Snake game (QBasic programming example for Youtube – © Joel Yliluoma)

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DEFINT A-Z

SCREEN 13 'sets 320x200 256-color VGA mode
' First something to get you interested
FOR a=0 TO 319:LINE(a,0)-(a,199),a:NEXT

TYPE coord
  x AS INTEGER
  y AS INTEGER
END TYPE
CONST maxsnake  = 50, maxlength = 300
DIM SHARED snake(maxsnake, maxlength) AS coord, head(maxsnake), length(maxsnake), dir(maxsnake)AS coord

CONST voidcolor = 247, bgcolor = 127
CONST snakecolor = 14, wallcolor = 15, bordercolor = 7
CONST shadowcolor = 224
CONST vipercolor = 12

CONST w = 240, h = 160  ' Field width and height... Coincidentally the same as GBA

' Draw world
' Blank the screen and place the playing area in the middle of the screen
LINE (0,0)-(319,199), voidcolor, BF
VIEW (40,20) - (40+w-1, 20+h-1), bgcolor, bordercolor
FOR x=0 TO w-1: Plot x,0, wallcolor: Plot x,h-1, wallcolor: NEXT ' Draw walls
FOR y=0 TO h-1: Plot 0,y, wallcolor: Plot w-1,y, wallcolor: NEXT

SUB Plot(x,y, c) ' This function plots a playground pixel
  PSET(x,y), c     ' simple
  IF FNblank(POINT(x,y+1)) THEN PSET(x,y+1),shadowcolor
END SUB
SUB UnPlot(x,y) ' Similarly, erases it.
  PSET(x,y),bgcolor
  IF FNblank(POINT(x,y-1)) THEN PSET(x,y),bgcolor ELSE PSET(x,y),shadowcolor
  IF FNblank(POINT(x,y+1)) THEN PSET(x,y+1),bgcolor
END SUB

PLAY "MBT160O2>L20CDEDCDL10ECC" ' This is from Nibbles!
tmp=FMinit
FMload "s3m¥mysidia.s3m"
'FMload "s3m¥jhmmid10.s3m"
'FMload "s3m¥adlib.s3m"

' Let's put the snake in the center of the playing field
SnakeMoveTo 1, w¥2, h¥2 : SetDir 1,3 : length(1) = 100

DEF FNblank(c) = (c>16) ' Simple test of pixel color indicates floor

SUB SnakeMoveTo(s,x,y) ' s = snake number
  ' Snake body is stored in a ring-buffer.
  ' Calculate where the tail is, and erase it.
  tail=(head(s)+maxlength-length(s))MOD maxlength
  UnPlot snake(s,tail).x, snake(s,tail).y

  ' Moves the snake forward.
  head(s)=(head(s)+1)MOD maxlength
  snake(s,head(s)).x = x
  snake(s,head(s)).y = y
  IF NOT FNblank(POINT(x,y)) THEN ' Collided something?
    IF s=1 THEN GameOver ' simple as that

    ' AI does not die, it just rebirths
    SnakeMoveTo s, INT(RND*(w-4))+2, INT(RND*(h-4))+2
    SnakeAi s ' choose a direction
    length(s)=2+INT(RND*(maxlength-2))
  END IF
  ' PLOT x,y, snakecolor
  IF s=1 THEN Plot x,y, snakecolor ELSE Plot
      x,y,vipercolor
END SUB

SUB GameOver 'simple death
  FMload " s3m¥gameover.s3m"
  INPUT "GAME OVER";s$
  FMend ' stop music
  Finish "Thanks for playing"
END SUB

SUB Finish(msg$)
  SCREEN 0,1,0,0: WIDTH 80,25
  PRINT msg$
  END
END SUB

SUB SetDir(s, d) ' s = snake number, d = new dir (0-3)
  dir(s).x = (d>1)*(5-2*d)
  dir(s).y = (d<2)*(1-2*d)
END SUB
```

Color synopsis:
Red = add after the first small demo
Green = related to shadows
Blue = related to AI
Purple = related to music
Strikethrough = erased later

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' Accessors for the snake's next position
DEF FNx(s) = snake(s,head(s)).x + dir(s).x
DEF FNy(s) = snake(s,head(s)).y + dir(s).y

aicounter=0
DO ' main loop... many a program has got one
  ' move player's snake to its current direction
  SnakeMoveTo 1, FNx(1), FNy(1)
  FOR s=2 TO maxsnake ' deal with enemy snakes too
    IF NOT FNblank(POINT(FNx(s),FNy(s))) THEN SnakeAi s
    ' ^ Run AI on demand (if impending collision)
    SnakeMoveTo s, FNx(s), FNy(s)
  NEXT

  SnakeAi aicounter+2 ' Run someone's AI (rotating
      turns)
  aicounter=(aicounter+1) MOD (maxsnake-1)

  ' Read and interpret input (arrow keys, q and esc)
  y$ = INKEY$
  c = INSTR("HPKMq" + CHR$(27), RIGHT$(y$,1))
  IF y$ <> "" AND c>0 THEN SetDir 1,c-1: FMplayeffect 0

  FOR a!=1 TO 30:NEXT ' delay loop
LOOP UNTIL c>4 ' Until q or esc was hit

Finish "Enough already?"

SUB SnakeAi(s) 's = snake number
  d=INT(RND*4) ' Choose random direction
  FOR c=0 TO 4
    SetDir s, (d+c)MOD 4 'One of 4 dirs, starting from
        d
    ' Done with the AI if no obstacle in that dir.
    ' Otherwise, choose another direction.
    IF FNblank(POINT(FNx(s), FNy(s))) THEN EXIT SUB
  NEXT
END SUB
```

The End — written in January 2010.