D.A.U.G.

Newsletter

DuPage Apple Users Group

September 1985.

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SEPTEMBER MEETING

When: 7:30 pm, September 10, 1985

Where: Faith United Methodist Church
        59th & Fairview, Downers Grove

Topic: ProDOS: An in depth look

Guest Dealer: Computer Patch

Other Dates to Remember

Sept 10: Regular meeting; ProDOS tutorial
      18: DAUG Board Meeting (7 pm, Downers Grove Library)
Oct   7: Applesoft SIG (Call 968-3897 for details)
      8: Regular meeting; Mouse vs Koala vs Graphics tablets
      16: DAUG Board Meeting (7 pm, Downers Grove Library)
Nov   4: Applesoft SIG (Call 968-3897 for details)
      12: Regular meeting; Appleworks demo
      20: DAUG Board Meeting (7 pm, Downers Grove Library)
Dec   2: Applesoft SIG (Call 968-3897 for details)
      10: Regular meeting; 4th Annual Christmas contest
      18: DAUG Board Meeting (7 pm, Downers Grove Library)
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A PROGRAM TO GENERATE SIMPLE FRACTAL CURVES

Fractal curves can be thought of as unusual geometric shapes that require a computer and computer graphics to generate and view. In this article, I'll describe a program that uses Applesoft's Hi-Res graphics to display an infinite variety of Fractal curves that you can invent. The program is short enough for you to enter from the keyboard. Although I will cover some of the backgound related to what I've chosen to call "simple" Fractal curves, you needn't know very much about Fractals in order to create your own. All you need to know is how to specify a "Basic Shape" that you can invent from which a Fractal curve is then automatically generated by the program. I've devised what I believe to be a very simple procedure for specifying any Basic Shape that requires hardly any mathematical background and only the barest knowledge of Applesoft. But first some general information about Fractals.

The term was invented by Benoit B. Mandelbrot, a mathematician and IBM Research Fellow, and discussed in three books, each of which is an extension and revision of previous editions. The first (in French) appeared in 1975; the second (in English) in 1977. The latest is "The Fractal Geometry of Nature", W.H.Freeman and Company, 2nd printing, 1983. Mandelbrot describes these books as Essays "written from a personal point of view ... without attempting completeness ... [tending to digressions and interruptions ... preface from beginning to end". Although the books show extremely interesting illustrations of Fractal related computer graphics, he goes much further than that. He argues for Fractals as a basis of a new mathematical disipline with potential applications to many fields of applied science. I've read with difficulty about one half of the 1977 edition ("Fractals, Form, Chance, and Dimension"), and understood even less. That's why I've chosen to use the adjective "Simple" appended to Fractal curves; it covers those Fractals that I understand.

The September 1984 issue of Byte, which has Graphics as its main theme, contains an interesting article on Fractals by P. R. Sorensen which, depending on your educational background, could be more informative than attempting to read Mandelbrot directly. However, neither Mandelbrot's books or Sorensen's article give very much directly useful information; their main objectives seem

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to be to impress rather than to inform. Also, Sorensen attempts to spice things up a bit and as a result there are, in my view at least, many inaccuracies. But there's an interesting Applesoft program by Greg Turk given in the article that generates Fractals of a different type than I will be describing here. In fact, this type of Fractal is related to certain iterative calculations discussed in the January 1983 DAUG Newsletter ("Mathematical Models in Applesoft, Part 5, Turbulence") and to Fractals generated by the "Mandelbrot Set" described in the August 1985 issue of Scientific American in A. K. Dewdney's Computer Recreations column. Time permitting, I'll describe programs for generating Fractals of these different types in a future Newsletter article; as some of you may already know, they involve iterative calculations with Complex Numbers and with the rarely used extension of Complex Numbers known as Quaternions. DAUG members were introduced to a simple Fractal curve in the July 1983 Newsletter ("FRACTALS...or, Apple Throws a Curve", Adopted from an article by K. Schleichter in Apple Gram, Apple Corps of Dallas, March 1983). The article listed an Applesoft program which uses recursive GOSUBs to generate what is perhaps the simplist of all "simple" Fractal curves. The program is available to members on the July 1983 DOM (Vol. 24).

