APPLE SOFTWARE BANK CONTRIBUTED PROGRAMS

VOLUME 1

APPLE Computer Inc. is happy to present a broad selection of Contributed Programs to please you and your APPLE. Most of these programs were written by APPLE owners and submitted to the APPLE SOFTWARE BANK. To keep the cost to a minimum, and to provide the widest selection of programs possible, these Contributed Programs are not supported by APPLE Computer Inc. That means that APPLE and its dealers will not correct any errors that the authors might have made, or provide information beyond that presented in this document.

You can obtain these Contributed Programs from any APPLE dealer. A Contributed Program release is made about every two months. Each release is distributed to the dealers on diskette.

It works like this: you buy a diskette or tape (or bring your own) and choose the programs you want from this catalog of programs. You LOAD one of the desired programs into the dealer's APPLE, and then SAVE it on your disk or tape. It is often a good idea to bring your own tape recorder to the dealer's showroom to assure compatibility of the resulting cassette. Compatibility is not a problem with the diskettes. Your dealer can show you how to LOAD and SAVE programs if you are unfamiliar with the procedure.

Additional copies of this document are available at your dealer.

HOW TO OBTAIN PROGRAMS FROM THIS VOLUME

This section tells you how to transfer individual items from the dealer's diskette to your diskette or cassette. You may also copy the entire diskette to your diskette if you desire.

Boot the Software Bank disk in Drive 1 of the dealer's system. If there is only one drive, it is Drive 1. If you don't know how to use Disk II, see the DISK II manual or ask the dealer to operate the system. When the disk is booted, the following message should appear:

APPLE SOFTWARE BANK CONTRIBUTED PROGRAMS: VOLUME 1

You can type the command

CATALOG

to see the list of available programs. If the list is too long to fit on the screen, the prompt character (>) will not appear, and you can press the space bar to see the rest of the catalog.
The programs HELLO, COPY and COPY.OBJ are not part of the offering, although there is no objection to your copying them. As you could tell by LISTing it, the HELLO program is just two PRINT statements, and the COPY programs are supplied with every disk drive, so that if you have DISK II, you have the COPY programs. The program APPLESOFT is the standard version of APPLESOFT BASIC that is supplied with every DISK II.

When you have read the catalog, and have made your first selection, you should type

LOAD program name

You must type the program name exactly as it is shown in the catalog.

When the program is LOADed, a process that takes only a few seconds (10 seconds for a very long program), you may transfer it to your disk or tape. If the program that you just LOADed is in APPLESOFT, and if your computer does not have an APPLESOFT card, you must type the command

CALL 3314

before RUNning or saving it. You can tell if a program is in APPLESOFT if its name is preceded by an "A" in the catalog.

TRANSFERRING PROGRAMS TO TAPE OR DISKETTE

TAPE

Once the desired program has been loaded: place a cassette in your recorder, and press RECORD and PLAY simultaneously. On the APPLE, type the command

SAVE

and the program will be saved on cassette tape. Saving is complete when the cursor and prompt character return.

DISK (One-drive systems)

Once the desired program has been loaded: Remove the Software Bank diskette from the drive, place your diskette in the drive, and type

SAVE program name, VØ

In a few seconds, the program will have been transferred to your diskette.

DISK (Two-drive systems)

Once the desired program has been loaded: Place your diskette in drive 2, and type

SAVE program name, VØ,D2
In a few seconds, the program will have been transferred to your diskette.

On a two-drive system, the entire Software Bank diskette may be quickly copied at once.

Any information stored on your diskette will be lost.
Type

RUN COPY

and follow the instructions on the screen.

The following pages contain concise descriptions and operating instructions for each of the programs on the diskette. Have fun.

The purchaser of any of these programs accepts and uses them AT HIS OR HER OWN RISK, in reliance solely upon his or her own inspection of the program material and without reliance upon any representation or description concerning the program material.

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Program Name: HAMMURABI
Software Bank Number: 00002
Submitted By: Mark Cross
Program Language: Integer BASIC
Minimum Memory Size: 8K Bytes

Hammurabi? No, my order was ham and cheese. But let's put corny jokes aside—HAMMURABI is no laughing matter. It's a matter of life and death to all the loyal citizens of Sumeria, who depend upon your leadership, Hammurabi, to see them through the next 10 years. These peasant farmers look to your wisdom and guidance in deciding how much grain to distribute as food, how much land to buy or sell, and how many acres to plant.

The rats have devastated much grain in recent years, and plague struck several neighboring countries last winter. Yield from the fields has been less than expected. We wish you better success than the previous governor, who disappeared under mysterious circumstances after half the population starved to death . . .

