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BIONICS ISSUE

“STAR LANES”

A NON-PROGRAMMER WRITES A COMPUTER GAME

by Steven Faber

INTRODUCTION

Since I had no significant background in programming, I spent the year or so since completing my Altair 8800 writing simple programs on the order of computing the current value of a stock portfolio, bidding jobs for my company, or calculating my mortgage. I left the game-writing programs to the “whiz kids.” You publish them; I’ll type them in. When not playing with my own simple programs, I spent my time entering, modifying and playing existing game programs. I exhausted the national magazines, anthologies and other publications. It would only be a matter of time, I assured myself, given the population explosion of amateur programmers, until the new, original, complex game programs found their way to publication. Alas, this has not been the case. Where are the new Star Treks, Star Traders, etc.? In retaliation, I decided to attempt a new game of my own. Hence, Star Lanes, printed here.

The game of Star Lanes is written in Altair 8K BASIC Version 3.2. If the instructions are deleted, it will run on about 7K on top of BASIC. It can be crunched smaller if the matrices are trimmed to allow only two players.

Star Lanes combines financial and position strategies as players attempt to lay claim to valuable pieces of real estate between stars. The galaxy in this game is a 9 x 12 matrix. As spaces are linked up, shipping companies are formed, stock in those companies is issued, sold on the open market, and converted into stock in the surviving company when companies are merged. As the game progresses, each player’s portfolio of stock increases in value. At the end of the game, the wealthiest player wins (See the instructions in the sample run, below).

HOW THE PROGRAM WORKS

An abbreviated flow chart is included here. Access to the portfolio and map print-out subroutines at the input statements has been left out for the sake of clarity.

LINES 100-130: Initializes the galactic matrix, M(I,J). Stars are placed in approximately one out of every twenty spaces, using the RND function.

LINES 130-170: Initializes player roster, decides first player to move, and branches to LINE 220.

LINES 200-210: Counts moves and changes players. If the move counter shows 48 completed moves, program branches to LINE 9500, where final scores are computed and printed.

LINES 220-340: Selects five “Legal Moves” for the player to select, using the RND function. The logic for deciding which moves are legal is shown in the expanded flow chart, Figure 2.

LINES 340-390: Prints the map, offers legal moves to player, and inputs player’s selected move.

LINES 400-790: Assigns value to selected space to

identify it in the galactic matrix. Numerical assignments are made as follows:

- M(I,J) = 1 Space is unoccupied
- = 2 Space is unattached outpost
- = 3 Space is a star
- = 4 Space is assigned to Altair Starways
- = 5 Space is assigned to Betelgeuse, Ltd.
- = 6 Space is assigned to Capella Freight Co.
- = 7 Space is assigned to Denebola Shippers
- = 8 Space is assigned to Eridani Expeditors

Program first checks to see if the selected space should be an unattached outpost i.e., having no adjacent occupied spaces, then program checks to see if the new space causes a merger. If so, it branches to subroutine at LINE 1060. Program then checks to see if selected space adds to an existing shipping lane. If so, it recomputes the value of the stock in that company. If the selected space forms a new company, computer assigns value to the stock of the new company, assigns a name to the company and awards five shares of stock to the player. Lastly, the value of the stock is checked to see if it is to be split. If so, program branches to subroutine at line 1400.

LINE 800: Computes and awards dividends to player.

LINES 810-900: Stock Market. Player is offered stock in all active shipping companies. If he buys, the cost of the stock is deducted from his bank balance. Program then branches back to LINE 200.

SUBROUTINES

LINES 1000-1050: Prints the map.

LINES 1060-1170: Calculates which company is the survivor in a merger.

LINES 1180-1370: Performs calculations needed to accomplish merger. Prints announcement of merger, conversion of stock, and cash bonus paid each player. New stock value is checked to see if stock should be split. If so, program branches to subroutine at LINE 1400. Lastly, smaller company is cleared from the records, so that a new company may be formed later in the game.

LINES 1400-1480: Calculates Stock Splits.

LINES 8000-8760: Prints the instructions.

LIST OF VARIABLES USED IN STAR LANES

- M(R,C) = Galactic Matrix where R (1-9) is the row, and C (1-12) is the column of a given space.
- S(I,J) = Quantity of Stock matrix where I (1-5) is the number of the shipping company and J is the player number.
- D1(I) = Stores the net worth of each player.

- S1(I) = Stock price for company #1.
 Q(I) = Number of spaces occupied by company #1.
 B(I) = Cash in bank for Player #1.
 M\$(I) = Prints name of company #1.
 M\$ = Prints column designation (A-L) where 1 = A, 2 = B, etc.
 L\$(I) = Prints space designation on galactic map, where I = 1-8. Uses same numerical assignments as the galactic matrix, i.e., 1 = empty space, 2 = unattached outpost, etc. (See text).
 R\$, R3\$ = Input string for player response.
 P\$(I) = Prints name of player #1.
 P1 = Number of players.
 P = # of player this turn.
 I,J,I3,J3 = For, next loop variables.
 K = Counts moves.
 R(I),C(I) = Stores row, column designation of computer offered legal moves.
 A1,A2,A3,A4,R3,R2,C2,F1,F2,F3,F4,T,T1,X,X1 = *Temporary variables.*

MICROCOMPUTER INSTRUCTIONS

How many players (2-4)? 2

Does any player need instructions? Yes.

Star Lanes is a game of interstellar trading. The object of the game is to amass the greatest amount of money. This is accomplished by establishing vast, interstellar shipping lanes, and purchasing stock in the companies that control those trade routes. During the course of the game, stock appreciates in value as the shipping com-

panies become larger. Also, smaller companies can be merged into larger ones, and stock in the smaller firm is converted into stock in the larger one.

Each turn, the computer will present the player with five prospective spaces to occupy on a 9 x 12 matrix (Rows 1-9, Columns A-L). The player, after examining the map of the Galaxy to decide which space he wishes to occupy, responds with the row and column of that space, 1.E., 7E, 8A, etc. There are four possible moves a player can make.

1. He can establish an unattached outpost — if he selects a space that is not adjacent to a star, another unattached outpost, or an existing shipping lane, this space will be designated with a '+'. He will then proceed with stock transactions.

