TEXAS INSTRUMENTS HOME COMPUTER NEWSLETTER

PUBLISHED FOR TI COMPUTER ADVANTAGE CLUB MEMBERS AND TI 99/4A USERS



STARTING A USERS' GROUP

Users' Groups provide numerous benefits to novice and experienced users.

When groups pool the experience and resources of all members, everyone learns and benefits.

Most groups introduce new products purchased by members, share user-written software,teach programming, sponsor speakers and publish newsletters.

Typically, groups are started by a few interested individuals who are dedicated to establishing a network of knowledge. In fact, several groups have started with only one person. A well-organized and persistent group generally grows quickly.

Some groups start and stay small. The size of your group depends on your club goals. Well-rounded, dynamic groups, regardless of size, tend to attract interested non-users, educators and dealer support.

The following suggestions are offered to help TI-99/4A owners interested in starting a Users' Group:

 Locate at least two or three other people who want to start a group.

2. Write to Texas Instruments and request a Users' Group Start-Up Kit. Send your request to:

> Texas Instruments Incorporated Users' Group Coordinator P. O. Box 10508, MS 5890 Lubbock, Texas 79408

The Kit will give you detailed guidelines for organization, recruitment and meeting structure.

3. During your second or third meeting, elect officers and appoint a committee to write a constitution.

4. Once you have officers and a constitution, Texas Instruments can mail one meeting notice to TI-99/4A owners in your area, free of charge. To take advantage of this service, you must send the meeting date, time and place to the Users' Group Coordinator at least four weeks in advance of the meeting.

5. Continuing club activities require the participation of all members. Divide jobs equally among members so that primary responsibilities are shared:

a) Meeting Plans—activities, speakers, notices.

b) Newsletter-editing, reproduction, mailing.

c) Liasion—communication with other Texas Instruments' clubs.

d) Bookkeeping—financial status and planning, dues.

e) Membership—publicity, information.

f) Software Library-policies, editing, distribution.

6. Meet at a regular time and place. Groups should meet at least once a month. People outside of your group will learn of your meeting schedule and plan to attend. Irregular meetings are the surest way to kill a growing club.

7. Establish a regular meeting place. The area should be large enough to accomodate a growing club. Groups should establish one meeting place and continue to meet at one place to avoid confusion.

8. Offer activities of interest to all members. Smaller, special interest groups may want to meet separately, In addition to the regular group meetings. You also may want to plan special activities such as computer fairs or game nights. 9. Distribute a monthly newsletter. Newsletters are a good way to exchange programs and ideas, and also are excellent publicity for your olub. Articles should be written for all levels of computer knowledge. The newsletter should arrive a week prior to the regular meeting and contain a monthly club calendar.

10. Maintain a club library. The library will be an important resource for all members. Purchase books and magazines from club dues and regularly demonstrate and critique library programs, books and articles.

11. Establish communications with other Users' Groups and microcomputer groups. Exchange newsletters and make regular reports on other group activities. Computer services such as TEXNETSM provide your club with another information source.

12. Establish regular dues. If you plan to have regular group activities and provide worthwhile services, dues should be charged. Dues can be used to buy library materials, publish newsletters and even buy and maintain a club computer. Dues should be affordable—\$10 to \$20 is the normal range.

NEW USERS' GROUPS STARTED

More than 45 Users' Groups now exist in the United States and foreign countries.

Two new groups recently were added to the roster.

Spanish programs should become more readily available now that a group has been formed in Colombia. For more information write:

Asociacion Colombiana de Usuarios 99/4A Av. Nutivara #C 3-6 Medellin Colombia S.A,

A new group has been formed in Minnesota. For Information about meeting dates, time, and place, write: Greater Minneapolis-St. Paul Home Computer Users' Group P. O. Box 12351 St. Paul, MN 55112 You can obtain the names and addresses of local Users' Groups from TI-99/4A retailers and Product Support Representatives, or by writing to:

> Texas Instruments Incorporated Users' Group Coordinator P. O. Box 10508, MS 5890 Lubbock, Texas 79408

The Texas Instruments Home Computer Newsletter story suggestions and comments may be sent to.

