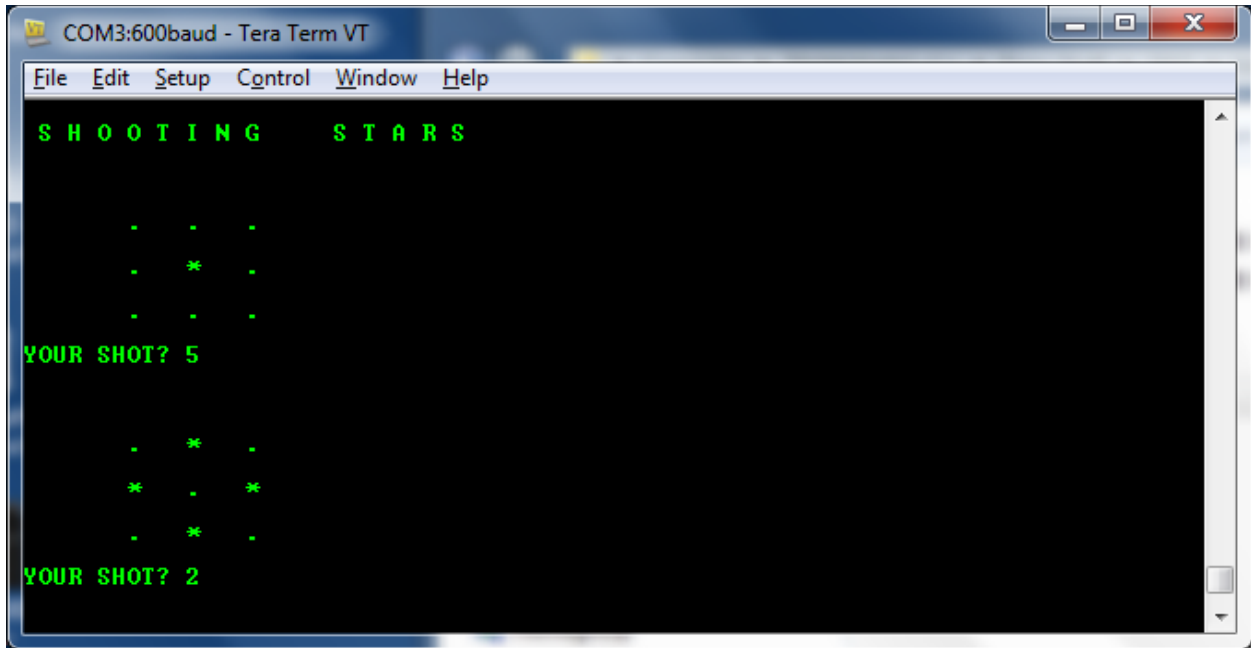


SHOOTING STARS PUZZLE GAME for MC6800/MIKBUG
 by Random73
 May 16, 2015



This puzzle game was featured in the May 1976 issue of BYTE magazine. It was written for the Intel 8008 microcomputer. That same summer I re-wrote it for the MC6800 so that I could run it in my Motorola MEK6800D1 evaluation kit, which had only 640 bytes of "user memory". My version of SHOOTING STARS occupies memory locations \$0000 to \$0243 (580 bytes).

The program starting address is \$0100. The star positions are numbered from 1 to 9. The game starts with a star at 5 and black holes everywhere else. You have to shoot 5 first;

```

1   2   3           .   .   .
4   5   6 -----> .   *   .
7   8   9           .   .   .
  
```

Shooting 2,4,6, or 8 turns that star into a black hole, and the two vertically (1 and 7 for 4, or 3 and 9 for 6) or horizontally (1 and 3 for 2, or 7 and 9 for 8) adjacent positions flip state, i.e., holes become stars, and stars become holes. You can only shoot stars.

Shooting 1 flips 1,2,4,and 5. Shooting 3 flips 2,3,5, and 6, and so on for 7 and 9.

The goal is to have all stars around the periphery and a hole in the middle;

```

                *   *   *
---Last Shot---> *   .   *   ---> You Win!
                *   *   *
```

When it asks "Your Shot?" You can type "S" to stop playing. You can then type "N" or "Y" to confirm stop, or to play again. The minimum number of shots to win is 11. The game will report how many valid shots you made, when you win.

My original source program printout disappeared years ago, but in the summer of 1976 it was published across two issues of the newsletter of The Atlanta Area Microcomputer Hobbyists Club, which I still have. I recently captured my original source program by retyping it into MS Notepad from the newsletters. I then ran the Resident Assembler MP-E to create a new source program listing and object code file.

