

# HP-85 KNIGHT'S TOUR

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1000 ! KNIGHT'S TOUR
1010 ! (C) 2004 J. Keller
1020 !
1030 OPTION BASE 1
1040 INTEGER B(8,8),X(8),Y(8)
1050 INTEGER I,J,K,M,C,F,U,V
1060 GOSUB 4000
1070 !
1080 CLEAR @ DISP
1090 DISP "  _/|      KNIGHT'S TOUR      |\\"
1100 DISP " // o\  on a chessboard  /o \\"
1110 DISP " || ._)  solved with      (|. ||"
1120 DISP " //__\  Warnsdorff's      /__\\"
1130 DISP " )__( ( ____ rule ____ )__(("
1140 DISP
1150 DISP "Start position";
1160 INPUT S$ @ DISP
1170 IF LEN(S$)<>2 THEN 1140
1180 I=NUM(S$[1,1])-96
1190 J=NUM(S$[2,2])-48
1200 IF I<0 THEN I=NUM(S$[1,1])-64
1210 IF I<1 OR I>8 THEN 1140
1220 IF J<1 OR J>8 THEN 1140
1500 !
1510 ! MAIN LOOP
1520 !
1530 DISP "Wait a moment ..."
1540 B(I,J)=-1 @ GOSUB 3000
1550 FOR M=2 TO 64
1560 GOSUB 2000
1570 IF F=0 THEN 5000
1580 I=I+X(F) @ J=J+Y(F)
1590 B(I,J)=-M @ GOSUB 3000
1600 NEXT M
1650 !
1660 ! DISPLAY SOLUTION
1670 !
1680 CLEAR
1690 FOR J=8 TO 1 STEP -1
1700 DISP CHR$(48+J);"|"
1710 FOR I=1 TO 8
1720 C=-B(I,J)
1730 U=48+INT(C/10)
1740 V=48+C MOD 10
1750 IF U=48 THEN U=32
1760 DISP " ";CHR$(U);CHR$(V);
1770 NEXT I
1780 DISP
1790 NEXT J
1800 DISP " +-----"
1810 DISP "  a b c d e f g h"
1820 GOTO 6000
1985 !
1990 ! FIND NEXT MOVE
1995 !
2000 C=10 @ F=0
2010 FOR K=1 TO 8
2020 U=I+X(K)
2030 IF U<1 OR U>8 THEN 2090
2040 V=J+Y(K)
2050 IF V<1 OR V>8 THEN 2090
2060 D=B(U,V)
2070 IF D<0 THEN 2090
2080 IF D<C THEN C=D @ F=K
2090 NEXT K
2100 RETURN
2985 !
2990 ! UPDATE BOARD
2995 !
3000 FOR K=1 TO 8
3010 U=I+X(K)
3020 IF U<1 OR U>8 THEN 3080
3030 V=J+Y(K)
3040 IF V<1 OR V>8 THEN 3080
3050 C=B(U,V)
3060 IF C<0 THEN 3080
3070 B(U,V)=C-1
3080 NEXT K
3090 RETURN
3985 !
3990 ! INITIALIZATION
3995 !
4000 FOR K=1 TO 8
4010 READ X(K),Y(K)
4020 NEXT K
4030 !
4040 FOR J=1 TO 8
4050 FOR I=1 TO 8
4060 READ B(I,J)
4070 NEXT I
4080 NEXT J
4090 !
4100 RETURN
4110 !
4120 ! MOVE CODES
4130 !
4140 DATA 1,2
4150 DATA 2,1
4160 DATA 2,-1
4170 DATA 1,-2
4180 DATA -1,-2
4190 DATA -2,-1
4200 DATA -2,1
4210 DATA -1,2
4220 !
4230 ! SQUARE CODES
4240 !
4250 DATA 2,3,4,4,4,4,3,2
4260 DATA 3,4,6,6,6,6,4,3
4270 DATA 4,6,8,8,8,8,6,4
4280 DATA 4,6,8,8,8,8,6,4
4290 DATA 4,6,8,8,8,8,6,4
4300 DATA 4,6,8,8,8,8,6,4
4310 DATA 3,4,6,6,6,6,4,3
4320 DATA 2,3,4,4,4,4,3,2
4985 !
4990 ! SHOULD NOT HAPPEN
4995 !
5000 DISP "No solution found!"
5995 !
6000 END

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