What I've chosen to call a "simple" Fractal curve is developed from an initial Basic Shape (called a "generator" by Mandelbrot) made up of straight line segments sequentially connecting an ordered finite number of points in a plane. By "ordered" is meant that there is a first point, a second point, etc., ending with a last point. In order to be a "generator" of a simple Fractal curve, the length of each of the line segments must be less than the distance between the first and last point, and at least one of the intermediate points must not fall on the straight line connecting the first and last point. Note that if the generator is made up of S line segments there will be S+1 points. The first stage of Fractal curve development replaces each of the S line segments with scaled to fit replications of the basic shape. There will now be S basic shapes, a total of S*S (or S^2) new and smaller line segments and S^2+1 points. The second stage of development replaces each of the S*S line segments with smaller scaled to fit replications of the basic shape, resulting in S*S basic shapes, S*S*S (or S^3) new and still smaller line segments and S^3+1 points. In theory, this process of replacement and scaled to fit replications of the basic shape continues indefinitely, resulting in a larger and larger number of line segments of smaller and smaller size. In order for the result of this process to be a Fractal curve it must eventually form a definite shape bounded by a finite area.

The program does exactly what I've just described except that the number of replications is chosen by the user and is limited by available memory. The algorithm used calculates the X,Y coordinates of all points starting with the S+1 points of the basic shape, and stores them in the arrays X(I) and Y(I) before plotting. After N replications, with N=1 representing the basic shape, there will be S^N+1 points requiring space in RAM to store 2*(S^N+1) floating point numbers. This requirement is responsible for the limitations of available memory. Actually this limitation is not too serious. For many cases, the resolution of Applesoft's Hi-Res graphics is exceeded before the memory limitation is reached. In other cases, the memory limitation will not allow a

sufficient number of replications for the generation of a true Fractal curve, but the resulting geometric shape (Mandelbrot calls them "Teragons") can be pleasing and interesting never the less. The memory limitation can be increased by moving DOS (not ProDOS) or completely removed by using the extra memory in the extended 80 column card as a RAM disk using, for example, the procedures described in the May 1985 issue of the Newsletter.

The initiating basic shape or generator is specified by the user by assigning S, the number of line segments of the basic shape, and the coordinates of its intermediate points. The coordinates of intermediate points are denoted by the arrays BX(I), BY(I) with I = 1 to S-1. The assignments of these coordinates are simplified by considering the first point of the basic shape to have the coordinates BX(0)=0, BY(0)=0; and the last point to have the coordinates BX(S)=1, BY(S)=0. Saying it another way, the intermediate points of the basic shape are placed relative to a horizontal line of unit length. (In Mandelbrot's terminology, the horizontal line of unit length is an "initiator"). A hand drawn sketch of a basic shape of your choosing can be helpful for determining the coordinates of intermediate points. Here's an example

```
            2
           /|
          / |
         /  |
        /   |
       /    |
   0-----1    3-----4
```

There are 4 line segments, so S=4. The coordinates of the intermediate points are BX(1)=1/3,BY(1)=0; BX(2)=2/3,BY(2)=1/2; and BX(3)=2/3,BY(3)=0. Schleichter's Fractal has only two line segments so there's just one intermediate point; its coordinates are BX(1)=1/2, BY(1) =1/2. Another example is given in the program.

The program begins by moving variable storage space to locations in RAM above the first Hi-Res graphics area, and then dimensioning the required arrays to make full use of available memory.

```
10  LOMEM: 16384 :DIM X(2048), Y(2048)
```

Next, the parameters defining the initiating basic shape are assigned. In this version of the program, these parameters are assigned in program lines and are changed for different basic shapes by simply editing these lines. Included are provisions for using alternating reflected and/or reversed images of the Basic Shape during generation with the parameters RF and RV. For the often mentioned "snowflake" curve generated as a simple Fractal we would have

```
20  S=4 :BX(1)=1/3 :BY(1)=0 :BX(2)=1/2
    :BY(2)=1/(2*SQR(3)):BX(3)=2/3:BY(3)=0
30  RF=0 :RV=0
40  X(0)=0:Y(0)=0:X(S)=10:Y(S)=0
50  NX=INT(LOG(2048)/LOG(S)+.01)
```