Texas Instruments, Inc. P. O. Box 10508, MS 5882 Lubbock, Texas 79408 Attn: Tami Cantua Morris, Editor

2.

CROSSWORD PUZZLE

ACROSS

- 1. Addition to System
- 6. Translator which makes two different peripherals compatible
- 9. Children's language
- 11. Monster who chases Munchman
- 12. Sometimes causes input error
- 13. Language built into TI-99/4A
- 15. Command to process program
- 16. Command to leave program
- 17. Mathematical term
- 20. Program documentation within actual program
- 21. Command to automatically number each line
- 23. Terminates program execution
- 24. Process of correction
- 25. A danger when trying to find the Wumpus
- 26. The first aliens to attack in the game PARSEC

DOWN

- 2. New Educational Software
- 3. Temporary space
- 4. Number 1 of color code
- 5. Command to make objects disappear on screen
- 7. Cassette Access
- 8. Command to transfer control to a different routine
- 14. Basic computer unit
- 18. Command to change line numbers
- 19. Inexpensive storage
- 22. Command that gives hard copy
- 27. Type of screen

TICAC EXPANSION PLANNED FOR 1983

Ti's Computer Advantage Club officials plan to offer classes in the top 100 U.S. markets by June 1983.

Currently, the classes are offered in the 29 largest U.S. metropolitan areas.

By late March 1983, classes are expected to be taught in Newark, Cincinnati, Milwaukee, Kansas City, San Jose, Portland, New Orleans, Indianapolis, Columbus, San Antonio, Hartford, Sacramento, Rochester, Memphis, Nashville, Louisville, Providence, Austin, Salt Lake City, Greensboro, Raleigh, Winston-Salem, Oklahoma City, Dayton, and Norfolk. By mid-1983. club officials expect to have teachers in Albany, Honolulu, Jacksonville, Akron, Charlotte, Richmond, Syracuse, Tucson, Gary, Little Rock, Albuquerque, Johnson City, Las Vegas, Baton Rouge, Allentown, Columbia, Mobile, Knoxville, Tacoma, Fresno and Omaha.



Answers on page 5.

JANUARY COURSE OFFERINGS

Five TI Computer Advantage Club Courses will be offered in 29 major metropolitan areas beginning Jan. 17, 1983.

All courses consist of 10 hours of instruction and will be taught in four 2½ hour sessions. Actual computer time is included with all courses at no extra charge.

Tuition for the three children's classes is \$65 a course. Tuition for the two adult courses is \$75 each.

If two family members register for courses **at the same time**, a \$10 discount will be given to every family member who registers after the first member.

January Course Offerings

The Children's Computer Awareness Program is for 8-to 15-year-olds who have little or no knowledge of computers. Students learn to run and write sho⁻⁺ programs implementing several useful BASIC commands, practice in the TI LOGO Turtle and Sprite modes and learn computer parts and terminology.

Programming Discovery in TI BASIC is a beginning programming course for 8-to 15-year-olds. The awareness program is recommended as a prerequisite, but is not required. Instruction incorporates music, graphics, color, speech, sound and problem solving.

Programming Discovery in TI LOGO is for 8-to 15-year-olds. The Awareness Program is recommended as a prerequisite, but is not required. Students learn to save and recall TI LOGO procedures. Course concentration is on the Sprite and Turtle graphics modes and developing geometric, math and logic skills.

The Adult Computer Awareness Program is a general introduction to computer terminology, parts, software, storage methods and basic programming principles.

Instruction in the **BASIC Programming for Adults** course focuses on TI BASIC commands and statements, graphics, problem solving, flow charting and practical applications programs.

January courses will be offered in Atlanta, Baltimore, Birmingham, Boston, Chicago, Cleveland, Dallas, Denver, Detroit, Houston, Long Island, Los Angeles, Lubbock, Miami, Minneapolis, New Jersey, New York City, Orlando, Philadelphia, Phoenix, Pittsburgh, San Francisco, San Diego, St. Louis, Seattle, Tampa, Washington D.C., Kaneae City and Buffalo.