2. He can add to an existing lane. If he selects a space which is adjacent to one — and only one existing shipping lane, the space he selects will be added to that shipping lane, and will be designated with the first letter of the company that owns that lane. If there are any stars or unattached outposts also adjacent to the selected space, they, too, will be incorporated into the existing lane. Each new square adjacent to a star adds \$500 per share, and each new outpost adds \$100 per share to the market value of the stock of that shipping company.

3. He may establish a new shipping lane. If there are five or less existing shipping lanes established, the player may, given the proper space to play, establish a new shipping lane. He may do this by occupying a space adjacent to a star of another unattached outpost, but not adjacent to an existing shipping lane. If he establishes a new shipping lane, he is automatically issued 5 shares in the new company as a reward. He may then proceed to buy stock in that company, or any other active company, as described below. The market value of the new stock is established by the number of stars and occupied spaces as described in #2 above.

4. He may merge two existing companies. If player selects a space adjacent to two existing shipping lanes, a merger occurs. The larger company takes over the smaller company; the stock of the larger company is increased in value according to the number of spaces and stars added to its lane. Each player's stock in the smaller company is exchanged for shares in the larger on a ratio of 2 shares of the smaller = 1 share of the larger. Also, each player is paid a cash bonus proportional to the percentage of outstanding stock he held in the smaller company. Note: after a company becomes defunct through this merger process, it can reappear elsewhere on the board if a new company is established (see #3 above).

Next the computer adds the stock dividends to the player's cash on hand (5% of the market value of the stock in his possession), and offers him the opportunity to purchase stock in any of the active companies on the board. Stock may not be sold, but the market value of each player's stock is taken into account at the end of the game to determine the winner. If the market value of a given stock exceeds \$3000 at any time during the game, that stock splits two for one. The price is cut in half, and the number of shares owned by each player is doubled.

Note: the player may look at his portfolio at any time during the course of his turn by responding with "Stock" to an input statement. Likewise, he can review the map of the galaxy by typing "Map" to an input statement.

Game ends after 48 moves. Player with the greatest net worth at that point is the winner.

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CIRCLE INQUIRY NO. 95

RUNNING STAR LANES

Player 1 What is your name? Steve.
 Player 2 What is your name? Debbie.
 Now I will decide who goes first . . .
 Steve is the first player to move.

MAP OF THE GALAXY

	A	B	C	D	E	F	G	H	I	J	K	L
1	●	●	●	●	●	●	●	●	●	●	●	●
2	●	●	●	●	●	●	●	●	●	●	●	●
3	●	●	●	●	●	●	●	●	●	●	●	*
4	●	●	●	●	●	*	●	●	●	●	●	●
5	●	●	●	●	●	●	●	●	●	●	●	●
6	●	●	●	●	●	●	●	●	●	●	●	●
7	●	●	●	●	●	●	●	●	●	*	●	●
8	●	●	●	●	●	●	●	●	●	●	●	●
9	●	●	●	●	●	●	●	●	●	●	●	●

Steve, here are your legal moves for this turn: 4 g / 4 i /
 7 d / 9 f / 6 b /
 What is your move? 6b

MAP OF THE GALAXY

	A	B	C	D	E	F	G	H	I	J	K	L
1	●	●	●	●	●	●	●	●	●	●	●	●
2	●	●	●	●	●	●	●	●	●	●	●	●
3	●	●	●	●	●	●	●	●	●	●	●	*
4	●	●	●	●	●	●	●	●	●	●	●	●
5	●	●	●	●	●	*	●	●	●	●	●	●
6	●	+	●	●	●	●	●	●	●	●	●	●
7	●	●	●	●	●	●	●	●	●	*	●	●
8	●	●	●	●	●	●	●	●	●	●	●	●
9	●	●	●	●	●	●	●	●	●	●	●	●

Debbie, here are your legal moves for this turn: 4 d / 9 f /
 9 e / 3 e / 9 i /
 What is your move? 3e

MAP OF THE GALAXY

	A	B	C	D	E	F	G	H	I	J	K	L
1	●	●	●	●	●	●	●	●	●	●	●	●
2	●	●	●	●	●	●	●	●	●	●	●	●
3	●	●	●	●	+	●	●	●	●	●	●	*
4	●	●	●	●	●	●	●	●	●	●	●	●
5	●	●	●	●	●	*	●	●	●	●	●	●
6	●	+	●	●	●	●	●	●	●	●	●	●
7	●	●	●	●	●	●	●	●	●	*	●	●
8	●	●	●	●	●	●	●	●	●	●	●	●
9	●	●	●	●	●	●	●	●	●	●	●	●

Steve, here are your legal moves for this turn: 8 i / 1 f /
 5 j / 9 l / 4 c /
 What is your move? 9l

MAP OF THE GALAXY

	A	B	C	D	E	F	G	H	I	J	K	L
1	●	●	●	●	●	●	●	●	●	●	●	●
2	●	●	●	●	●	●	●	●	●	●	●	●
3	●	●	●	●	+	●	●	●	●	●	●	*
4	●	●	●	●	●	●	●	●	●	●	●	●
5	●	●	●	●	●	*	●	●	●	●	●	●
6	●	+	●	●	●	●	●	●	●	●	●	●
7	●	●	●	●	●	●	●	●	●	*	●	●
8	●	●	●	●	●	●	●	●	●	●	●	●
9	●	●	●	●	●	●	●	●	●	●	●	+

Debbie, here are your legal moves for this turn: 5 l / 5 c /
 2 k / 1 b / 2 e /
 What is your move? 2 e

Special Announcement!!

A new shipping company has been formed!
 Its name is Altair Starways.

Your current cash = \$6050.
 Buy how many shares of Altair Starways at \$200.
 You now own 5 ? 10.

MAP OF THE GALAXY

	A	B	C	D	E	F	G	H	I	J	K	L
1	●	●	●	●	●	●	●	●	●	●	●	●
2	●	●	●	●	A	●	●	●	●	●	●	●
3	●	●	●	●	A	●	●	●	●	●	●	*
4	●	●	●	●	●	●	●	●	●	●	●	●
5	●	●	●	●	●	*	●	●	●	●	●	●
6	●	+	●	●	●	●	●	●	●	●	●	●
7	●	●	●	●	●	●	●	●	●	*	●	●
8	●	●	●	●	●	●	●	●	●	●	●	●
9	●	●	●	●	●	●	●	●	●	●	●	+

Steve, here are your legal moves for this turn: 9 k / 3 f /
 5 j / 4 i / 1 e /
 What is your move? 9 k

Special Announcement!!