Zero values for RF and RV in line 30 means "no" alternating reflections or reversals; values of unity would mean "yes". Line 40 assigns initial values for the first and last point of the Fractal curve. Except for their relative orientation the values are arbitrary because, as will be seen, the program plots scaled values of all points to make maximum use of the available graphics resolution while maintaining the correct proportions of the curve generated. However, the relative orientation of the points defined by line 40 can be changed as desired to affect a rotation of the final shape. Line 50 calculates the maximum number of replications allowed as determined by available memory. The program continues with:

```
60  TEXT :HOME
70  INPUT "Number of Replications: ";NR
80  IF NR>NX THEN PRINT CHR$(7);:GOTO 70
```

Next comes the main algorithm of the program; the calculation of all points for the assigned number of replications. I'm not going to explain it -- this article is already too long -- but if you're interested and want more info, contact me.

```
100 N=0
110 N=N+1
120 FOR I=0 TO S^N-S STEP S
    :DX=X(I+S)-X(I):DY=Y(I+S)-Y(I)
130 FOR K=1 TO S-1
    :X(I+K)=BX(K)*DX-BY(K)*DY+X(I)
    :Y(I+K)=BY(K)*DX+BX(K)*DY+Y(I)
    :NEXT K
140 IF RF THEN FOR J=1 TO S-1
    :BY(J)=-BY(J):NEXT J
150 IF RV THEN FOR J=1 TO S-1
    :TY(J)=BY(S-J):TX(J)=1-BX(S-J)
    :NEXT J: FOR J=1 TO S-1
    :BY(J)=TY(J):BX(J)=TX(J):NEXT J
160 NEXT I: IF N=NR THEN 200
170 FOR I=S^N TO 1 STEP -1
    :X(S*I)=X(I):Y(S*I)=Y(I):NEXT I
180 GOTO 110
```

Lines 140 and 150 handle the alternating reflections and reversals mentioned earlier. Line 160 causes an exit from the main algorithm when the specified number of replications is reached. The maximum and minimum values of the coordinates of the calculated points are then determined (Lines 200 to 260 below) and used to calculate the plot scaling constants AX, BX, AY, and BY (Lines 270 to 290). Included in the calculation of these constants is an aspect ratio AR which may differ in value for your video monitor or when plotting on your printer. It's important only when you wish to obtain correct proportions of your fractal curve; the value used in line 270 is for my Epson MX-80.

```
200 X1=1E6:X2=-X1:Y1=X1:Y2=X2
210 FOR I=0 TO S^N
220 IF X(I)<X1 THEN X1=X(I)
230 IF X(I)>X2 THEN X2=X(I)
240 IF Y(I)<Y1 THEN Y1=Y(I)
250 IF Y(I)>Y2 THEN Y2=Y(I)
260 NEXT I
270 AR=810/961:R=AR*(X2-X1)/(Y2-Y1)
275 IF R>279/191 THEN XA=0:XB=279:YD=279/R
    :OY=(191-YD)/2:YA=OY:YB=OY+YD
280 IF R<=279/191 THEN YA=0:YB=191:XD=R*191
    :OX=(279-XD)/2:XA=OX:XB=OX+XD
285 AX=(XB-XA)/(X2-X1):BX=XA-AX*X1+.5
290 AY=(YA-YB)/(Y2-Y1):BY=YB-AY*Y1+.5
```

The addition of .5 to the scaling constants BX and BY correct for truncation errors which would otherwise result from use of Applesoft's HPLOT command. The Fractal curve is now ready to be displayed on your video monitor.

```
300 HGR:POKE -16302,0:HCOLOR=3
310 HPLOT AX*X(0)+BX,AY*Y(0)+BY
320 FOR I=1 TO S^N
    :HPLOT TO AX*X(I)+BX,AY*Y(I)+BY
    :NEXT I
330 GET A$
---------------------------------------
400 GOTO 20
```

Line 330 waits for you to press any key after viewing (with amazement!!) your Fractal curve. Lines between 330 and 400 are intended for you to impliment plotting your fractal on your printer according to your preferred method for doing this.

Now it's your job to invent some interesting Fractals (or Teragons). Don't forget to try alternating reflections (RF=1) and/or reversals (RV=1). And be patient; calculating and scaling may take a minute or two. Have fun.