SHOOTING STARS REASSEMBLED MAY 16, 2015

COPY AND PASTE THIS OBJECT CODE LISTING INTO YOUR 6800 CONSOLE WINDOW AFTER TYPING THE MIKBUG "L" COMMAND. AT THE "*" PROMPT TYPE "G" AND YOU'RE OFF TO THE RACES. I INSERTED THE 1ST LINE BELOW TO SET PC=0100 DURING THIS LOAD, AS A CONVENIENCE.

```
S105A048010011
S11E000353484F4F542053544152532C204E4F5420484F4C455304494E56419A
S11E001E4C49442053544152204E554D42455204594F55204C4F5354210D0A0C
S11E0039504C415920414741494E3F04594F552057494E210D0A594F55204609
S11E00544952454420042053484F54532E0D0A4245535420504F535349424CE5
S11E006F452053434F52452049532031312053484F54532E0D0A504C41592007
S11E008A414741494E3F040D0A0A2020202004474956454E20555020414C52D2
S11E00A5454144593F0D0A57414E5420544F20504C415920414741494E3F04AD
S11E00C0594F55522053484F543F20040D0A0A20532048204F205420495A
S11800DB204E20472020205320542041205220530D0A0A043075
S11E022031010BFF32020700330416FF3408290035005AFF3610940037206870
S10C023BFF3840E0003980D0FFD7
S11E0100CE00CCBDE07E4F970043970197027C0002C60A96005A26037E01B932
S11E011BC109270CC1062708C105271EC1032605CE00918D5BCE00958D564605
S11E0136362508862EBDE0753220D4862A20F636CE00958D4096014620E7CE7D
S11E015100C08D36BDE078CE00EB8D2EC609CE0220A10027095A27300808082A
S11E016C0820F3A6012606D601271A2004940027149600A80297009601A80362
S11E01879701208336BDE07E3239CE00038DF57E011181532607CE00998DE9A1
S11E01A22068CE001A8DE220EB4D26A29601269ECE002E8DD42053CE00EB8DCE
S11E01BD0C960081FF26E796012B88CE00458DBED6EFD700D701863ACE000089
S11E01D85C112610D6EF6C01910126083696EF9701326C006A0226E8960091E1
S11E01F3EF2703BDE075960191EF2703BDE07517BDE075CE005ABD018BBDE038
S114020E78815926037E0106CE0100FFA0487EE0E3E4
```

S9

PAGE 001 SHOOTING STARS

```
00001          NAM      SHOOTING STARS
00002          OPT      O,S,NOG
00003          *
00004          *          S H O O T I N G   S T A R S
00005          *
00006          *          BY DONALD R. SENTZ          JUNE,1976
00007          *
00008          A048     PRGCTR EQU      $A048
00009          E07E     PDATA1 EQU     $E07E
00010          E075     OUTCH  EQU     $E075
00011          E078     INCH   EQU     $E078
00012          E0E3     CONTRL EQU     $E0E3
00013          0000     ORG      $0000
00014          0000 0001 BB        RMB      1
00015          0001 0001 C         RMB      1
00016          0002 0001 D         RMB      1
00017          0003 53     MONE     FCC      /SHOOT STARS, NOT HOLES/
00018          0019 04     FCB      $04
00019          001A 49     MTWO     FCC      /INVALID STAR NUMBER/
00020          002D 04     FCB      $04
00021          002E 59     MTHR     FCC      /YOU LOST!/
00022          0037 0D     FCB      $0D,$0A
00023          0039 50     FCC      /PLAY AGAIN?/
00024          0044 04     FCB      $04
00025          0045 59     MFOR     FCC      /YOU WIN!/
00026          004D 0D     FCB      $0D,$0A
00027          004F 59     FCC      /YOU FIRED /
00028          0059 04     FCB      $04
00029          005A 20     MFIV     FCC      / SHOTS./
00030          0061 0D     FCB      $0D,$0A
00031          0063 42     FCC      /BEST POSSIBLE SCORE IS 11 SHOTS./
00032          0083 0D     FCB      $0D,$0A
00033          0085 50     FCC      /PLAY AGAIN?/
00034          0090 04     FCB      $04
00035          0091 0D     CLFSP4  FCB      $0D,$0A,$0A,$20
00036          0095 20     SP3      FCB      $20,$20,$20,$04
00037          0099 47     MSIX     FCC      /GIVEN UP ALREADY?/
00038          00AA 0D     FCB      $0D,$0A
00039          00AC 57     FCC      /WANT TO PLAY AGAIN?/
00040          00BF 04     FCB      $04
00041          00C0 59     MSVN     FCC      /YOUR SHOT? /
00042          00CB 04     FCB      $04
00043          00CC 0D     HMESS    FCB      $0D,$0A,$0A
00044          00CF 20     FCC      / S H O O T I N G   S T A R S /
00045          00EB 0D     LF2      FCB      $0D,$0A,$0A,$04
00046          00EF 30     ASCII0   FCB      $30
00047          0220     ORG      $0220
00048          0220 31     TABLE  FCB      $31,1,11,$FF
00049          0224 32     FCB      $32,2,7,0
00050          0228 33     FCB      $33,4,@026,$FF
00051          022C 34     FCB      $34,8,@051,0
00052          0230 35     FCB      $35,0,@132,$FF
00053          0234 36     FCB      $36,16,@224,0
00054          0238 37     FCB      $37,32,@150,$FF
```

