

ZZZZ
ZZJOB 5
ZZDUP
*DELETBEST
ZZZZ
ZZJOB 5
ZZFOR 5
*LDISKBEST

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SUBROUTINE BEST(MOVE,ISW,RANDX)
DIMENSION KOST(4,4,4),MATRIX(4,4,4),NWIN(76,4),IBOARD(4,4,4)
DIMENSION KROSS(64,8),KIND(76),NSPLIT(20),LIST(64)
COMMON KOST,MATRIX,NWIN,IBOARD,KROSS,KIND,MOVE,IX,IY,IZ
LEN=0
MIT=0
MAT=0
ITC=1
DO 100 L=1,76
  IF(KIND(L)-9)5,60,60
  5 IF(KIND(L)-6)100,20,30
  20 MIT=L
  GO TO 100
  60 PRINT 61
  ISW=1
  61 FORMAT(12HYOU HAVE WON)
  RETURN
  30 MAT=L
100 CONTINUE
  IF(MIT)101,101,105
  101 IF(MAT)120,120,102
  102 MIT=MAT
  GO TO 110
  105 ISW=1
  PRINT 109
  109 FORMAT(10HI HAVE WON)
  PRINT 113,(NWIN(MIT,IJK),IJK=1,4)
  113 FORMAT(4I4)
  110 DO 115 I=1,4
  II=NWIN(MIT,I)/100
  JJ=(NWIN(MIT,I)-100*II)/10
  KK=NWIN(MIT,I)-100*II-10*JJ
  IF(MATRIX(II,JJ,KK))115,111,115
  115 CONTINUE
  111 MOVE=NWIN(MIT,I)
  IBOARD(II,JJ,KK)=IX
  MATRIX(II,JJ,KK)=1
  CALL TYPES(MOVE,ITC,II,JJ,KK)
  RETURN
  120 MAX=0
  KIS=0
  KUT=0
  ISW=1
  DO 130 I2=1,4
  DO 130 J2=1,4
  DO 130 K2=1,4
  KOR=16*(K2-1)+4*(J2-1)+I2
  ITER=KROSS(KOR,1)+1
  MM=-1
  MN=-1
  IF(MATRIX(I2,J2,K2))130,1,130
  1 DO 125 L=2,ITER
  LM=KROSS(KOR,L)
  IF(KIND(LM))125,125,201
  201 ISW=0
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      IF(KIND(LM)-4)125,124,122
122 IF(KIND(LM)-5)125,123,125
123 MN=MN+1
      GO TO 125
124 MM=MM+1
125 CONTINUE
      IF(MM)126,126,160
126 IF(MN)130,130,127
127 KUT=KUT+1
      NSPLIT(KUT)=100*I2+10*J2+K2
130 CONTINUE
      IF(ISW)210,210,205
205 PRINT 202
202 FORMAT(9HSTALEMATE)
      MOVE=0
      RETURN
210 IF(KUT-1)140,138,140
138 I2=NSPLIT(1)/100
      J2=(NSPLIT(1)-100*I2)/10
      K2=NSPLIT(1)-100*I2-10*J2
      GO TO 160
140 DO 150 I=1,4
      DO 150 J=1,4
      DO 150 K=1,4
      IF(MATRIX(I,J,K))150,155,150
155 IF(MAX-KOST(I,J,K))145,146,150
145 MAX=KOST(I,J,K)
      LEM=0
146 LEM=LEM+1
      LIST(LEM)=100*I+10*J+K
150 CONTINUE
      CALL RANDUM(RANDX,LIST,LEM,I2,J2,K2)
160 MATRIX(I2,J2,K2)=1
      IBOARD(I2,J2,K2)=IX
      MOVE=100*I2+10*J2+K2
      CALL TYPES(MOVE,ITC,I2,J2,K2)
      RETURN
      END

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ZZZZ
ZZJOB 5
ZZDUP
*DELETFIRST
ZZZZ
ZZJOB 5
ZZFOR 5
*LDISKFIRST

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      SUBROUTINE FIRST(KOST)
      DIMENSION KOST(4,4,4),MATRIX(4,4,4),NWIN(76,4),IBOARD(4,4,4)
      DIMENSION KROSS(64,8),KIND(76)
      COMMON KOST,MATRIX,NWIN,IBOARD,KROSS,KIND,MOVE,IX,IY,I2
      DO 100 I=1,4
      DO 100 J=1,4
      DO 100 K=1,4
      KOR=16*(K-1)+4*(J-1)+I
      MATRIX(I,J,K)=0
      IBOARD(I,J,K)=I2
100 KOST(I,J,K)=KROSS(KOR,1)
      DO 6 I=1,76
      6 KIND(I)=1
      RETURN
      END

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ZZJOB 5
ZZDUP

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*DELETTYPES

ZZZZ

ZZJOB 5

ZZFOR 5

*LDISKTYPES

SUBROUTINE TYPES(MOVE,ITC,I,J,K)

DIMENSION KOST(4,4,4),MATRIX(4,4,4),NWIN(76,4),IBOARD(4,4,4)

DIMENSION KROSS(64,8),KIND(76)

COMMON KOST,MATRIX,NWIN,IBOARD,KROSS,KIND,MOVE,IX,IY,IZ

KOORD=16*(K-1)+4*(J-1)+I

ITER=KROSS(KOORD,1)+1

DO 100 L=2,ITER

NAME=KROSS(KOORD,L)