A new shipping company has been formed!
 Its name is Betelgeuse, Ltd.

Your current cash = \$6050.
 Buy how many shares of Altair Starways at \$200.
 You now own 0 ? 2.
 Your current cash = \$5650.
 Buy how many shares of Betelgeuse, Ltd. at \$200.
 You now own 5 ? 8.

MAP OF THE GALAXY

	A	B	C	D	E	F	G	H	I	J	K	L
1	●	●	●	●	●	●	●	●	●	●	●	●
2	●	●	●	●	A	●	●	●	●	●	●	●
3	●	●	●	●	A	●	●	●	●	●	●	*
4	●	●	●	●	●	●	●	●	●	●	●	●
5	●	●	●	●	●	*	●	●	●	●	●	●
6	●	+	●	●	●	●	●	●	●	●	●	●
7	●	●	●	●	●	●	●	●	●	*	●	●
8	●	●	●	●	●	●	●	●	●	●	●	●
9	●	●	●	●	●	●	●	●	●	●	B	B

Debbie, here are your legal moves for this turn: 9 e / 7 b /
 1 c / 2 j / 3 k /
 What is your move? 3k

Special Announcement!!

A new shipping company has been formed!
 Its name is Capella Freight Co.
 Time passes. There are now 5 shipping companies active.

Your current cash = \$810.
 Buy how many shares of Altair Starways at \$200.
 You now own 16 ? 1.
 Your current cash = \$610.

Buy how many shares of Betelgeuse, Ltd. at \$200.
 You now own 17 ? 0.
 Your current cash = \$610.
 Buy how many shares of Capella Freight Co. at \$600.
 You now own 1 ? 0.
 Your current cash = \$610.
 Buy how many shares of Denebola Shippers at \$200.
 You now own 0 ? 0.
 Your current cash = \$610.
 Buy how many shares of Eridani expeditors at \$600.
 You now own 5 ? 1.

MAP OF THE GALAXY

	A	B	C	D	E	F	G	H	I	J	K	L
1	●	●	●	●	●	●	●	●	●	●	●	●
2	●	●	●	●	A	●	●	●	●	●	●	●
3	●	●	●	●	A	●	+	●	●	●	C	★
4	+	●	●	●	●	●	●	●	●	●	●	●
5	●	●	●	●	●	★	●	●	●	●	●	●
6	●	D	D	●	●	●	●	●	●	●	●	●
7	●	●	●	●	●	●	●	●	E	★	●	●
8	●	●	+	●	●	●	●	●	●	●	●	●
9	●	●	●	●	●	●	●	●	●	●	B	B

Debbie, here are your legal moves for this turn: 5 b / 7 l / 3 j / 4 j / 9 a /

What is your move? 3 j

Your current cash = \$695

Buy how many shares of Altair Starways at \$200.

You now own 22 ? Stock

Stock	Price Per Share	Your Holdings
Altair Starways	200	22
Betelgeuse, Ltd.	200	8
Capella Freight Co.	700	9
Denebola Shippers	200	5
Eridani Expeditors	600	0

Buy how many shares of Altair Starways at \$200.

You now own 22 ? 0.

Your current cash = \$695.

Buy how many shares of Betelgeuse, Ltd. at \$200.

You now own 8 ? 0.

Your current cash = \$695.

Buy how many shares of Capella Freight Co. at \$700.

You now own 9 ? 0.

Your current cash = \$695.

Buy how many shares of Denebola Shippers at \$200.

You now own 5 ? 3.

Your current cash = \$95.

Buy how many shares of Eridani Expeditors at \$600.

You now own 0 ? 0.

More time passes.

MAP OF THE GALAXY

	A	B	C	D	E	F	G	H	I	J	K	L
1	●	+	●	A	●	●	●	●	●	●	●	●
2	●	●	●	A	A	●	●	●	●	C	C	●
3	●	●	●	A	A	●	+	●	C	C	C	★
4	+	●	D	●	●	●	●	●	●	●	●	●
5	●	●	D	D	●	★	●	●	●	●	●	●
6	●	D	D	●	●	●	●	●	●	●	●	●
7	●	●	D	●	●	●	●	●	E	★	●	●
8	●	●	D	●	●	●	●	●	●	B	B	B
9	●	●	●	●	●	●	●	●	●	●	B	B

Steve, here are your legal moves for this turn: 8 i / 6 e / 6 l / 1 h / 4 h /

What is your move? 8 i

Special announcement!!
 Eridani Expeditors has just been merged into Betelgeuse, Ltd.! Please note the following transactions.
 Old Stock = Eridani Expeditors
 New Stock = Betelgeuse, Ltd.

Player	Old Stock	New Stock	Total Holdings	Bonus Paid
Steve	7	4	25	\$6000
Debbie	0	0	9	\$0

Your current cash = \$9520.

Buy how many shares of Altair Starways at \$500.

You now own 24 ? 2.

Your current cash = \$8520.

Buy how many shares of Betelgeuse, Ltd. at \$1600.

You now own 25 ? 0.

Your current cash = \$8520.

Buy how many shares of Capella Freight Co. at \$1000.

You now own 1 ? 3.

Your current cash = \$5520.

Buy how many shares of Denebola Shippers at \$700.

You now own 9 ? 7.

MAP OF THE GALAXY

	A	B	C	D	E	F	G	H	I	J	K	L
1	●	+	●	A	●	●	●	●	●	●	●	●
2	●	●	●	A	A	●	●	●	●	C	C	●
3	●	●	●	A	A	●	+	●	C	C	C	★
4	+	●	D	●	●	●	●	●	●	●	●	●
5	●	●	D	D	●	★	●	●	●	●	●	●
6	●	D	D	●	●	●	●	●	●	●	●	●
7	●	●	D	●	●	●	●	●	B	★	●	●
8	●	●	D	●	●	●	●	●	B	B	B	B
9	●	●	●	●	●	●	●	●	●	●	B	B

Betelgeuse has taken over Eridani.

MAP OF THE GALAXY

	A	B	C	D	E	F	G	H	I	J	K	L
1	D	D	D	D	●	●	●	●	●	●	●	●
2	●	●	●	D	D	D	D	●	●	D	D	D
3	●	●	●	D	D	●	D	D	D	D	D	★
4	+	●	D	D	D	D	D	●	●	●	D	●
5	●	●	D	D	●	★	D	●	●	●	D	●
6	●	D	D	D	●	●	●	●	●	D	D	●
7	●	●	D	D	●	●	●	●	B	★	●	●
8	●	●	D	●	●	●	●	●	B	B	B	B
9	●	●	●	●	●	●	●	●	●	●	B	B

It is near the end of the game, now. Denebola has absorbed almost every other shipping company.