CONSUMER SOFTWARE LINE OPENS

Consumers unable to purchase software from local dealers, can now purchase TI- 99/4A Software directly from Texas Instruments, at suggested retail price.

Toll-free operators are on duty from 8:00 a.m. to 5:15 p.m. Monday through Thursday, and from 8:00 a.m. to 3:15 p.m. on Friday. The toll-free number is 1-800-858-4075. Delivery time is four to six weeks. Applicable state and local tax will be charged.

Consumers also can purchase software at suggested retail price from local Texas Instruments Exchange Centers. Consumers can save time by purchasing from the Exchange Centers, instead of ordering from Texas Instruments, when software is not available locally.

THIRD PARTY SOFTWARE DIRECTORY

A large portion of TI-99/4A software is produced by "third party" developers, or producers not employed by Texas Instruments.

As new dealers produce software for Texas Instruments, updates will be listed.

For more information on a particular dealer, write to the address listed.

Legend The codes indicate the major types of software available from each producer. HP Home Finance/Personal Enrichment E - Entertainment ED - Educational C - Computer Literacy O - Other American Software Design and Е **Distributing Company** P. O. BOX 46 Cottage Grove, Minnesota 55016 Anthistle Systems, Ltd. ΗP 563 Patricia Drive ED Oakville, Ont., Canada L6K 1M4 Charles Moreale HP 105 Meadowbrook Venetia, Pennsylvania 15367 Chase Company Е C/O Christian Software Co.

P. O. Box 1429

Bethany, Oklahoma 73008

Computer-Ed, Inc. ED C/O Microcomputers Corp. 34 Maple Avenue P. O. Box 8 Armonk, New York 10504 Creative Computing Е P. O. Box 789-M Morristown, New Jersey 07960 Data Force, Inc. Е 10 S. 312 Hampshire Lane East Hinsdale, Illinois 60521 Data Systems HP 2214 W. Iowa ED Chicago, Illinois 60622 ΗP Denali Data Design 1413 N. McKinley Avenue Oklahoma City, Oklahoma 73106 HP Denver Software Company 14100 E. Jewell Avenue, Sulte 15 С Aurora, Colorado 80012 Eastbench Software ED 1290 Cliffside Drive Е Logan, Utah 84321 ΗP ED Educaitor, Inc. 38 Main Street С Hudson, Massachusetts 07149 Extended Software Company Ε 11987 Cedarcreek Drive С Cincinatti, Ohio 45240 Fantasy Computing Е 1586 S. Citrus Escondido, California 92027 FFF Software F P. O. Box 4169 Trenton, New Jersey 08610 Futura Software HP P. O. Box 5581 Е Ft. Worth, Texas 76108

Third Party Software Directory Galactic Software Е P. O. Box 99345 Cleveland, Ohio 44199 Hall Software ED P. O. Box 1736 Ε Anderson, Indiana 46014 Image Producers Ε 615 Academy Drive Northbrook, Illinois 60062 Instant Software Г Route 101 ED Peterborough, NH 03458 International 99/4A User's Е Group, Inc. ED P. O. Box 67 HP Bethany, Oklahoma 73008 С Intersoft Ε 5407 Salem Hill Austin, Texas 78745 J&K H Software 0

2820 S. Abingdon St. Arlington, Virginia 22206 HP Joe D. Fain

209 Presbytere Parkway Lafayette, Louisiana 70503

E Kemp Software TI Software Group 329 Mission Boulevard San Diego, California 92109