IS=KIND(NAME)

IF(IS)4,100,4

4 IF(ITC)5,5,6

5 IF((IS/2)*2-IS)20,10,20

6 IF(IS-1)10,20,7

7 IF((IS/2)*2-IS)10,20,20

10 DO 15 N=1,4

II=NWIN(NAME,N)/100

JJ=(NWIN(NAME,N)-100*II)/10

KK=NWIN(NAME,N)-100*II-10*JJ

15 KOST(II,JJ,KK)=KOST(II,JJ,KK)-2*((IS/2)*2)

KIND(NAME)=0

GO TO 100

20 IF(IS-1)21,21,22

21 IB=1+((1-ITC)/2)

GO TO 23

22 IB=2

23 DO 25 N=1,4

II=NWIN(NAME,N)/100

JJ=(NWIN(NAME,N)-100*II)/10

KK=NWIN(NAME,N)-100*II-10*JJ

25 KOST(II,JJ,KK)=KOST(II,JJ,KK)-2*((IS/2)*2)+2*((IS+2)/2)*2)

KIND(NAME)=KIND(NAME)+IB

100 CONTINUE

DO 200 L=1,4

DO 200 M=1,4

DO 200 N=1,4

IF(MATRIX(L,M,N))190,200,190

190 KOST(L,M,N)=-1

200 CONTINUE

RETURN

END

ZZJOB 5

ZZDUP

*DELETHASH

ZZZZ

ZZJOB 5

ZZFCR 5

*LDISKHASH

DIMENSION KOST(4,4,4),MATRIX(4,4,4),NWIN(76,4),IBOARD(4,4,4)

DIMENSION KROSS(64,8),KIND(76)

COMMON KOST,MATRIX,NWIN,IBOARD,KROSS,KIND,MOVE,IX,IY,IZ

IF(SENSE SWITCH 3)100,110

110 PRINT 101

PRINT 102

PRINT 103

PRINT 104

PRINT 105

PRINT 106

PRINT 107

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PRINT 108
PRINT 109
101 FORMAT(29HTHREE DIMENSIONAL TIC-TAC-TOE)
102 FORMAT(49HINSTRUCTIONS. PUT SS1 ON SOMETIME AFTER RANDOMIZE)
103 FORMAT(53HPRINT AND LEAVE IT ON.(FOR ENTIRE GAME) SS2 ON AT THE)
104 FORMAT(49HFIRST PAUSE WILL CYCLE TO ACCEPT YOUR MOVE FIRST.)
105 FORMAT(48HCOORDINATES ARE I J K.,ROW COLUMN LEVEL,STARTING)
106 FORMAT(47HFROM LEFT. MOVES ACCEPTED IN I4, 3 DIGITS, 1-4.)
107 FORMAT(51HSS2 ON WHEN THE MACHINE MOVES WILL PRINT OUT BOARD.)
108 FORMAT(49HSS4 ON AT PAUSE AT END OF GAME WILL CYCLE FOR NEW)
109 FORMAT(41HGAME. SS3 ON CUTS THIS CHATTER. T DICKEY)
100 PRINT 7
7 FORMAT(8HNEW GAME)
CALL FIRST(KOST)
ISW=0
NEWHON=0
PRINT 111
111 FORMAT(9HRANDOMIZE)
500 NEWHON=NEWHON+1
IF(SENSE SWITCH 1)600,500
600 PRINT 201
RANDX=NEWHON
PAUSE
IF(SENSE SWITCH 2)10,35
20 PRINT 9
9 FORMAT(6HSORRY-)
10 ACCEPT 2,MOVE
2 FORMAT(I4)
I=MOVE/100
J=(MOVE-100*I)/10
K=MOVE-100*I-10*J
IF(MATRIX(I,J,K))20,30,20
30 MATRIX(I,J,K)=-1
IBOARD(I,J,K)=IY
ITC=-1
CALL TYPES(MOVE,ITC,I,J,K)
35 CALL BEST(MOVE,ISW,RANDX)
PRINT 2,MOVE
IF(ISW)50,50,60
50 IF(SENSE SWITCH 2)60,10
60 PRINT 4,(((IBOARD(I,J,K),J=1,4),K=1,4),I=1,4)
IF(ISW)10,10,200
4 FORMAT(4(3X,4A2))
200 PRINT 201
201 FORMAT(5HPAUSE)
PAUSE
IF(SENSE SWITCH 4)100,300
300 CALL EXIT
END

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ZZZZ

ZZJOB 5

ZZDUP

*DELETRANDUM

ZZZZ

ZZJOB 5

ZZFOR 5

*LDISKRANDUM

SUBROUTINE RANDUM(RANDX,LIST,LEM,I2,J2,K2)

DIMENSION LIST(64)

IT=RANDX

2 IT=IT+1

IF(SENSE SWITCH 1)3,2

3 ITS=IT-(IT/LEM)*LEM

IF(ITS)4,4,5

4 ITS=LEM

5 I2=LIST(ITS)/100

J2=(LIST(ITS)-100*I2)/10

K2=LIST(ITS)-100*I2-10*J2

RANDX=IT*ITS

RETURN

END