Debbie, here are your legal moves for this turn: 2 a / 3 a / 1 l / 9 f / 6 f /

What is your move? 6 f

Special Announcement!!

A new shipping company has been formed!

Its name is Altair Starways.

Your current cash = \$52856.

Buy how many shares of Altair Starways at \$600.

You now own 5 ? 25.

Your current cash = \$37856.

Buy how many shares of Betelgeuse, Ltd. at \$1700.

You now own 53 ? 15.

Your current cash = \$12356.

Buy how many shares of Denebola Shippers at \$2475.

You now own 379 ? 5.

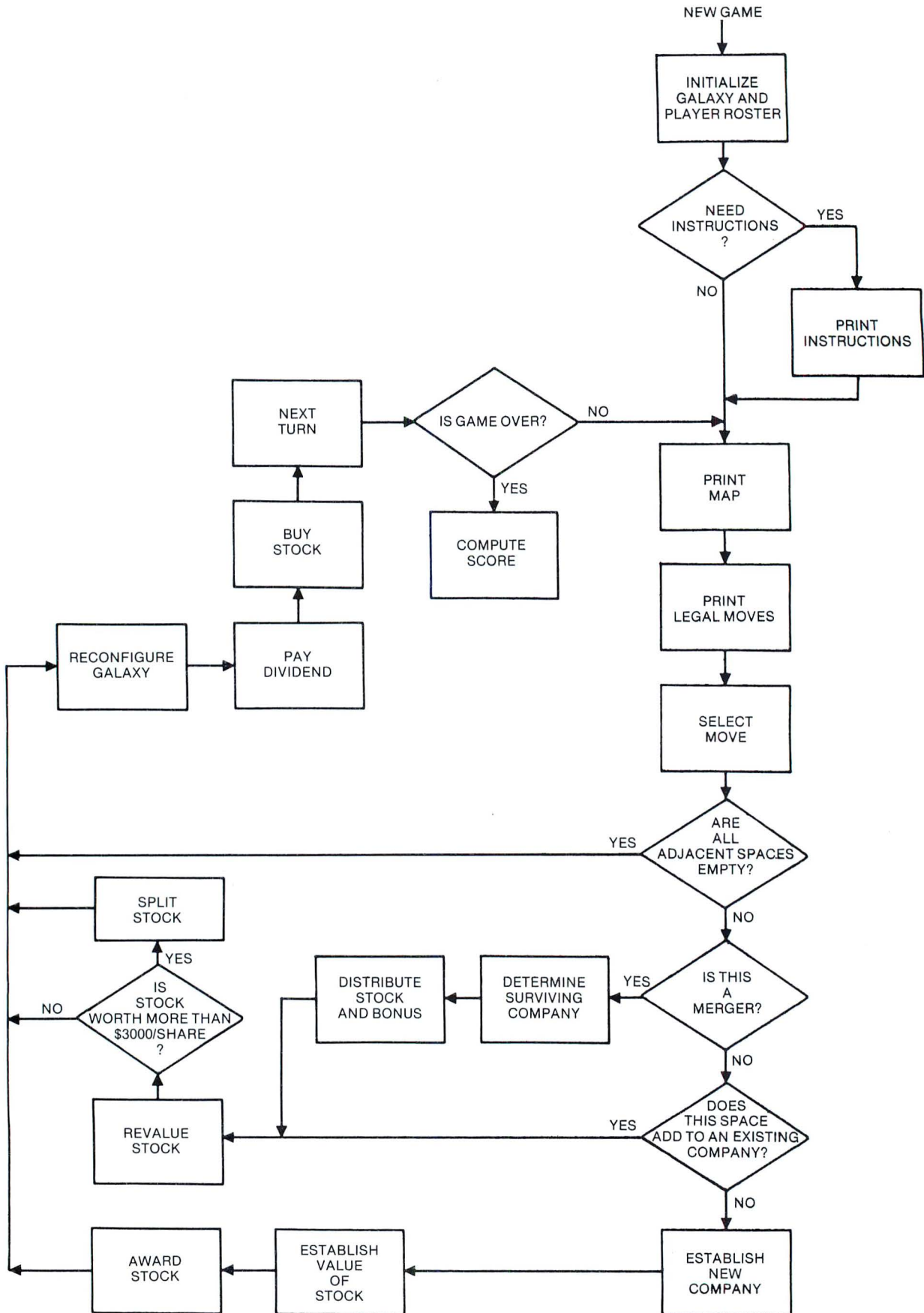


Figure 1. Flow Chart for "Star Lanes"

You only have \$12356 — try again.
 Buy how many shares of Denebola Shippers at \$2475.
 You now own 379 ? 4

MAP OF THE GALAXY

	A	B	C	D	E	F	G	H	I	J	K	L
1	D	D	D	D	●	●	●	●	●	●	●	●
2	●	●	●	D	D	D	D	●	●	D	D	D
3	●	●	●	D	D	●	D	D	D	D	D	*
4	+	●	D	D	D	D	D	●	●	●	D	●
5	●	●	D	D	●	*	D	●	●	●	D	●
6	●	D	D	D	●	A	●	●	●	D	D	●
7	●	●	D	D	●	●	●	●	B	*	●	●
8	●	●	D	●	●	●	●	B	B	B	B	B
9	●	●	●	●	●	●	●	●	●	●	B	B

Steve, here are your legal moves for this turn: 7 g / 4 b / 1 g / 7 k / 2 a /
 What is your move? 7 k

Special Announcement!!

Betelgeuse, Ltd, has just been merged into Denebola Shippers! Please note the following transactions.

Old Stock = Betelgeuse, Ltd.
 New Stock = Denebola Shippers

Player	Old Stock	New Stock	Total Holdings	Bonus Paid
Steve	79	40	426	\$9136
Debbie	68	34	417	\$7863

Special Announcement!!

The Stock of Denebola Shippers has split 2 for 1!