Ralph P. Stein

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HELP LINE

The following members have volunteered to answer questions by phone on the subjects listed. Please be considerate when calling for help. Think through your question; collect all the information; and don't call later than 10 p.m. If you'd like to help, let us know.

Applesoft:	Chuck Jonah,	985-5497
DOS:	Chuck Jonah,	985-5497
Interface:	Rufus Teesdale,	469-8836
Mach Lang:	Chuck Jonah,	985-5497
Modems:	Rufus Teesdale,	469-8836
Magic Window:	Ed Danley,	969-4433
Supertext:	Dave Dohmeier,	941-1645
Appleworks:	Bruce Mansfield,	420-1608
Apple Writer IIe:	Chuck Jonah,	985-5497
DOM info:	Detleff Adolff,	766-7741
Macintosh:	Randy Paulin,	366-3274

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THE MOUSE AND MOUSEPAINT ON AN APPLE II+

I had thought that the Mouse and the program Mousepaint clearly would do many things that I wished to do. So when I found out that the Computerland store on Ogden in Downer's Grove was reducing its inventory I went there to see what might be available. An Apple Mouse with the Mousepaint program was being offered at a 25% reduction, and so I made the purchase. Installation of the AppleMouse II Card went smoothly and took about 25 minutes. I used the AppleMouse II User's Manual together with the loose folded pages entitled: "Changes to the AppleMouse II User's Manual: This document describes additions and corrections to the AppleMouse II User's Manual."

The MousePaint disk enclosed in the package, together with the manual, gave an adequate description of the sequences for drawing/painting. Shortly, a new contribution to art was on the screen. Trying out a number of typestyles for lettering, shading parts of the picture using the spray can and turning over parts of the picture with the "flip horizontally and vertically" command, were satisfying. The "grid" command, which adjusts the positions of lines and shapes so that they lie on invisible grid lines, and thus tidies up your picture if you so wish, is particularly valuable for straight-line drawings and diagrams.

Naturally, I wished to save the picture. MousePaint uses the Apple ProDOS disk operating system, and disks formatted in that system are needed. To pull down the File menu in MousePaint and to select Format Disk was simple. Now the newly formatted storage disk needed a name which conformed to the MousePaint rules, including that it must start with a "/", contain no spaces, and have a letter following the "/". Now was time to pull down the File Menu, select: "Put a Copy In", follow the rule to type in the new file name, immediately preceeded by "/diskname/". Of course, all this was a change from the procedure under DOS 3.3. Now I could confirm that I had saved the picture by pulling down the File Menu and selecting: "Get Picture".

I wished to print out a hard copy of my artistic creation. My printer is an Epson MX-100, with Epson Interface Card. As an Apple/Epson Graphics Driver I use "Zoom Graphics". Accordingly, I needed to convert the ProDOS file in which the picture was now lodged to a Dos 3.3 file. I had not previously used the ProDOS system, but I had read the article in the DAUG Newsletter for April 1985 by Dan Herring entitled: "What about ProDOS?". Detlef Adolff graciously agreed that I could come over to his house for the DAUG DOM for May, 1985, which is formatted with ProDOS. I could not find a way to make the file conversion using the programs in our DOM. However, the ProDOS Master Disk contained a program to do just this, and I found that when I made the file conversion, the file containing the picture became a binary file readable with DOS 3.3 and printable using: "Zoom Graphics". Quickly I had a pleasant hard copy in selected format and size.

My next objective is to use the firmware program in the AppleMouse II Card that allows it to communicate with Basic Programs. The manual lists a program that displays on the monitor the position, i.e. x and y coordinates and the button status of the mouse during use. I am pleased to have the Mouse.

John Waterhouse.

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August Meeting

If it's not one thing, it's going to be something else! We were temporarily (until 8:00) locked out of the church. It is the second month in a row that the church was locked when we arrived. Rest assured our board of directors is looking into the situation.

Once we got into the church, we were able to get set up in remarkable time. We got the MAC set up, a video camera for projection on the MAC screen, and an Apple //c computer brought by CBM Computers.

Getting down to business, Detlef Adolff, our librarian, demonstrated the August DOM titled Trial Size Toolbox. It is a condensed version of the comercially available utility disk by Roger Wagner Publishing. The 2 sided disk contains many utilities useful to those who do (or wish to) program in Applesoft basic. $3.50 for a packed to the gills, 2-sided disk is well worth the price. As usual, copies willl be available at the September meeting.

