

THE GAME OF HAMURABI

THE GAME OF HAMURABI (HP-97) by D V Smith (663) New Zealand.

Developed from a program for the PDP-11 computer.

In this game you direct Hamurabi, the administrator of Sumeria, on how to manage the city. The city initially has 2800 bushels of grain in storage, 95 people and 1000 acres of land. You may buy and sell land with your neighbouring city-states with the medium of exchange being bushels of grain. The price of land varies between 17 and 26 bushels per acre. You must also use grain to feed your people and as seed to plant the next year's crop. You will quickly find that a certain number of people can only tend a certain amount of land, and that people starve if they are not fed enough.

You also have the unexpected to contend with - such as a plague of rats which destroy a third of your grain store, disease which decimates your population, and of course, variable harvests.

You will quickly find that managing just a few resources as in this game is not a trivial job over a period of say, ten years. The crisis of population density rears its head very quickly

INSTRUCTIONS:

- (1) Key a decimal seed and press A
- (2) Readouts: Year number.
Number of people died in that year.
Number of people entered the city (or born).
Present population.
Acreage owned by the city.
Number of acres harvested.
Number of bushels eaten by rats.
Number of bushels in storage.
Value (in bushels) of land for the current year (per acre).

- (3) Inputs:
Number of acres {bought (+ve) or zero} ENTER
Number of bushels to feed the people ENTER
Number of bushels for seed (to plant) R/S
- (4) Read the number of bushels per acre harvested then go to step 2.

Notes: 20 bushels feeds one person for one year.
One bushel seeds 2 acres of land.
One person can harvest ten acres of land.

This is version two of Hamurabi. The original did not add plague victims into the death toll. To program the original version, delete steps 062, 063, 109 and all of label 6, from step 209 onward.

If you wish to know the total deaths at the end of the game, press D

HAMURABI		THE ECONOMY		HALF OF THEM	
MACHINE SETUP BEFORE RECORDING PROGRAM	DSP0	029	PRTX	068	2
	DEG	073	ISZ1	069	X=??
	CF0	031	RCL1	070	GSB6
	CF1	032	7	071	RCLD
	CF2	033	X=??	072	ST-6
	CF3	034	X=??	073	GSB6
		035	GT01	074	5
		036	RCLB	075	x
		037	ST01	076	2
		038	1	077	0
INITIALISE REGISTERS AT THE START OF A GAME	081	039	0	078	ENT1
	082	040	X=??	079	RCL3
	083	041	GT00	080	x
	084	042	GSB6	081	RCL6
	085	043	1	082	+
	086	044	0	083	x
	087	045	x	084	RCL2
	088	046	INT	085	+
	089	047	1	086	EEX
	090	048	7	087	2
PRINTOUT OF CURRENT STATE OF	091	049	+	088	+
	092	050	ST07	089	1
	093	051	SPC	090	+
	094	052	PRTX	091	INT
	095	053	SPC	092	ST+2
	096	054	ISZ1	093	ST01
	097	055	SPC	094	RCLD
	098	056	R/S	095	2
	099	057	ST0E	096	0
	100	058	R4	097	+
	101	059	ST0D	098	RCL2
	102	060	R4	099	X=??
	103	061	ST0C	100	GT00
	104	062	0	101	0
	105	063	ST0B	102	ST02
	106	064	GSB6	103	0
	107	065	7	104	X=??
	108	066	x	105	+
	109	067	INT	106	ST+8
	110				

187	ST-2	144	x	ENT 1/2nd	181	3
188	0	145	ST+6	of storage	182	+
189	ST+8	146	0		183	INT
190	RCLC	147	0		184	0
191	X=0?	148	RCL3		185	ST05
192	GT05	149	1		186	ST-6
193	X=0?	150	0		187	RCL6
194	GT04	151	x		188	X=0?
195	RCLC	152	X=??		189	0
196	RCL7	153	X=??		190	ST06
197	x	154	X=??		191	GT0E
198	RCL6	155	2		192	0
199	X=??	156	x		193	0
200	GT08	157	X=??		194	0
201	RCL7	158	X=??		195	0
202	+	159	ST04		196	0
203	1	160	GSB6		197	0
204	+	161	6		198	0
205	INT	162	x		199	0
206	ST+3	163	INT		200	0
207	0	164	PRTX		201	0
208	ST06	165	SPC		202	0
209	GT05	166	RCL4		203	0
210	0	167	x		204	0
211	X=??	168	ST+6		205	0
212	ST-6	169	GSB6		206	0
213	RCLC	170	1		207	0
214	ST+3	171	0		208	0
215	GT05	172	x		209	0
216	0	173	0		210	0
217	0	174	X=??		211	0
218	0	175	GT00		212	0
219	0	176	x		213	0
220	0	177	INT		214	0
221	0	178	GT02		215	0
222	0	179	0			
223	0	180	0			

SPECIAL DISPLAY MODES (67/97)

With Phase 1 interrupt switch special mode convenience it is now practical and fun for the average HP-67 user to experiment and gain a better understanding of some of the more exotic applications of this machine. Let's experiment with some of the 256 display modes - many duplicates - shown in the Table in 65 NOTES V4N7P4:

First, get to Block 3 by the following method:

1. In W/PRGM press Phase 1 interrupt switch with a quick press-release.
2. Press E to see 992 84 (repeat 1 & 2 as required).
3. SST to 993 84
4. In RUN, press GTD E. See 00000.0 or other odd display.
5. Key DSP 2, f FIX
6. In W/PRGM see 016 31 25 05
7. Backstep to Step 009 (probably 31 25 24).
8. Key h, ENG. Ignore display (probably 993 84).
9. In RUN see 0.00 ..

You have just placed a hex code in Step 10 in Block 3. This 'step' controls the display mode and h, ENG is 33 Hex. See Table in 65 NOTES V4N1P8 to get ENG from the 33 which is obtained from selecting the two ..'s in the Page 4 (V4N7) table. A good idea is to place the key codes in boxes in the P4 table getting them from the P8 table.

You should read the HP-67/97 Display Modes article, but you can get your feet wet and see what happens by going through the Steps 1-9 above and continuing.

After h, ENG has been keyed in (Step 8 above) and the display mode examined (Step 9), it is easy to try others:

10. In W/PRGM key h DEL. See 009 35 23
11. Key 1
12. In W/PRGM see 0.00 00
13. Repeat steps 10 and 11 to delete and key steps to obtain all 16 possible combinations of blank, zero, decimal, and decimal in zero.

Suppose you wish to use a special display mode to characterize a program. (It's easy to clear the mode by a single program step f FIX, etc.).

There is probably an easier way, but the following works:

- A. Record a blank card (1 side only) with R/S.
(Turn on, W/PRGM, read card.)