PAGE 002 SHOOTING STARS

```
00055 023C 38          FCB    $38,64,@340,0
00056 0240 39          FCB    $39,128,@320,$FF

00058 0100          ORG    $0100    STARTING ADDRESS
00059 0100 CE 00CC      LDX    #HMESS    PRINT TITLE
00060 0103 BD E07E      JSR    PDATA1
00061 0106 4F          START  CLR  A          INITIALIZE UNIVERSE
00062 0107 97 00          STA  A  BB
00063 0109 43          COM  A
00064 010A 97 01          STA  A  C
00065 010C 97 02          STA  A  D
00066 010E 7C 0002 CNTSHT INC  D          COUNT VALID SHOTS
00067 0111 C6 0A  PRUNIV LDA  B  #10      PRINT CURRENT STATE OF
00068 0113 96 00          LDA  A  BB          UNIVERSE
00069 0115 5A          LPTST  DEC  B
00070 0116 26 03          BNE  CNTLP      DONE PRINTING UNIVERSE?
00071 0118 7E 01B9      JMP    WINTST    YES, GO TEST FOR WIN OR LOSS
00072 011B C1 09  CNTLP  CMP  B  #9          NO, CONTINUE PRINTING
00073 011D 27 0C          BEQ  CLFS4
00074 011F C1 06          CMP  B  #6
00075 0121 27 08          BEQ  CLFS4
00076 0123 C1 05          CMP  B  #5
00077 0125 27 1E          BEQ  POS5
00078 0127 C1 03          CMP  B  #3
00079 0129 26 05          BNE  CONT
00080 012B CE 0091 CLFS4 LDX    #CLFSP4
00081 012E 8D 5B          BSR    PDATA
00082 0130 CE 0095 CONT  LDX    #SP3
00083 0133 8D 56          BSR    PDATA
00084 0135 46          ROR  A          CHECK WHETHER TO PRINT STAR
00085 0136 36          PSH  A          OR HOLE.
00086 0137 25 08  STRTST BCS    ASTOUT
00087 0139 86 2E          LDA  A  #'      IT WAS A BLACK HOLE
00088 013B BD E075 STROUT JSR    OUTCH
00089 013E 32          PUL  A
00090 013F 20 D4          BRA  LPTST
00091 0141 86 2A  ASTOUT LDA  A  #'*      IT WAS A STAR.
00092 0143 20 F6          BRA  STROUT
00093 0145 36          POS5  PSH  A          SAVE ROTATED UNIVERSE.
00094 0146 CE 0095      LDX    #SP3
00095 0149 8D 40          BSR    PDATA
00096 014B 96 01          LDA  A  C          INFO ON STAR 5 IS IN C.
00097 014D 46          ROR  A
00098 014E 20 E7          BRA  STRTST      GO TEST STAR 5
00099 0150 CE 00C0 NXTSTR LDX    #MSVN
00100 0153 8D 36          BSR    PDATA
00101 0155 BD E078      JSR    INCH      GET NEXT SHOT
00102 0158 CE 00EB      LDX    #LF2
00103 015B 8D 2E          BSR    PDATA
00104 015D C6 09          LDA  B  #9
00105 015F CE 0220      LDX    #TABLE
00106 0162 A1 00  NEXGRP CMP  A  0,X      TABLE DRIVER TO GET MASK
00107 0164 27 09          BEQ  FOUND      LOCATED MASK YET?
00108 0166 5A          DEC  B          NO, NOT YET.
```