INSTRUCTIONS

The program's introduction tells you some important factors you have to
work with: 20 bushels of grain are needed to feed each person for one year; half a bushel per acre is needed for seed gain; each citizen can farm at most ten acres.

Start this economic simulation by typing in your name and pressing the RETURN key. From here on in you're pretty much on your own. Just use your vast wisdom and experience to decide the best policy for your country. A handy reference at the top of the screen reminds you of how many bushels are in storage, how many acres of land you own, and the size of the population. Good luck—you'll need it.

Program Name: PINBALL
Software Bank Number: 00003
Submitted By: Charlie Kellner
Program Language: Integer BASIC
Minimum Memory Size: 12K Bytes

What has bumpers, flashy colors, lotsa noise and excitement and never goes TILT? A Ferrari you say? We were thinking of APPLE's graphic PINBALL game. Everything is there but the slot for the quarters. The spinner spins, special bonus indicators light up and the scoring is automatic (after all, what is a computer for?).

When you RUN this program, a press of the game-controller's button sets a ball into play. You control a moving flipper to keep the ball in play. Want to get some sleep? Don't start playing PINBALL.

INSTRUCTIONS

LOAD the program into Integer BASIC using the usual loading procedure. When you RUN the program, you will be asked whether you would like instructions. If you do, just type the letter Y.

Pinball is a real-time simulation of a pinball machine. You will be given five balls per game. Pressing either game-controller's button launches the ball, resets all flags and bonus scoring, and starts the game. The game-controller's knob controls the moving "flipper" at the bottom of the screen.

Scoring is determined by color:
Blue borders—no value.
Center yellow bumpers—ten points.
Edge bumpers—ten to fifty points, or one hundred when lit.
Pink flags—one hundred points.
Special bonus red flags—two hundred points.
Green spinner—ten points per spin, or fifty when lit.
Grey posts—one hundred points.

In addition to scoring, some features have special functions:
Bumpers—deflect the ball in a random direction, at a random velocity.
Flags—drop after being hit, reset if Special is hit and score bonus.
Special—resets flags and posts when hit, awards an extra ball if bonus total reaches one hundred.
Grey posts—tabs near top set side posts to block ball exits. If either post is up, center post is also up. Reset by Special.
Green spinner—spins ball five to twenty times when hit, and releases it upward in a random direction.

Program Name: SINK THE SHIP
Software Bank Number: 00007
Submitted By: Eric Waller
Program Language: Integer BASIC
Minimum Memory Size: 8K Bytes

Is your hand steady? Your eye sharp? Do you have delusions of being a Norden Bombsight? Try this and see. As your swift aircraft flys over the boundless sea, a ship makes its way across the waves. Press the bomb release and watch the cannister of death descend on the hapless vessel, only to splash harmlessly in the ocean—or perhaps score a direct hit. Drop the bomb down the funnel for a bonus.

INSTRUCTIONS

LOAD the program into Integer BASIC, then RUN it. You’ll see a ship move across the screen from left to right, and a plane move overhead from right to left. Your mission, if you choose to accept it, is to drop as many bombs as possible on the ship. You get 1 point for hitting the deck, 2 for the cabin and 3 if you successfully hit the stack.

When you decide to drop a bomb, just press any key once (except SHIFT, CTRL or RESET) and a bomb will be released from near the tail section of the plane. Sounds easy, right? But you’ll need to plan ahead, since each plane carries only one bomb and only one bomb can be in the air at a time. And to provide an additional challenge, the ships and planes change their rate of speed. Bombs away!

Program Name: CATCH
Software Bank Number: 00101
Submitted By: Brian Carter
Program Language: Integer BASIC
Minimum Memory Size: 4K Bytes

Plick ... plick ... plick ... plick ... buzzzzzz! No, it's not a new species of insect you hear, it's CATCH, a two-player game that combines features of ping-pong and lacrosse. Ready? OK, put one eye on your paddle, one on your pocket, and one on the ball—let's go!
INSTRUCTIONS

This is a two-player game using the APPLE’s game controls. The ball is automatically served by the side that scored the last point, and the score is updated as the ball is served. Each player’s game control moves a “paddle” in midfield and a moveable “pocket” in one end-wall. The object is to capture the ball in your “pocket,” or deflect it out of your opponent’s reach using your midfield “paddle.” 15 points wins the game.

To play, LOAD the program in Integer BASIC and type RUN. The scores and playing field are displayed, and the game controls are activated. The ball will be served immediately, so you and your opponent should each grab a game control. Service!