The other DOM (dealer of the Month) was CBM Computers. Pennyann Christopher and Bob Deka demonstrated a new program entitled "MOUSE WRITE". It is the // series version of MAC-WRITE. While Bob's cold made it hard for some of us to hear him, the program seemed to be a powerful word processor, complete with icons that the MAC has made famous. Thanks to CBM for showing MOUSEWRITE to us.

Our door prize contest again had a bonus. In addition to the $15.00 gift certificate to CBM Computers, a second prize of a diskette holder was also awarded. Keep attending our meetings, you never know what we might give away as a door prize.

The main topic of the evening was public domain software for the MAC. Randy Paulin was our guest star for the evening. He hooked up his video camera and projected the screen over our monitor network. Randy showed us many different types of programs that are available for the MAC. The most common he said are different character fonts for the MAC display. Others included the ever popular games category. Not only are there PD programs that allow you to load several programs in core at the same time, there are even programs that allow the MAC to Multi-task (run several different and unrelated programs at the same time). There aren't near as many PD programs available for the MAC as there are for the // series, but then the // series has been around longer. A special thanks to Randy for all of his efforts.

Our next meeting will be an in-depth look at the latest operating system for the //, ProDOS. Bring your notepads for this one, I think this will be a great learning experience for a lot of us.

Future meeting topics under consideration include Apple driven household controllers (BSR), EMAIL with the Apple, various graphics hardware (Mouse, Koala Pad, graphics tablets), an in-depth look at APPLEWORKS, and our 4th annual Christmas contest. More information on the new contest categories will appear in the newsletter very soon. If you would like to share your knowledge in any of these areas, or have other topic suggestions, PLEASE (yes, I am begging) let me or any other club officer know.

Ed Danley
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Software Review
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Millionaire
Blue Chip Software
Retail price:$49.95

Millionaire is a stock market simulator in which you start
off with ten thousand dollars and try to become a millionaire.
There are five groups with three stocks each, for a total of 15
different stocks from which to choose. As more money is made, new
commands such as call and put options, margin stocks, and loans
become available. For news, there is a "financial journal" which
displays news clips that affect the stock market. Graphs for the
market, the five groups, and each of the individual stocks are
available. The game is divided into periods of 91 weeks. At the
end of a period, all stocks are converted into cash, options
expire, and the game is saved. Millionaire is a very realistic
stock market simulator that can provide hours of fun for about
one-third of the price of a share of IBM stock.

Scott Swanson

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Software Review
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Exodus:Ultima III
Retail price:$59.95
Origin Systems Inc.

PExodus:Ultima III is the third game in the Ultima role-playing
series by Lod British. It begins where Ultima II left off, after
the defeat of the enchantress Minax. Unlike Ultima II, it is now
possible to use up to four characters in a party. Characters can
be one of five races and 11 classes. Accessable from the
"surface", or the Sosarian plains and seas, are two castles, 10
cities, seven dungeons, and a sunken continent. Threatening the
party are 12 types of monsters. For the magic-using characters,
there is an expanded list of 16 wizard and 16 cleric spells, plus
two booklets explaining the spells. For battle, there are 16
weapons and 9 suits of armor that can be used. A playbook,
refrence card, and cloth map are also included in the packaging.
Also available, at extra cost, is the book titled 'Secrets of
Sosaria:A Guide to the Realm' (Origin Systems Inc., $3.95), which
contains maps for the whole game. All the books are written in a
style to set the mood of the game (especially the wizard and
cleric books). There are 26 command keys usable, plus the four
movement keys.   All of this makes Exodus:Ultima III a very
enjoyable game.

Scott Swanson

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APPLESOFT SIG STARTS UP AGAIN

If you are interested in learning to program in Applesoft,
or would like to get help with difficult programming problems, or
want to exchange techniques and short cuts, the Applesoft SIG is
for you.
This year's sessions will be held on the first Wednesday of
most months, starting on September 4. They will run from 7:30 to
9:30 in the evening, and will be held in Bob Konikow's home
office. All DAUG members are welcome, but please let Bob know if
you expect to attend. Call him at 968-3897 if you plan to be
there, and get directions for reaching his house.
The format for each meeting will depend on the level and
interests of those attending.