Your current cash = \$98945
 Buy how many shares of Altair Starways at \$600.
 You now own 0 ? 0.
 Your current cash = \$98945
 Buy how many shares of Denebola Shippers at \$2087.
 You now own 852 ? 45

MAP OF THE GALAXY

	A	B	C	D	E	F	G	H	I	J	K	L
1	D	D	D	D	●	●	●	●	●	●	●	●
2	●	●	●	D	D	D	D	●	●	D	D	D
3	●	●	●	D	D	●	D	D	D	D	D	*
4	+	●	D	D	D	D	D	●	●	●	D	●
5	●	●	D	D	●	*	D	●	●	●	D	●
6	●	D	D	D	●	A	●	●	●	D	D	●
7	●	●	D	D	●	●	●	●	D	*	D	●
8	●	●	D	●	●	●	●	D	D	D	D	D
9	●	●	●	●	●	●	●	●	●	●	D	D

Debbie, here are your legal moves for this turn: 5 e / 9 d / 2 h / 7 a / 2 b /
 What is your move? 2 h
 Your current cash = \$102416
 Buy how many shares of Altair Starways at \$600.
 You now own 30 ? 0
 Your current cash = \$102416
 Buy how many shares of Denebola Shippers at \$2187.
 You now own 834 ? 46

Special Announcement!!

The game is over — here are the Final Standings

Player	Cash Value of Stock	Cash on Hand	Net Worth
Steve	\$1.96174E+06	\$5030	\$1.96677E+06
Debbie	\$1.94256E+06	\$1814	\$1.94437E+06

Another game? No.

EXPANDED FLOW CHART

NOTE: THIS LOOP IS EXECUTED 5 TIMES

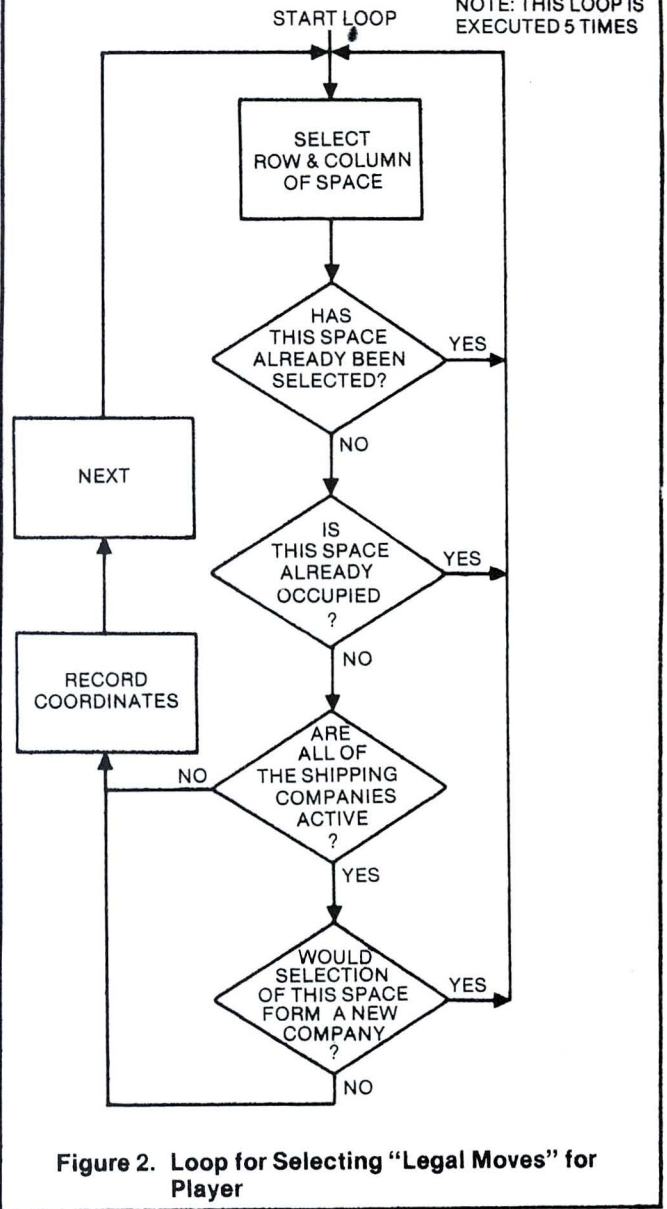


Figure 2. Loop for Selecting "Legal Moves" for Player

OK

STAR LANES PROGRAM BASIC LISTING

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10 REM THE GAME OF STAR LANES - AN INTERSTELLAR COMMERCE GAME
20 REM FOR 2-4 PLAYERS - COPYRIGHT 1977 BY STEVEN FABER
30 REM WRITTEN IN ALTAIR BASIC 12/17/76
40 PRINTCHR$(12):PRINT:PRINT:PRINTTAB(10)"* S * T * A * R **"
50 PRINT" L * A * N * E * S *"
60 DIMM(10,13),S(5,4),NS(5),D1(5),S1(5),Q(5)
70 MS(5)="FRIDANI EXPEDITERS":FORI=1TO5:FORJ=1TO4:S(I,J)=0
75 D1(I)=0:S1(I)=100:Q(I)=0:BC(I)=600:NEXTJ:I
80 MS(3)="CAPFLA FREIGHT CO.":MS(4)="DENEbola SHIPPEKS"
90 MS(1)="ALTAIR STARWAYS":MS(2)="BETELGEUSE, LTD."
100 LS="..+ARCDF":MS="ARCDFFGHIJKL":FORI=1TO9:FORJ=1TO12
110 IFINT(RND(1)*20)+1<>10THENM(I,J)=1:GOTO130
120 M(I,J)=3
130 NEXTJ,I:INPUT"HOW MANY PLAYERS (2-4)?"P1
140 INPUT"DOES ANY PLAYER NEED INSTRUCTIONS?"RS
150 IFLEFT$(RS,1)="Y"THENGOSUBR000
160 FORI=1TOP1:PRINT"PLAYER";I:INPUT"WHAT IS YOUR NAME?"PS(I)
170 NEXTI:PRINT:PRINT"NOW I WILL DECIDE WHO GOES FIRST..."I:PRINT
180 I=INT(P1*RND(1)+1):PRINTPS(I):" IS THE FIRST PLAYER TO MOVE."
185 K=0
190 P=I:GOTO220
200 K=K+1:IFK=48THEN9500
210 P=P+1:IFP=1+1THENP=1
220 FOI=1TO5
230 R(I)=INT(9*RND(1)+1):C(I)=INT(12*RND(1)+1)
240 FORI1=1+1TO5:IFR(I1)+1<R(I)+1ANDC(I1)<C(I)THEN230
250 NEXTI1:IFM(R(I),C(I))>1THEN230
260 FORI1=1TO5:IFQ(I1)=0THEN340
270 NEXTI1:IFM(R(I),C(I)+1)>30RM(R(I),C(I)-1)>3THEN340
    
