk2)=1).
            compute it(1,j)=it(1,j-2)+step.
        else if (seq2(1,seqk2)=2).
            compute it(1,j)=it(1,j-2)-step.
        else if (seq2(1,seqk2)=3).
            compute it(1,j)=it(1,j-2).
        end if.
    end if.
end loop.
*print it.
compute itmat(i,:)=it.
*print /space=3.
else if (type = 6).
    compute seq1=trunc(uniform(1,3)*3+1).
    compute seq2=trunc(uniform(1,2)*3+1).
    loop ii=1 to ncol(seq1).
        compute sequen1(i,ii)=seq1(ii).
    end loop.
    loop ii=1 to ncol(seq2).
        compute sequen2(i,ii)=seq2(ii).
    end loop.
* print seq1.
* print seq2.
    compute starter1=trunc(uniform(1,1)*20+1)+20.
    compute starter2=trunc(uniform(1,1)*20+1)+20.
    compute start1(i,:)=starter1.
    compute start2(i,:)=starter2.
* print starter1.
* print starter2.
    compute step=1.

```

```

* print step.
compute it=make(1,20,0).
loop j=1 to 20 by 2.
  compute seqk1=mod((j+1)/2,ncol(seq1)).
  do if (seqk1 = 0).
    compute seqk1 = ncol(seq1).
  end if.
* print seqk1.
do if (j = 1).
  do if (seq1(1,seqk1)=1).
    compute it(1,1)=starter1+step.
  else if (seq1(1,seqk1)=2).
    compute it(1,1)=starter1-step.
  else if (seq1(1,seqk1)=3).
    compute it(1,1)=starter1.
  end if.
else.
  do if (seq1(1,seqk1)=1).
    compute it(1,j)=it(1,j-2)+step.
  else if (seq1(1,seqk1)=2).
    compute it(1,j)=it(1,j-2)-step.
  else if (seq1(1,seqk1)=3).
    compute it(1,j)=it(1,j-2).
  end if.
end if.
end loop.
loop j=2 to 20 by 2.
  compute seqk2=mod(j/2,ncol(seq2)).
  do if (seqk2 = 0).
    compute seqk2 = ncol(seq2).
  end if.
* print seqk2.
do if (j = 2).
  do if (seq2(1,seqk2)=1).
    compute it(1,2)=starter2+step.
  else if (seq2(1,seqk2)=2).
    compute it(1,2)=starter2-step.
  else if (seq2(1,seqk2)=3).
    compute it(1,2)=starter2.
  end if.
else.
  do if (seq2(1,seqk2)=1).
    compute it(1,j)=it(1,j-2)+step.
  else if (seq2(1,seqk2)=2).
    compute it(1,j)=it(1,j-2)-step.
  else if (seq2(1,seqk2)=3).
    compute it(1,j)=it(1,j-2).
  end if.
end if.

```

```

end loop.
*print it.
compute itmat(i,:)=it.
*print /space=3.
end if.
end loop.
compute itnum={1:50}.
compute itnumt=transpos(itnum).
compute length=make(50,1,0).
compute keypos=make(50,1,0).
loop j=1 to 50.
  compute keypos(j,1)=trunc(uniform(1,1)*4+1).
  do if (typemat(j,1) = 1 or typemat(j,1) = 2 or typemat(j,1) = 4).
    compute length(j,1)=trunc(uniform(1,1)*3+13).
  else.
    compute length(j,1)=trunc(uniform(1,1)*2+15).
  end if.
end loop.
*compute
itmatt={itnumt,bar,typemat,bar,sequen1,bar,sequen2,bar,start1,bar,start2,bar,itmat}.
compute itmatt={itnumt,typemat,sequen1,sequen2,start1,start2,itmat,length,keypos}.
print itmatt.
save itmatt /outfile=*.
end matrix.

```