Bob Konikow
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Another Trivia Game
(A further description of this month's DOM)

With the trivia craze sweeping the land, and the continuing need for good public domain software, it was just a matter of time before someone came up with a generic trivia game. Since I do not like to be outdone, I decided that I better start writing some code, and quick. So, for those of you who can't survive without a good game of trivia, I present ANOTHER TRIVIA GAME. Since there are so many trivia games on the market, I thought the name was appropriate.

ANOTHER TRIVIA GAME is written in Applesoft and is designed to work on an Apple //e or //c. It will also work on any older Apple that has the capabilities of displaying upper and lower case. The package was developed under the ProDOS operating system, but will work under DOS 3.3. Along with the game comes a question editor and 200 canned trivia questions.

When the program is run, you will be presented with the hires title page which was created using FONTRIX and MICRO ILLUSTRATOR. From there you have the choice of reading the instructions, using the question editor or playing the game. I would recommend that you start with the instructions. They present a brief description of both the game and the editor.

QUESTION EDITOR

The question editor module of ANOTHER TRIVIA GAME allows you, the user, to enter new trivia questions into the textfile called QUESTIONS. The questions may be up to 200 characters in length and the answer can be up to 80 characters. Since some questions may require the entering of commas, I had to write a special input routine to allow for them. Note, the left arrow key will erase the character to it's left. It will not cursor over it. This means that an error at the beginning of a line will cause you to retype the line from the point of the error. Some characters to avoid when entering a question or an answer are the colon (:), semi-colon (;) and quotes ("). They cause severe problems when being read back into memory from the textfile. In testing ANOTHER TRIVIA GAME, I found that it is best to enter the answers to the trivia questions in upper case. It makes entering the answers in the game much easier.

The editor module also allows you to delete any questions that are either too hard, too easy or ones that you just don't like. Also, if an answer becomes outdated, the editor allows you to change any question or answer. Finally, for those of you who like to cheat by studying the answers to the questions, you may get a listing of all or a portion of the questions and answers from the editor. This listing may either be sent to the screen or to a printer attached to slot 1. This, however, is not recommended as the game isn't as much fun when someone knows all the answers.

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ANOTHER TRIVIA GAME

The game module allows up to four players or teams to compete. At the beginning of each game, you must enter the names of the players. Then, you will be prompted for the number of points needed to win. When this information is entered, play begins. Each player will be shown a question when it is his or her turn. You have three minutes to enter your response. If you enter a partial answer and then the timer runs out, your response will be treated as if no answer was entered. For each correct answer you are awarded 1 point. There is no penalty for an incorrect answer during this phase of the game. If an answer is entered that does not exactly match that of the computer's, you will be shown the correct answer and asked if the response that was entered is acceptable. If only the RETURN key is pressed in response to a question, the response will be treated as an incorrect answer and the correct answer will not be displayed.

From time to time a BONUS question will be asked. If a correct response is entered to a BONUS question, the player answering will receive two points. An incorrect answer, or no response, will bring a two point deduction. Any of the questions in the QUESTIONS textfile can be selected as a bonus question by the computer.

The first player or team to reach, or exceed, the target score wins the game. The program is designed in such a manner that no questions can be repeated until at least 3/4 of the questions in the textfile are asked. As the game proceeds, the questions may take a little longer to appear on the screen (a few seconds) so please be patient. After all, do you want your opponent to get the same question that you have already answered correctly?

AN IDEA

For those of you with children who use the computer, you may want to create a question disk that relates to subjects being studied in school - History, Geography, English, Math, etc. However you decide to use ANOTHER TRIVIA GAME, I'm sure you'll find it enjoyable.