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280 IFM(R(I)+1,C(I))>30RM(R(I)-1,C(I))>3THEN340
290 A1=M(R(I),C(I)+1):A2=M(R(I),C(I)-1)
300 A3=M(R(I)+1,C(I)):A4=M(R(I)-1,C(I))
310 IFA1<2ANDA2<4ANDA3<4ANDA4<4THEN230
315 IFA2<2ANDA1<4ANDA3<4ANDA4<4THEN230
320 IFA3<2ANDA1<4ANDA2<4ANDA4<4THEN230
325 IFA4<2ANDA1<4ANDA2<4ANDA3<4THEN230
330 IFA1<3ANDA2<4ANDA3<4ANDA4<4THEN230
332 IFA2<3ANDA1<4ANDA3<4ANDA4<4THEN230
335 IFA3<3ANDA1<4ANDA2<4ANDA4<4THEN230
337 IFA4<3ANDA1<4ANDA2<4ANDA3<4THEN230
340 NEXT I:GOSUB1000:PRINT:PRINT$(P):
350 PRINT", HERE ARE YOUR LEGAL MOVES FOR THIS TURN:"
360 FORI=1TO5:PRINTR(I);MID$(M$(C(I),I)," /":NEXTI:PRINT
370 INPUT"WHAT IS YOUR MOVE?";R5:IFLEFTS(R5,1)="M"THENGOSUB1000:GOTO350
372 ILEFTS(R5,1)="S"THENGOSUB1440:GOTO350
375 R=VAL(LEFTS(R5,1))
380 C=ASC(RIGHTS(R5,1))-64:FORI=1TO5:IFR(R(I)ANDC=C(I)THEN400
390 NEXT I:PRINT"THAT SPACE WAS NOT INCLUDED IN THE LIST...":GOTO370
400 A1=M(R-1,C):A2=M(R+1,C):A3=M(R,C+1):A4=M(R,C-1)
410 IFA1<=1ANDA2<=1ANDA3<=1ANDA4<=1THENM(R,C)=2:GOTO800
420 IFA1>3ANDA2>3ANDA3>3THENGOSUB1060
430 IFA1>3ANDA3>3ANDA4>3THENGOSUB1060
440 IFA1>3ANDA4>3ANDA4>3THENGOSUB1060
450 IFA2>3ANDA3>3ANDA3>3THENGOSUB1060
460 IFA2>3ANDA4>3ANDA4>3THENGOSUB1060
470 IFA3>3ANDA4>3ANDA4>3THENGOSUB1060
480 IFA1<4ANDA2<4ANDA3<4ANDA4<4THEN660
490 IFM(R,C)>3THEN800
500 IFA1>3THENI=A1-3
510 IFA2>3THENI=A2-3
520 IFA3>3THENI=A3-3
530 IFA4>3THENI=A4-3
540 Q(I)=Q(I)+1:S(I)=S(I)+100:M(R,C)=I+3:GOTO700
660 FORI=1TO5:IFQ(I)=0THEN680
670 NEXT I:IFM(R,C)<3THENM(R,C)=2:GOTO800
680 GOSUB7900:PRINT"A NEW SHIPPING COMPANY HAS BEEN FORMED!"
690 PRINT"IT'S NAME IS "M$(I):S(I),P)=S(I,P)+5:Q(I)=1
695 PRINT:PRINT:PRINT:PRINT
700 IFA1>3THENS(I)=S(I)+500
710 IFA2>3THENS(I)=S(I)+500
720 IFA3>3THENS(I)=S(I)+500
730 IFA4>3THENS(I)=S(I)+500
740 IFA1>2THENS(I)=S(I)+100:Q(I)=Q(I)+1:M(R-1,C)=I+3
750 IFA2>2THENS(I)=S(I)+100:Q(I)=Q(I)+1:M(R+1,C)=I+3
760 IFA3>2THENS(I)=S(I)+100:Q(I)=Q(I)+1:M(R,C+1)=I+3
770 IFA4>2THENS(I)=S(I)+100:Q(I)=Q(I)+1:M(R,C-1)=I+3
780 IFS1(I)>=3000THENT1=1:GOSUB1400
790 M(R,C)=I+3
800 FORI=1TO5:B(P)=B(P)+INT(.05*S(I,P)*S(I)):NEXTI
810 FORI=1TO5:IFQ(I)=0THEN900
820 PRINT"YOUR CURRENT CASH= $"B(P):
830 PRINT"BUY HOW MANY SHARES OF "M$(I):" AT $"S(I):PRINTTAB(5):
840 PRINT"YOU NOW OWN "S(I,P):
850 INPUTR3$:IFLEFTS(R3$,1)="M"THENR3$="":GOSUB1000:GOTO830
855 ILEFTS(R3$,1)="S"THENR3$="":GOSUB1440:GOTO830
856 R3=VAL(R3$):R3$="":
860 IFR3>S(I)<=B(P)THEN880
870 PRINT"YOU ONLY HAVE $"B(P):"-- TRY AGAIN":GOTO830
880 IFR3>0THEN900
890 S(I,P)=S(I,P)+R3:B(P)=B(P)+(R3*S(I))
900 NEXT I:GOTO200
1000 PRINTCHR$(12):PRINTTAB(22)"MAP OF THE GALAXY"
1010 PRINTTAB(21)"*****"
1020 PRINTTAB(12)" A B C D E F G H I J K L"
1030 FORR2=1TO9:PRINTTAB(9)R2:FORC2=1TO12:PRINT" "
1040 PRINTMIDS(LEFT$(M(R2,C2),1))" /":NEXTC2:PRINT:INEXTR2
1050 RETURN
1060 F1=A1-3:IFF1<0THENF1=0
1061 F2=A2-3:IFF2<0THENF2=0
1062 F3=A3-3:IFF3<0THENF3=0
1063 F4=A4-3:IFF4<0THENF4=0
1065 T=Q(F1)+T1-F1:IFQ(F2)>Q(F1)THENT=Q(F2):T1=F2
1070 IFQ(F3)>THENT=Q(F3):T1=F3
1080 IFQ(F4)>THENT=Q(F4):T1=F4
1090 IFF1>T1ORA1<4THENI110
1100 X=F1:GOSUB1100
1110 IFF2>T1ORA2<4THENI130
1120 X=F2:GOSUB1100
1130 IFF3>T1ORA3<4THENI150
1140 X=F3:GOSUB1100
1150 IFF4>T1ORA4<4THENI170
1160 X=F4:GOSUB1100
1170 RETURN
1180 GOSUB7900:PRINTM$(X):" HAS JUST BEEN MERGED INTO ";
1190 PRINTM$(T1):" /":PRINT"PLEASE NOTE THE FOLLOWING TRANSACTIONS."