ED Micro-Ed, Inc. P. O. Box 24156 Minneapolis, Minnesota 55424

HP Microcomputers Corporation E 34 Maple Avenue

ED P. O. Box 8

C Armonk, New York 10504 E Miller Graphics

1475 W. Cypress Avenue San Dimas, California 91773

E Norton Software P. O. Box 575 Picton, Ont., Canada KOK 2TO

F Not-Polyoptics 13571 Lynn Street Woodbridge, Virginia 22191

E Oak Street Systems C 3922 Valentine Road Whitmore Lake, Michigan 48189

HP P.M. Systems & Services 4037 Johnson Drive Oceanside, California 92056

HP Pablo Diablo P. O. Box 4863 Santa Clara, California 95054

E Patio Pacific, Inc. 24433 Hawthorne Boulevard Torrance, California 90505 E Pewterware C/O Christian Software Co. P. O. Box 1429 Bethany, Oklahoma 73008

HP Professional Microware Attn: E.D. Schwartz, M.D. Suite 703, 735 St. Johns Avenue Highland Park, Illinois 60035

- ED Program Design, Inc. E 11 Idar Court Greenwich, Connecticut 06830
- E Prometheus Software 413 Lowell Lane Richardson, Texas 75080
- HP PRP Computergraphics
- E 901 Cherrydale Street Lake Charles, Louisiana 70605
- PS Software Company and Starsaber Software Company
 P. O. Box 541
 Belleville, Illinois 62222
- HP RCL Computers 359 Washington Avenue P. O. Box 2224 Oakmont, Pennsylvania 15139
- C RMI Media Productions, Inc. 120 W. 72nd Street Kansas City, Missouri 64114
- HP Scott, Foresman & Company
- ED 1900 E. Lake Avenue Glenview, Illinois 60025
- E Simul-Tech 35717 Grandview Court Framington Hills, MI 48018
- E Simulsoft Box 3494 Scottsdale, Arizona 85257
- HP Soft-Sell
- C P. O. Box 2403 Del Mar, California 92014
- E Software Exchange P. O. Box 97 North Chili, New York 14514
- E Sunshine Software 520 Millon Lane
- Hoffman Estates, Illinois 60194
- HP Technical Advancement Assoc. P. O. Box 16473 St. Louis, Missouri 63125
- ED The Micro House
- E 1406 E. Wisconsin Avenue
- HP Appleton, Wisconsin 54911
- ED W. R. Wilson, Inc. HP 928 Apple Street Greenfield, Indiana 46140
- ED 99'Er MagazineTM
- E P. O. Box 5537
- HP Eugene, Oregon 97405

HOTLINE DIRECTORY

CONSUMER HOTLINE

The Consumer Hotline is open from 8:00 a.m. to 6:15 p.m. Monday through Thursday and from 8:00 a.m. to 3:15 p.m. on Friday. The national number is 1-800-858-4565.

- CONSUMER SOFTWARE LINE Consumers unable to purchase software from local dealers can order software from TI by calling 1-800-858-4075 from 8:00 a.m. to 5:15 p.m. Monday through Thursday and from 8:00 a.m. to 3:15 p.m. on Friday.
- CONSUMER TECHNICAL LINE Home Computer users can call the technical line for questions about programming and applications. The line is open from 8:00 a.m. to 4:30 p.m. Monday through Thursday and until 3:15 p.m. on Friday. The direct number is 1-80\$741-2663.
- TI COMPUTER ADVANTAGE CLUB Consumers can call the TICAC line for class information and to register for classes. The lines are open from 8:00 a.m. to 8:30 p.m. Monday through Friday and from Noon to 4:30 p.m. Saturday and Sunday. The national number is 1-800-858-4069. Texas residents should call 1-800-692-1318. All Hours are Central Standard Time.





PROGRAMMING MUSIC

Programming music on the TI-99/4A, with the CALL SOUND command can produce delightful results.

To get started, you'll need to know how to read notes and their lengths, have a copy of the music you want to reproduce and locate the musical tone frequencies chart on page III-7 of the "User's Reference Guide."

The CALL SOUND command line consists of Duration (length of the note), Frequency (numerical equivalent of the note) and Volume (loudness or softness of the note); 100 CALL SOUND (Duration, Frequency, Volume)

If you wanted to program more than one tone at the same time, the line would look like this:

100 CALL SOUND (Duration, Frequency, Volume, Frequency2,Volume2, Frequency3,Volume3)

Whenever you program two or more notes together, the duration remains the same and is listed only once in the line.

