

006550 PROGRAM DESCRIPTION I

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Program Title Space War-Interactive

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Program Description, Equations, Variables This program was written to take advantage of something that I discovered the HP-41C could do. What I discovered was that it is possible to make the display scroll rapidly from left to right by using code similar to the following:

01 LBL 00
02 SF 25
03 AVIEW
04 Ø
05 1/X
06 LBL 01
07 GTO 01

This will cause whatever is in the ALPHA register to scroll from left to right. The speed of the scrolling being determined by the number of instructions between lines 6 and 7. After I had figured out how to use this feature, I wrote this program.

(continued)

Necessary Accessories one memory module

Operating Limits and Warnings Warning: It is very easy to spend much time playing this game.

Reference(s) none

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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As the captain of a spacecraft, your mission is to destroy as many of the enemy as possible. There are three types of enemy spacecraft; freighters, battleships, and fighters. Each time you destroy one of the enemy spacecraft, you score a certain number of points based on the type of the craft you destroyed. They are denoted by and worth the following:

* fighter, worth 20 points
** battleship, worth 10 points
*** freighter, worth 5 points

Of course, since the fighter is worth more, it is also more difficult to hit, as it is also with the battleship.

This brings us to the point of how to destroy the enemy spacecraft. After the program is started, a spacecraft (ie. "++", for a battleship) will scroll across the display. When it is over the flag 2 annunciator, your "sight", you push R/S, enter a 3, and push R/S again. If you were successful, the calculator will tell you so, and credit you with the number of points that the enemy was worth.

However, should you miss, or allow the enemy to go all the way across the display (it will only go across once) it will take a shot at you, with its success determined by the following:

fighter: 80% success rate
battleship: 60% " "
freighter: 40% " "

Your spacecraft can still function after two hits. On the third hit the spacecraft is destroyed, and the game is over. The calculator will then display your score.

However, it is possible to repair your spacecraft after the first or second hits. Periodically, a star base will appear, denoted by "888". To dock with it you go through the same procedure that you do when shooting down the enemy; however, instead of entering a 3, you enter a 2. If you are successful, your ship will be repaired and as good as new. If, on the other hand, you are unsuccessful, nothing happens and the game continues.

Destroying the base is not recommended, and results in your being relieved of your duties. It also ends the game.

Equally bad is attempting to dock with the enemy. As you must turn off your defence fields to dock, you are defenceless, and the enemy can easily destroy your spacecraft, which ends the game.

Of course, the object of the game is to get as many points as possible. The calculator will also keep track of the highest score since the program was loaded. (high score stored in REG 02)

During the game, fighters will come up 25% of the time, battleships and freighters 35%, and star bases 5%

Good luck!

006550 PROGRAM DESCRIPTION II

Sample Problem (Sketch if Desired) Due to the randomness of the user pushing the R/S key, it is impossible to give an example that can be duplicated. However, I will show parts of a sample run.

→
*
2 PRGM

Sample display

SOLUTION:

Input	Function	Display	Comments
	XEQ "SPACE"	"READY?"	Begin playing.
	R/S	"***" →	Spacecraft moving across the display.
3	R/S	Ø	Stop calculator.
	R/S	"YOU HAVE JUST BEEN HIT"	Missed him.
3	R/S	"*" →	Spacecraft moving.
	R/S	Ø	Stop calculator.
3	R/S	"YOU SCORED A KILL"	Got him!
	R/S	"****" →	Spacecraft moving.
3	R/S	Ø	Stop calculator.
	R/S	"YOU HAVE JUST BEEN HIT"	Missed again.
2	R/S	"888" →	Star base moving.
	R/S	Ø	Stop calculator.
2	R/S	"DOCKING COMPLETE" "YOUR SHIP IS REPAIRED"	Successful docking.
•			
•			
•			
3	R/S	"**" →	Spacecraft moving.
	R/S	Ø	Stop calculator.
		"YOU HAVE JUST BEEN HIT"	Game over.
		"YOUR SHIP IS DESTROYED"	
		"YOUR SCORE IS 50"	
		"HIGH SCORE IS 50"	
		"AGAIN?"	