1200 PRINT:PRINTTAB(4)"OLD STOCK = "M$(X):" NEW STOCK = ";
1210 PRINTM$(T1):PRINT
1220 PRINT"PLAYER";TAB(10)"OLD STOCK";TAB(22)"NEW STOCK";TAB(34):
1230 PRINT"TOTAL HOLDINGS";TAB(53)"BONUS PAID";
1240 FORI=1TOPI:PRINTP$(I);TAB(10)S(X,I);TAB(22)INT(.5*S(X,I))+.5);
1250 PRINTTAB(34)S(T1,I)-INT(.5*S(X,I))+.5);
1260 X1=0:FORI=1TOPI:X1=X1+S(X,I):NEXTI
1265 PRINTTAB(53):
1270 PRINT" S";INT(10*(C$(X,I)/X1)*S1(X)):NEXTI
1290 FORI=1TOPI:S(T1,I)=S(T1,I)+INT(.5*S(X,I))+.5
1300 B(I)=B(I)+INT(10*(C$(X,I)/X1)*S1(X)):NEXTI
1310 FORI=1TO9:FORJ=1TO12:IFM(I,J)=X+3THENM(I,J)=T1+3
1315 NEXTJ,I
1317 A1=M(R-1,C):A2=M(R+1,C):A3=M(R,C+1):A4=M(R,C-1)
1318 F1=A1-3:IFF1<0THENF1=0
1319 F2=A2-3:IFF2<0THENF2=0
1320 Q(T1)=Q(T1)+Q(X):S(T1)=S(T1)+S1(X):IFS1(T1)>=3000THENGOSUB1400
1321 F3=A3-3:IFF3<0THENF3=0
1322 F4=A4-3:IFF4<0THENF4=0
1340 S1(X)=100:Q(X)=0:FORI=1TOPI:S(X,I)=0:NEXTI
1355 PRINT:PRINT:PRINT:PRINT
1360 M(R,C)=T1+3
1370 RETURN
1400 GOSUB7900:PRINT"THE STOCK OF ";
1410 PRINTM$(T1):" HAS SPLIT 2 FOR 1!";S1(T1)=INT(S1(T1)/2)
1415 PRINT:PRINT:PRINT:PRINT
1420 FORI=1TOPI:S(T1,I)=2*S(T1,I):NEXTI
1430 RETURN
1440 PRINTCHR$(12):PRINT
1450 PRINT"STOCK";TAB(30)"PRICE PER SHARE";TAB(50)"YOUR HOLDINGS"
1460 FORI3=1TO5:IFS1(I3)=100THEN1480
1470 PRINTM$(I3);TAB(30)S1(I3);TAB(50)S(I3,P)
1480 NEXTI3:RETURN
7900 REM INSERT BELL (CTRL G) HERE
7910 PRINTTAB(22)"SPECIAL ANNOUNCEMENT!!":PRINT
7920 RETURN
8000 PRINT:PRINT" STAR LANES IS A GAME OF INTERSTELLAR TRADING."
8010 PRINT"THE OBJECT OF THE GAME IS TO AMASS THE GREATEST AMOUNT"
8020 PRINT"OF MONEY. THIS IS ACCOMPLISHED BY ESTABLISHING VAST,"
8030 PRINT"INTERSTELLAR SHIPPING LANES, AND PURCHASING STOCK IN"
8040 PRINT"THE COMPANIES THAT CONTROL THOSE TRADE ROUTES. DURING"
8050 PRINT"THE COURSE OF THE GAME, STOCK APPRECIATES IN VALUE AS"
8060 PRINT"THE SHIPPING COMPANIES BECOME LARGER. ALSO, SMALLER"
8070 PRINT"COMPANIES CAN BE MERGED INTO LARGER ONES, AND STOCK"
8080 PRINT"IN THE SMALLER FIRM IS CONVERTED INTO STOCK IN THE "
8090 PRINT"LARGER ONE AS DESCRIBED BELOW."PRINT
8100 PRINT" EACH TURN, THE COMPUTER WILL PRESENT THE PLAYER WITH"
8120 PRINT"FIVE PROSPECTIVE SPACES TO OCCUPY ON A 9X12 MATRIX"
8130 PRINT"(ROWS 1-9, COLUMNS A-L). THE PLAYER, AFTER EXAMINING"
8140 PRINT"THE MAP OF THE GALAXY TO DECIDE WHICH SPACE HE WISHES"
8150 PRINT"TO OCCUPY, RESPONDS WITH THE ROW AND COLUMN OF THAT"
8160 PRINT"SPACE, I.E., 7E, 8A, ETC. THERE ARE FOUR POSSIBLE"
8170 PRINT"MOVES A PLAYER CAN MAKE."PRINT
8180 PRINT" 1. HE CAN ESTABLISH AN UNATTACHED OUTPOST- IF HE"
8190 PRINT"SELECTS A SPACE THAT IS NOT ADJACENT TO A STAR, ANOTHER"
8200 PRINT"UNATTACHED OUTPOST, OR AN EXISTING SHIPPING LANE, THIS"
8210 PRINT"SPACE WILL BE DESIGNATED WITH A '*'. HE WILL THEN PROCEED"
8230 PRINT"WITH STOCK TRANSACTIONS, AS LISTED BELOW."PRINT
8240 PRINT" 2. HE CAN ADD TO AN EXISTING LANE- IF HE SELECTS A SPACE"
8250 PRINT"WHICH IS ADJACENT TO ONE - AND ONLY ONE EXISTING SHIPPING"
8260 PRINT"LANE, THE SPACE HE SELECTS WILL BE ADDED TO THAT SHIPPING"
8270 PRINT"LANE, AND WILL BE DESIGNATED WITH THE FIRST LETTER OF "
8280 PRINT"THE COMPANY THAT OWNS THAT LANE. IF THERE ARE ANY STARS"
8290 PRINT"OR UNATTACHED OUTPOSTS ALSO ADJACENT TO THE SELECTED SPACE,"
8300 PRINT"THEY, TOO, WILL BE INCORPORATED INTO THE EXISTING LANE."
8310 PRINT"EACH NEW SQUARE ADJACENT TO A STAR ADDS $500 PER SHARE, AND"