The duration of a note depends on the time signature of the music. The signature tells you how many beats are in each measure and is indicated at the beginning of the music. For your first program, you may want to start with music written in a 4/4 signature (four beats to the measure).

To determine the duration, first choose the length of each measure. For example, if you choose 960 (a fast tempo) as the length of each measure, a quarter note would be 240 ($\frac{1}{4}$ of 960), a half note would be 480 ($\frac{1}{2}$ of 960) and a dotted half note would be 720 ($\frac{3}{4}$ of 960).

The frequency is the actual note. Frequencies for notes are listed in the "User's Reference Guide." The frequency for middle C, for example, is 262. The frequency for high C is 523.

Volumes range from 0 (loudest) to 10 (most quiet).

If you programmed a line to play middle and high C together as half notes at a fairly loud volume, the line would look liko this:

100 CALL SOUND (480,262,1,523,1) A program for "Deck the Halls" follows. Remember, you can make the music play faster or slower by changing the duration of each measure and of each note.

100 CALL SOUND (360,523,1,440,1) 200 CALL SOUND (120,466,1,392,1) 300 CALL SOUND (240,440,1,349,1) 400 CALL SOUND (240,392,1,330,1) 500 CALL SOUND (240,349,1,294,1) 600 CALL SOUND (240,392,1,330,1) 700 CALL SOUND (240,440,1,349,1) 800 CALL SOUND (240,349,1,262,1) 900 CALL SOUND (120,392,1,330,1) 1000 CALL SOUND (120,440,1,349,1) 1100 CALL SOUND (120,466,1,392,1) 1200 CALL SOUND (120,392,1,330,1) 1300 CALL SOUND (360,440,1,349,1) 1400 CALL SOUND (120,392,1,294,1) 1500 CALL SOUND (240,349,1,262,1) 1600 CALL SOUND (240,330,1,262,1) 1700 CALL SOUND (480,349,1,262,1) 1800 CALL SOUND (360,523,1,440,1) 1900 CALL SOUND (120,466,1,392,1) 2000 CALL SOUND (240,440,1,349,1) 2100 CALL SOUND (240,392,1,330,1) 2200 CALL SOUND (240,349,1,294,1) 2300 CALL SOUND (240,392,1,330,1) 2400 CALL SOUND (240,440,1,349,1) 2500 CALL SOUND (240,349,1,262,1) 2600 CALL SOUND (120,392,1,330,1) 2700 CALL SOUND (120,440,1,349,1) 2800 CALL SOUND (120,466,1,392,1) 2900 CALL SOUND (120,392,1,330,1) 3000 CALL SOUND (360,440,1,349,1) 3100 CALL SOUND (120,392,1,294,1) 3200 CALL SOUND (240,349,1,262,1) 3300 CALL SOUND (240,330,1,262,1) 3400 CALL SOUND (480,349,1,262,1) 3500 CALL SOUND (360,392,1,330,1) 3600 CALL SOUND (120,440,1,349,1) 3700 CALL SOUND (240,466,1,392,1) 3800 CALL SOUND (240,392,1,330,1) 3900 CALL SOUND (360,440,1,349,1) 4000 CALL SOUND (120,466,1,392,1) 4100 CALL SOUND (240,523,1,440,1) 4200 CALL SOUND (240,392,1) 4300 CALL SOUND (120,440,1,349,1) 4400 CALL SOUND (120,494,1,392,1) 4500 CALL SOUND (240,523,1,392,1) 4600 CALL SOUND (120,587,1,392,1) 4700 CALL SOUND (120,659,1,392,1) 4800 CALL SOUND (240,698,1,440,1) 4900 CALL SOUND (240,659,1,392,1) 5000 CALL SOUND (240,587,1,349,1) 5100 CALL SOUND (480,523,1,330,1) 5200 CALL SOUND (360,523,1,440,1) 5300 CALL SOUND (120,466,1,392,1) 5400 CALL SOUND (240,440,1,349,1) 5500 CALL SOUND (240,392,1,330,1) 5600 CALL SOUND (240,349,1,294,1) 5700 CALL SOUND (240,392,1,330,1) 5800 CALL SOUND (240,440,1,349,1) 5900 CALL SOUND (240,349,1,262,1) 6000 CALL SOUND (120,587,1,349,1) 6100 CALL SOUND (120,587,1,349,1) 6200 CALL SOUND (120,587,1,349,1) 6300 CALL SOUND (120,587,1,349,1) 6400 CALL SOUND (360,523,1,330,1) 6500 CALL SOUND (120,466,1,392,1) 6600 CALL SOUND (240,440,1,349,1) 6700 CALL SOUND (240,392,1,330,1) 6800 CALL SOUND (480,349,1,294,1) 8000 END