PAGE 003 SHOOTING STARS

```
00109 0167 27 30          BEQ     INVALID
00110 0169 08              INX
00111 016A 08              INX
00112 016B 08              INX
00113 016C 08              INX
00114 016D 20 F3          BRA     NEXGRP
00115 016F A6 01    FOUND LDA A  1,X      YES, NOW GET POSITION MASK
00116 0171 26 06          BNE     UNIV2A    WAS IT STAR 5?
00117 0173 D6 01          LDA B  C        YES, TEST FOR BLACK HOLE
00118 0175 27 1A          BEQ     BADSHT    IF 0, YOU GOOFED.
00119 0177 20 04          BRA     NEXBYT
00120 0179 94 00    UNIV2A AND A  BB        MASK OFF POSITION AND
00121 017B 27 14          BEQ     BADSHT    TEST FOR BLACK HOLE.
00122 017D 96 00    NEXBYT LDA A  BB        SHOT VALID, UPDATE
00123 017F A8 02          EOR A  2,X      UNIVERSE USING GALAXY
00124 0181 97 00          STA A  BB        MASK AND STAR 5 MASK.
00125 0183 96 01          LDA A  C
00126 0185 A8 03          EOR A  3,X
00127 0187 97 01          STA A  C
00128 0189 20 83          BRA     CNTSHT    COUNT SHOT AS VALID.
00129 018B 36          PDATA PSH A
00130 018C BD E07E        JSR     PDATA1
00131 018F 32          PUL A
00132 0190 39          RTS
00133 0191 CE 0003    BADSHT LDX     #MONE
00134 0194 8D F5          BSR     PDATA
00135 0196 7E 0111    BRPRU JMP     PRUNIV
00136 0199 81 53    INVALID CMP A  #$53    WAS INPUT AN "S" ?
00137 019B 26 07          BNE     NOTVAL    NO, INVALID CHARACTER.
00138 019D CE 0099        LDX     #MSIX     YES, END GAME.
00139 01A0 8D E9          BSR     PDATA
00140 01A2 20 68          BRA     DOAGN
00141 01A4 CE 001A    NOTVAL LDX     #MTWO
00142 01A7 8D E2          BSR     PDATA
00143 01A9 20 EB          BRA     BRPRU
00144 01AB 4D          LOSTST TST A      THEY WEREN'T ALL STARS
00145 01AC 26 A2          BNE     NXTSTR    WERE THEY ALL HOLES?
00146 01AE 96 01          LDA A  C
00147 01B0 26 9E          BNE     NXTSTR    YOU HAVEN'T WON YET.
00148 01B2 CE 002E        LDX     #MTHR     ALL HOLES, SO YOU LOST.
00149 01B5 8D D4          BSR     PDATA
00150 01B7 20 53          BRA     DOAGN
00151 01B9 CE 00EB    WINTST LDX     #LF2      OUTPUT FORMATTING
00152 01BC 8D CD          BSR     PDATA
00153 01BE 96 00          LDA A  BB        ARE ALL OUTER POSITIONS
00154 01C0 81 FF          CMP A  #$FF      STARS?
00155 01C2 26 E7          BNE     LOSTST    IF NOT, TEST FOR LOSS
00156 01C4 96 01          LDA A  C        CHECK FOR HOLE AT 5.
00157 01C6 2B 88          BMI     NXTSTR    IF STAR, CONTINUE GAME.
00158 01C8 CE 0045        LDX     #MFOR     YOU WON.
00159 01CB 8D BE          BSR     PDATA
00160 01CD D6 EF          LDA B  ASCII0    COMPUTE SCORE.
00161 01CF D7 00          STA B  BB
00162 01D1 D7 01          STA B  C
```

PAGE 004 SHOOTING STARS

```
00163 01D3 86 3A          LDA A  #$3A
00164 01D5 CE 0000        LDX   #0
00165 01D8 5C          COUNTR INC B
00166 01D9 11          CBA
00167 01DA 26 10        BNE   TALLY
00168 01DC D6 EF        LDA B  ASCII0
00169 01DE 6C 01        INC   C,X
00170 01E0 91 01        CMP A  C
00171 01E2 26 08        BNE   TALLY
00172 01E4 36          PSH A
00173 01E5 96 EF        LDA A  ASCII0
00174 01E7 97 01        STA A  C
00175 01E9 32          PUL A
00176 01EA 6C 00        INC   BB,X
00177 01EC 6A 02        TALLY DEC   D,X
00178 01EE 26 E8        BNE   COUNTR
00179 01F0 96 00        LDA A  BB
00180 01F2 91 EF        CMP A  ASCII0
00181 01F4 27 03        BEQ   MIDPRT
00182 01F6 BD E075      JSR   OUTCH
00183 01F9 96 01        MIDPRT LDA A  C
00184 01FB 91 EF        CMP A  ASCII0
00185 01FD 27 03        BEQ   LSTSIG
00186 01FF BD E075      JSR   OUTCH
00187 0202 17          LSTSIG TBA
00188 0203 BD E075      JSR   OUTCH
00189 0206 CE 005A      LDX   #MFIV
00190 0209 BD 018B      JSR   PDATA
00191 020C BD E078      DOAGN JSR   INCH
00192 020F 81 59        CMP A  #'Y
00193 0211 26 03        BNE   QUIT
00194 0213 7E 0106      JMP   START
00195 0216 CE 0100      QUIT  LDX   #$0100  SET UP FOR RESTART
00196 0219 FF A048      STX   PRGCTR
00197 021C 7E E0E3      JMP   CONTRL
00198                      END
```

TOTAL ERRORS 00000