8320 PRINT"EACH NEW OUTPOST ADDS $100 PER SHARE TO THE MARKET VALUE"
8330 PRINT"OF THE STOCK OF THAT SHIPPING COMPANY."PRINT
8340 PRINT" 3. HE MAY ESTABLISH A NEW SHIPPING LANE- IF THERE"
8350 PRINT"ARE FIVE OR LESS EXISTING SHIPPING LANES ESTABLISHED,"
8360 PRINT"THE PLAYER MAY, GIVEN THE PROPER SPACE TO PLAY, ESTABLISH"
8370 PRINT"A NEW SHIPPING LANE. HE MAY DO THIS BY OCCUPYING A SPACE"
8380 PRINT"ADJACENT TO A STAR OR ANOTHER UNATTACHED OUTPOST, BUT "
8390 PRINT"NOT ADJACENT TO AN EXISTING SHIPPING LANE. IF HE "
8400 PRINT"ESTABLISHES A NEW SHIPPING LANE, HE IS AUTOMATICALLY"
8410 PRINT"ISSUED 5 SHARES IN THE NEW COMPANY AS A REWARD. HE"
8420 PRINT"MAY THEN PROCEED TO BUY STOCK IN THAT COMPANY, OR ANY"
8430 PRINT"OTHER ACTIVE COMPANY, AS DESCRIBED BELOW. THE MARKET "
8440 PRINT"VALUE OF THE NEW STOCK IS ESTABLISHED BY THE NUMBER OF"
8450 PRINT"STARS AND OCCUPIED SPACES AS DESCRIBED IN #2 ABOVE."PRINT
8460 PRINT" 4. HE MAY MERGE TWO EXISTING COMPANIES- IF PLAYER"
8470 PRINT"SELECTS A SPACE ADJACENT TO TWO EXISTING SHIPPING"
8480 PRINT"LANES, A MERGER OCCURS. THE LARGER COMPANY TAKES OVER"
8490 PRINT"THE SMALLER COMPANY. THE STOCK OF THE LARGER COMPANY IS"
8500 PRINT"INCREASED IN VALUE ACCORDING TO THE NUMBER OF SPACES AND"
8510 PRINT"STARS ADDED TO ITS LANE. EACH PLAYER'S STOCK IN THE"
8520 PRINT"SMALLER COMPANY IS EXCHANGED FOR SHARES IN THE LARGER"
8530 PRINT"ON A RATIO OF 2 SHARES OF THE SMALLER = 1 SHARE OF THE"
8540 PRINT"LARGER. ALSO, EACH PLAYER IS PAID A CASH BONUS PROPORTIONAL"
8550 PRINT"TO THE PERCENTAGE OF OUTSTANDING STOCK HE HELD IN THE"
8560 PRINT"SMALLER COMPANY. NOTE: AFTER A COMPANY BECOMES DEFUNCT"
8570 PRINT"THROUGH THIS MERGER PROCESS, IT CAN REAPPEAR ELSEWHERE"
8580 PRINT"ON THE BOARD IF A NEW COMPANY IS ESTABLISHED (SEE #3 ABOVE)"
8590 PRINT:PRINT" NEXT THE COMPUTER ADDS STOCK DIVIDENDS TO THE"
8600 PRINT"PLAYER'S CASH ON HAND (5% OF THE MARKET VALUE OF THE "
8610 PRINT"STOCK IN HIS POSSESSION), AND OFFERS HIM THE OPPORTUNITY TO "
8620 PRINT"PURCHASE STOCK IN ANY OF THE ACTIVE COMPANIES ON THE"
8630 PRINT"BOARD. STOCK MAY NOT BE SOLD, BUT THE MARKET VALUE OF "
8640 PRINT"EACH PLAYER'S STOCK IS TAKEN INTO ACCOUNT AT THE END"
8650 PRINT"OF THE GAME TO DETERMINE THE WINNER. IF THE MARKET VALUE"
8660 PRINT"OF A GIVEN STOCK EXCEEDS $3000 AT ANY TIME DURING THE "
8670 PRINT"GAME, THAT STOCK SPLITS TWO FOR ONE. THE PRICE IS CUT"
8680 PRINT"IN HALF, AND THE NUMBER OF SHARES OWNED BY EACH PLAYER"
8690 PRINT"IS DOUBLED."PRINT
8700 PRINT"NOTE: THE PLAYER MAY LOOK AT HIS PORTFOLIO AT ANY TIME"
8710 PRINT"DURING THE COURSE OF HIS TURN BY RESPONDING WITH 'STOCK'"
8720 PRINT"TO AN INPUT STATEMENT. LIKEWISE, HE CAN REVIEW THE MAP"
8730 PRINT"OF THE GALAXY BY TYPING 'MAP' TO AN INPUT STATEMENT. "
8740 PRINT:PRINT"GAME ENDS AFTER 48 MOVES. PLAYER WITH THE GREATEST"
8750 PRINT"NET WORTH AT THAT POINT IS THE WINNER."PRINT:PRINT
8760 RETURN
9500 GOSUB7900:PRINT"THE GAME IS OVER - HERE ARE THE FINAL STANDINGS"
9505 PRINT
9510 PRINT"PLAYER";TAB(10)"CASH VALUE OF STOCK";TAB(33)"CASH ON HAND";
9520 PRINTTAB(50)"NET WORTH":PRINT
9530 FORI=1TOPI:FORJ=1TO5:D1(I)=D1(I)+S1(J)*S(J,I):NEXTJ,I
9540 FORI=1TOPI:PRINTP$(I);TAB(10)"S";D1(I);TAB(33)"S";B(I);
9550 PRINTTAB(50)"S";D1(I)+B(I):NEXTI
9560 INPUT"ANOTHER GAME?";R5:IFLEFTS(R5,1)="Y"THEN70

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