Oh, for those of you who might find it too bothersome to key in new questions, there are ANOTHER TRIVIA GAME data disks available on the following topics:
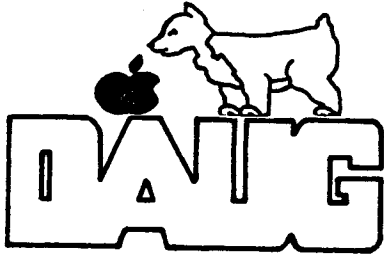
T.V. Trivia
Movie Trivia
Kid's Trivia
Sports Trivia
Potpourri Trivia

Each disk contains a minimum of 200 questions and answers and costs only $5.00. Just send a check or money order for $5.00 to:

Rudy A. Guy
1114 West 22nd Street
Erie, PA 16502

Be sure to specify which data disk or disks you want.
*****

DuPage Apple User's Group
Disk of the Month

Volume 50, September 1985

ANOTHER TRIVIA GAME

With the trivia craze sweeping the land, and the continuing need for good public domain software, it was just a matter of time before someone came up with a generic trivia game. In this case, it was Rudy Guy, President of the Erie Apple Crunchers.

After the startup screen, you are presented with a choice of reading the instructions, using the question editor to author your own trivia questions, or running the game. It is recommended that you start with the instructions.

Up to four people or teams can play at once. You have 3 minutes to answer a question- an incomplete answer is interpreted as no answer. Each correct answer is worth 1 point, and there is no penalty for incorrect answers at this stage of the game. However, bonus questions do exist, and are worth 2 points if answered correctly, or minus 2 points if not! The winner is the first person to reach the predetermined target score.

The program stores up to 200 questions. The Question Editor will allow you to create your own question banks. You can create special disks of questions for school children (eg. math, history, geography).

Rudy wrote this program to run on an Apple //e or //c. It will also run on an older Apple which is capable of displaying lower case. It is written under Prodos, and thus requires a //e or //c, or an older Apple II with a 16K RAM card in Slot #0. The program can be easily converted to the DOS 3.3 environment by means of the "CONVERT" program on the ProDOS Users Disk, or with the Apple //c System Utilities Disk. Also on the disk is an additional text file entitled "TRIVIA.DOCUMENT". It contains more thorough information, and can be read using the "READ.DOCUMENT" program on the disk. Just Quit to BASIC and RUN READ.DOCUMENT.

If you want to see a disk that's well done, have a look at this one.

Disk Catalog:

/ANOTHER.TRIVIA

NAME	TYPE	BLOCKS
*PRODOS	SYS	30
*BASIC.SYSTEM	SYS	21
*TRIVIA.EDITOR	BAS	14
*ANOTHER.TRIVIA	BAS	9
*SCREEN1	BIN	3
*SCREEN2	BIN	3
*SCREEN3	BIN	3
*SCREEN4	BIN	3
*STARTUP	BAS	3
*INSTRUCTIONS	BAS	3
QUESTIONS	TXT	113
*TRIVIA.LOGO	BIN	17
*TRIVIA.DOCUMENT	TXT	13
*READ.DOCUMENT	BAS	3

BLOCKS FREE: 35   BLOCKS USED: 245   TOTAL BLOCKS: 280

VISIT OUR FRIENDS!
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A number of local computer stores support our activity by offering the discounts
listed below to those who show their membership cards. Stores that sell
merchandise to everybody at a discount are not included.

    Byte Shop of Darien, 8105 S Cass Av, Darien (960-1422) -- 10%
    Computer Grove, 1121 Warren Av, Downers Grove (968-0330) -- 10%
    CBM Computer, St. Charles Rd and Route 83, Elmhurst (530-1125) -- 15%
    CBM Computer, 7 S LaGrange Rd, LaGrange (352-4700) -- 15%
    Computer Workshop, 1626 W Ogden Av, Downers Grove (971-0004) -- 10% on
        training and rentals; none on consulting or programming
    ComputerLand, 136 Ogden Av, Downers Grove (964-7762) -- 5%
    Farnsworth Computer Center, 1891 N Farnsworth Av, Aurora (851-3888) -- 15%
    Farnsworth Computer Center, 383 E North Av, Villa Park (833-7100) -- 15%
    Computer Patch, 2775 Maple Ave., Lisle (420-8861) -- 20%
    Micro City, 24 W 500 Maple Ave., Naperville (355-9726) -- 2-40%

Frequently a smaller discount is offered if a credit card is used. If a store
would like to be included in this listing, please write the editor and give us
your discount schedule for Apple User Group members.

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P O Box 294
Downers Grove IL 60515
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The mailing label to the
right is the only notice
you will get that your
membership is expiring.
If you let your
membership lapse, you
will have to pay another
initiation fee of $8,
plus your $12 dues, to
get back on our list.