

00326D

Program Description I

Program Title BAGLES 1-5 LOGIC GAME

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Program Description, Equations, Variables THIS PROGRAM ALLOWS YOU TO PLAY THE VERY POPULAR AND CHALLENGING GAME OF BAGLES WITH FROM 1 TO 5 DIGIT NUMBERS. THE CALCULATOR GENERATES A PSEUDO-RANDOM NUMBER WITH 1 TO 5 DIGITS (NUMBER OF DIGITS SPECIFIED BY YOU) WITH NO TWO DIGITS ALIKE. YOU TRY TO GUESS THE NUMBER IN AS FEW GUESSES AS POSSIBLE. AFTER EACH GUESS YOU ARE GIVEN A CLUE INDICATING THE NUMBER OF DIGITS YOU GUESSED IN THEIR EXACT POSITION AND THE NUMBER OF DIGITS YOU GUESSED BUT HAVE THEM IN THE WRONG POSITION. THE CLUE HAS TWO DIGITS SEPARATED BY A DECIMAL POINT. THE NUMBER TO THE LEFT OF THE DECIMAL IS THE "EXACTLY RIGHTS" AND THE NUMBER TO THE RIGHT IS THE "OUT OF POSITIONS". FOR EXAMPLE, IF THE NUMBER WERE 852 AND YOUR GUESS WERE 256, THE CLUE WOULD BE 1.1 (ONE EXACTLY RIGHT AND ONE OUT OF POSITION). WHEN YOU GUESS THE NUMBER, THE CLUE WILL BE FOLLOWED BY A MINUS NUMBER INDICATING THE NUMBER OF GUESSES IT TOOK YOU. BY THE WAY, 3-DIGIT BAGLES IS GENERALLY TO MOST POPULAR.

Operating Limits and Warnings

This program has been verified only with respect to the numerical example given in *Program Description II*. User accepts and uses this program material AT HIS OWN RISK, in reliance solely upon his own inspection of the program material and without reliance upon any representation or description concerning the program material.

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Sketch(es)

Sample Problem(s) PLAY A GAME OF 3-DIGIT BAGLES. IN ORDER TO PERMIT
DUPLICATION OF THIS SAMPLE, A RANDOM NUMBER SEED IS NOT GENERATED.
REGISTER A MUST BE ZERO.

Solution(s) 1) SPECIFY 3 DIGITS: 3 [A] $\rightarrow$ 3.0

2) GUESS 123: 123 [B] $\rightarrow$ 0.0 (NOTHING RIGHT)

3) GUESS 456: 456 [B] $\rightarrow$ 1.0 (1 DIGIT EXACT)

4) GUESS 489: 489 [B] $\rightarrow$ 1.1 (1 DIGIT EXACT, 1 OUT OF PLACE)

5) GUESS 490: 490 [B] $\rightarrow$ 1.1 (SAME)

6) GUESS 497: 497 [B] $\rightarrow$ 1.0 (1 DIGIT EXACT)

7) GUESS 480: 480 [B] $\rightarrow$ 1.2 (1 DIGIT EXACT, 2 OUT OF PLACE)

8) GUESS 408: 408 [B] $\rightarrow$ 3.0, -7.0 (ALL DIGITS EXACT IN 7 GUESSES)

Reference(s)

Program Listing I

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TRY	KEY CODE	COMMENTS	STEP	KEY ENTRY	KEY CODE	COMMENTS
	2111	GENERATE RANDOM		* LBL B	2112	GUESS. NUMBER
	162300	NUMBER OF n DIGITS		STO 7	3507	IS COMPARED ONE
2	221615	WITH NO TWO DIGITS		CLX	-51	DIGIT AT A TIME.
	3500	ALIKE.	060	STO 9	3509	FIRST TO CORRESPO-
	3546			I	01	NDING POSITION,
	01			STO -6	35-4506	THEN TO ALL POSIT-
	16-34			RCL 0	3600	IONS FOR OUT OF
2	221615			STO I	3546	PLACE.
	-51			* LBL 3	2103	
	06			RCL 7	3607	
	16-35			RCL 8	3608	
2	221615			X	-35	
	-62			ENTER ↑	-21	
	01		070	f INT	16 34	
	3508			STO 7	3507	
	3501	UNUSED REGISTERS		-	-45	
	3502	WILL CONTAIN .1 TO		RCL 8	3608	
	3503	CAUSE UNEQUAL		÷	-24	
	3504	COMPARES.		RCL (i)	3645	
	3505			f X≠Y	16-32	
	2100			GTO 4	2204	
	2302			I	01	
16	2546			STO +9	35-5509	
	2200		080	GTO 6	2206	
	-51			* LBL 4	2104	
	3506			CLX	-51	
	3600			RCL 1	3601	
16	2100			f X=Y	16-33	
	24			GTO 5	2205	
	2102			CLX	-51	
	3605			RCL 2	3602	
	3611			f X=Y	16-33	
	16-24			GTO 5	2205	
	-55		090	CLX	-51	
	53			RCL 3	3603	
	1644			f X=Y	16-33	
	3511			GTO 5	2205	
	3608			CLX	-51	
	-24			RCL 4	3604	
	1634			f X=Y	16-33	
	16-33			GTO 5	2205	
	2202			CLX	-51	
	3604			RCL 5	3605	
	16-33		100	f X≠Y	16-32	
	2202			GTO 6	2206	
	-51			* LBL 5	2105	
	3603			RCL 8	3608	
	16-33			STO +9	35-5509	
	2202			* LBL 6	2106	
	-51			f DSZ I	16 25 46	
	3602			GTO 3	2203	
	16-33			RCL 0	3600	
	2202			RCL 9	3609	
	-41		110	PRINT X	-14	
	3545			f X≠Y	16-32	
	24			RTN	24	

REGISTERS

T	2 ND DIGIT	3 RD DIGIT	4 TH DIGIT	5 TH DIGIT	6 TH GUESS COUNT	7 TH GUESS NUMBER	8 TH .1	9 TH CLUE
	S2	S3	S4	S5	S6	S7	S8	S9
		C			D	E	I USED	

STEP	KEY ENTRY	KEY CODE	COMMENTS	STEP	KEY ENTRY	KEY CODE	COMMENTS
	RCL G	3606					
	PRINT X	-14		170			
	FSPACE	16-11					
	FCLFO	162200					
	RTN	24					
	* LBL C	2113	LOOP TO GENERATE				
	Fπ	16-24	RANDOM NUMBER				
120	+	-55	SEED.				
	STO A	3511					
	GTO C	2213					
				180			
130							
				190			
140							
				200			
150							
				210			
160							
				220			

LABELS					FLAGS	SET STATUS			
DIGITS	GUESS	GEN SEED			ON = NUMBER NOT GUESSED	FLAGS		TRIG	DISP
a	b	c	d	e	1	ON ☐	OFF ☒	DEG ☒	FIX ☒
0 GENERATE DIGITS LOOP	1	2 RANDOM # SUBROUTINE	3 COMPARE LOOP	4 COMPARE OUT OF PLACE	2	1 ☐	OFF ☒	GRAD ☐	SCI ☐
5 ADD .1 TO GUESS	6 CHECK END OF LOOP	7	8	9	3	2 ☐	OFF ☒	RAD ☐	ENG ☐
						3 ☐	OFF ☒		n <u>1</u>