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CASSETTE STORAGE/RETRIEVAL	R	R	<u>+</u>	
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DISK STORAGE/RETRIEVAL	R			
GRAPHICS (TI BASIC)	R			
MUSIC	R			
SPEECH	R			R
PRINTING	R	 		
LANGUAGES	c	с	J	ss
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ASSEMBLY (EDITOR/ASSEMBLER)	R			
ASSEMBLY (Mini Memory)	R	R		
UCSD PASCAL TM ‡	R	0		0
TI-PILOT	R			0
TI-BASIC	R	0		0
TI-EXTENDED DAGIO	F	0		0
TI-LOGO	R	0		
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SOLD STATE SOFTWARE			J	SS
CASSETTE SOFTWARE	R	R		
DISK SOFTWARE	R			
EDUCATIONAL CARTRIDGES 1, 2	Ř		0	0
GAME CARTRIDGES ¹	R		0	0
HOUSFHOLD BUDGET MANAGEMENT	A	0		
HOME FINANCIAL DECISIONS	R			
MICROSOFT [™] MULTIPLAN (Spread Sheet) ³	R			
PERSONAL REAL ESTATE	R	0		
PERSONAL RECORD KEEPING	R	0		
SECURITIES ANALYSIS	R			
TI-WRITER (WORD PROCESSING) ³	R			
‡ Regents of the University of California				

‡ Regents of the University of California

¹ A limited number may require use of cartridge and disk or cat ² Some require the Speech Synthesizer.

³ Available first quarter 1983 (1Q83)

- The required items for speech are a synthesi TE II or Speech Editor, a module with built-ir
- ** Assembly Language also may be developed Peripheral Expansion System, Disk Drive an Assembler/Linker Disks. You can run, but n
- *** To run P-Code (PASCAL) Programs, the folk Memory Expansion Card, P-Code Card and I and Controller for disks, cassette player are To write P-Code programs, the following is Expansion Card, P-Code Card, Disk Control and the P-System Editor/Filer/Utility and PA
- To run TI-PILOT lessons, the following is re Expansion Card, P-Code Card, Disk Control The same items are required to write TI-PIL also is required for writing lessons.

Stand-alone peripherals may be substituted for an Expansion System and one or more cards.

- † TI-BASIC can be run with Memory Expansio
- ++ TI LOGO II (available late first quarter 1983) TI LOGO can use only the TI Thermal Printe



ssette.

izer and one of the following: Extended Basic. r speech (Early Reading, for example) or PASCAL.

by using a P-Code Card, Memory Expansion Card, Id Controller and P-System Editor/Filer/Utility and ot write Assembly Language from Extended Basic.

owing is required: Peripheral Expansion System, hardware appropriate for the software (Disk Drive d cables for tape, nothing else for cartridge). required: Peripheral Expansion System, Memory ler, at least one Disk Drive (two drives are better) SCAL Complier Disks:

quired: Peripheral Expansion System, Memory ler, at least one Disk Drive and the TI-PILOT Disk. OT lessons. The P-System Editor/Filer/Utility Disk

ny function which requires the Peripheral ١.

in only when the Mini-Memory Cartridge is used. can use the RS-232 Interface Card and printer. er.