00655C USER INSTRUCTIONS

REGISTERS, STATUS, FLAGS, ASSIGNMENTS

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STEP/ LINE	KEY ENTRY	KEY CODE (67/97 only)	COMMENTS	STEP/ LINE	KEY ENTRY	KEY CODE (67/97 only)	COMMENTS
01	*LBL	"SPA		45	XEQ	14	
		CE"		46	6		
02	*LBL	05		47	X=Y?		Kill it?
03	FIX	0		48	GTO	06	yes
04	3		Initialize	49	RDN		
05	STO	03	registers and	50	7		
06	CF	06	flags.	51	X=Y?		Kill it?
07	SF	02		52	GTO	06	yes
08	0			53	6		
09	STO	01		54	GTO	03	
10	"READY?"			55	*LBL	06	
11	PROMPT			56	XEQ	11	
12	CLA			57	TONE	7	
13	AVIEW			58	AVIEW		
14	*LBL	00	Determine the	59	10		
15	20		type of ship	60	ST+	01	Add to score.
16	XEQ	10	to be used.	61	GTO	00	
17	5			62	*LBL	02	
18	-			63	7		
19	X>0?		Fighter?	64	-		
20	GTO	02	no	65	X>0?		
21	.01			66	GTO	02	Freighter?
22	STO	00	Fighter	67	.008		no
23	"*"		routine.	68	STO	00	Freighter
24	XEQ	14		69	"***"		routine.
25	7			70	XEQ	14	
26	X=Y?		Kill it?	71	5		
27	GTO	12	yes	72	X<=Y?		Kill it?
28	8			73	GTO	13	yes
29	GTO	03		74	4		
30	*LBL	12		75	GTO	03	
31	XEQ	11		76	*LBL	13	
32	TONE	9		77	RDN		
33	AVIEW			78	8		
34	20			79	X>Y?		
35	ST+	01	Add to score.	80	GTO	13	Kill it?
36	GTO	00		81	4		yes
37	*LBL	02		82	GTO	03	
38	7			83	*LBL	13	
39	-			84	XEQ	11	
40	X>0?		Battleship?	85	TONE	5	
41	GTO	02	no	86	AVIEW		
42	.009			87	5		
43	STO	00	Battleship	88	ST+	01	
44	"**"		routine.	89	GTO	00	Add to score.

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STEP/ LINE	KEY ENTRY (67/97 only)	COMMENTS	STEP/ LINE	KEY ENTRY	KEY CODE (67/97 only)	COMMENTS
90+LBL 02		Base routine.	130	GTO 08		
91 .008		(docking)	131+LBL 10			
92 STO 00			132	RCL 04		Random number
93 "888"			133	9821		generator.
94 XEQ 01			134	*		
95 CLA			135	.211327		
96 AVIEW			136	+		
97 RCL 00			137	FRC		
98 INT			138	STO 04		
99 5			139	*		
100 X>Y?		Successful?	140	RTN		
101 GTO 00		no	141+LBL 11			
102 RDN			142	"YOU SCO		
103 7				RED A "		
104 X<Y?		Successful?	143	"H-KILL"		
105 GTO 00		no	144	RTN		
106 RCL Z			145+LBL 14			
107 2			146	XEQ 01		
108 X≠Y?		Shoot at base?	147	CLA		
109 GTO 02		yes	148	AVIEW		
110 "DOCKING			149	2		
COMPLET"			150	X≠Y?		Dock with enemy?
111 "HE"			151	GTO 04		no
112 AVIEW			152	"YOU ATT		
113 "YOUR SH				EMPTED "		
IP "			153	"H-TO DOC		
114 "HIS REP				K"		
AIRED"			154	AVIEW		
115 FS?C 06		Damage?	155	PSE		
116 AVIEW		yes	156	"WITH TH		
117 3				E ENEMY"		
118 STO 03		Repair ship.	157	AVIEW		
119 GTO 00			158	PSE		
120+LBL 02			159	GTO 07		
121 "YOU DES			160+LBL 04			
TROYED "			161	RCL 00		
122 "HYOUR B			162	INT		
ASE"			163	RTN		
123 AVIEW			164+LBL 01			
124 PSE			165	CF 22		
125 "AND HAV			166	SF 25		
E BEEN "			167	0		
126 "H-RELIEV			168	AVIEW		
ED"			169	LN		
127 AVIEW						Scrolling
128 PSE						routine.
129 "OF YOUR						
COMMAND"						Causes an error
						condition.

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STEP/ LINE	KEY ENTRY	KEY CODE (67/97 only)	COMMENTS	STEP/ LINE	KEY ENTRY	KEY CODE (67/97 only)	COMMENTS
170	LBL	09		209	PSE		
171	FS?	22	User input?	210	~"AGAIN?"		
172	RTN		yes	211	PROMPT		
173	ISG	00	Crossed dis.?	212	GTO 05		go play again.
174	GTO	09	no	213	END		
175	RTN						
176	LBL	03	Hit routine?				
177	10			60			
178	XEQ	10					
179	X>Y?		Enemy successful?				
180	GTO	00	no				
181	SF	06					
182	"YOU HAV						
	E JUST "						
183	"I-BEEN H						
	IT"						
184	TONE	3					
185	TONE	3		70			
186	AVIEW						
187	DSE	03					
188	GTO	00					
189	PSE		Game over routine.				
190	LBL	07					
191	"YOUR SH						
	IP IS "						
192	"I-DESTRO						
	YED"			80			
193	BEEP						
194	LBL	08					
195	AVIEW						
196	PSE						
197	"YOUR SC		Print out ORE IS"				
	ORE IS"		scores.				
198	"I "						
199	ARCL	01		90			
200	AVIEW						
201	PSE						
202	RCL	02					
203	RCL	01					
204	X>Y?		New high?				
205	STO	02	yes				
206	"HIGH SC						
	ORE IS "						
207	ARCL	02					
208	AVIEW			00			

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