JURATION CHART A TI LOGO CHRISTMAS

Daniel Sabath, an 11-year-old from Lubbock, Tex., designed and wrote the following Christmas program.

"I want to thank my LOGO teacher, Rebecca Powers, and my friend, Carey Wilson, for their help," says Daniel

Thank you, Daniel, for sharing your holiday program!

Daniel also wrote a short story to go along with his procedure. You can read this to your friends as they watch the tree.

"You are walking on the night of Christmas Eve. You are lost. . . Snow is starting to fall. In the distance, you see a window. As you come closer, you see a Christmas tree with blinking lights . . . As you walk toward the tree, you discover you're no longer lost. You're at your friend's house!"

To do this procedure, you will need a TI LOGO Command Cartridge, You probably will want to save your procedure on cassette tape or disk.

1. Make MAKESHAPES 6, 7, 8, 9, 10 and 11. You can make the tree bigger by using more makeshapes. Danlel used two makeshapes, one for each side of the tree. You could add two more to the bottom. If you make your tree bigger, remember to make your window bigger also.





2. Then, type in: TO YULE CB 1 WINDOW SNOW TREE LIGHTS	
TO WINDOW TELL TURTLE ST HOME SC 15	
SC 15 PU BK 17 RT 90 PD FD 30 LT 90 FD 30 LT 90 FD 60 REPEAT 4[LT 90 FD 30] LT 90 FD 15 LT 90 FD 60 HT END	TO TREE TELL 1 CARRY 6 SC 2 HOME TELL 2 CARRY 7 SC 2 HOME SH 90 FD 16 TELL 3 CARRY 8 SG 2 HOME SH 0
TO SNOW MAKE "N 8 10: TELL :N CARRY 10 SC 15 SXY RANDOM • 40 - 120 85 + RANDOM SS :N * 2 SH 182 IF :N = 16 THEN STOP MAKE "N :N + 1 GO "10 END	5H 0 FD 16 SH 90 FD 8 TELL 4 CARRY 9 SC 10 HOME SH 0 FD 19 SH 90 FD 8 END







To see your tree, type in TREE. If you need to make changes, type in EDIT TREE and make your changes.

TO LIGHTS TELL 5 CARRY 11 HOME SH 90 FD 8 10: SC 6 WAIT 25 SC 2 WAIT 20 GO "10 END

To see your finished product, type in YULE and press TREE.

TICAC GIFT CERTIFICATES ENAILABLE

Christmas gift certificates good for one TI Computer Advantage Club course are now available from Texas Instruments.

The gift certificates are good for one full year. Recipients can call the TICAC toll-free line (1-800-858-4069, 1-800-692-1318 in Texas) and enroll in the session of their choice.

Courses currently are offered in 29 metropolitian areas (see January

GIVE SOMEONE SPECIAL OUR

LOW-COST. HANDS-ON

FOR CHILDREN & ADULTS

OFFERED BY THE TI COMPUTER ADVANTAGE CLUB

Course Offerings). Nearly 75 new locations are scheduled to be added by mid-1983 (see TICAC Expansion Planned), and certificates may be purchased for those areas. Certificates will be good for one full year from the time courses are first offered in those areas.

Enrollment in any TICAC course includes membership in the TI Computer Advantage Club. Club members receive a guarterly

> newsletter and membership card. New programs for club members are planned.

To purchase a gift certificate, call the TICAC toll-free line (1-800-858-4069, 1-800-692-1318 in Texas) and charge the certificate to MasterCard or VISA. An attractive gift certificate will be rushed to the purchaser, or directly to the receipient, if specified at the time of order.



P.O. Box 725 Lubbock, Texas 79408 Address Correction Requested Bulk Rate U.S. Postage P A I D Lubbock, Texas Permit No. **476**

8 DEROUEN JF, ALVIN 1640 HOPKINS ST New Iberia La 74564



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