Want to demand a rematch? When the APPLE asks DO YOU WANT TO PLAY AGAIN? just type YES and press the RETURN key.

Program Name: CURVES
Software Bank Number: 0017
Submitted by: J. Crossley
Program Language: APPLESOFT II BASIC
Minimum Memory Size: 16K Bytes

Da Vinci might well have appreciated the APPLE II, for (like the great man himself) its abilities encompass a great span of human endeavor. The computer can do calculations, play music, and even paint pictures. But the computer is a child of its own time, and the Mona Lisa, while beautiful, is not today’s art. Today’s art is often abstract rather than representational. This program presents very pleasant and ever-changing patterns in shapes and areas. It creates moire patterns and bold motion, and plays with the relationship of field and figure.

INSTRUCTIONS

Just RUN the program.

Note: If you wish to SAVE this program on a cassette or another diskette, you must not RUN it until after it has been saved. If you LIST the program, do not be alarmed to see that it is not your usual BASIC, as there are sections in machine language.

Program Name: SEVEN
Software Bank Number: 0020
Submitted By: Bill Frolik
Program Language: Integer BASIC
Minimum Memory Size: 16K Bytes

More powerful than an Old Maid, and crazier than Crazy Eights, SEVEN is
a European card game carried overseas and transplanted into an APPLE. It's you versus the computer, or you versus the computer and the computer, or you versus the computer and the computer and the computer . . . up to seven opponents.

INSTRUCTIONS

The rules are presented by the game (if you ask for them) and are quite complete. All you need do is RUN the program and follow the instructions.

This game is a good example of how to write a computer game, as the human interaction is very well done.

Program Name: TOWERS OF HANOI
Software Bank Number: 00021
Submitted By: Daniel Lambert
Program Language: Integer BASIC
Minimum Memory Size: 8K Bytes

This is a task of many names, as ancient as the mountains of Tibet or perhaps a little younger, and of truly cosmic significance. In a mountain retreat the original towers sit, with shaven monks solemnly moving rings from one tower to another. The reports vary, but there are more than a dozen rings in all (and all of gold) and when they have at last been moved from the first tower to the third, the world will end.

In this version, if you move them all from the first tower to the third, the game will end. All in all, a better deal.

INSTRUCTIONS

LOAD the program into Integer BASIC. When you RUN the program, three posts and eight disks are displayed. The object of the game is to transfer the eight disks from post #1 to post #3. You can only move one disk at a time and you may never place one disk on top of a smaller disk—a disk may only be placed on top of a larger disk.

Program Name: NIGHTMARE #6
Software Bank Number: 00027
Submitted By: Gary J. Shannon
Program Language: Integer BASIC
Minimum Memory Size: 4K Bytes

Suddenly a feeling of panic overcomes you . . . reality is suspended. Rules of nature shatter and chaos reigns supreme. The abyss lurks and sanity is tenuous at best! WELCOME TO NIGHTMARE #6 . . .

Can you survive? Only time will tell . . .
INSTRUCTIONS

The object of this game is to figure out the object of this game—a task that's easy to begin but far from trivial to complete.

Start by LOADing the program into Integer BASIC and RUNning it. You are given 1000 points, then the program informs you that it's your turn . . . to do what? You well may ask, for therein lies the challenge. As you'll soon discover, it's easy to lose points as you try to figure out the rule(s) of the game. Earning points is another matter entirely.

Program Name: COLOR MATH
Software Bank Number: 00031
Submitted By: Mike Markkula
Program Language: Integer BASIC
Minimum Memory Size: 8K Bytes

Arithmetic can be interesting, but most people wouldn't call it "colorful." This program may change your opinion. And in the process, your arithmetic ability will be sharpened.

INSTRUCTIONS

LOAD COLOR MATH into Integer BASIC by using the standard tape loading procedure; then RUN it. COLOR MATH will give you drill in the addition, subtraction, multiplication, and division of whole numbers. Problems of one of these four types will appear on the screen one after the other; you provide the answer each time. If you answer incorrectly, you get another try. When you are ready to stop, type a {CTRL} C.

Program Name: MASTERMIND
Software Bank Number: 00032
Submitted By: S. Wozniak
Program Language: Integer BASIC
Minimum Memory Size: 8K Bytes

This game has become famous under a number of names. For example, on computers it is often presented under the name BAGELS. It is a game of pure deductive skill. Here, like in the store-bought version, you try to match a set of unseen colors.

INSTRUCTIONS

LOAD MASTERMIND into Integer BASIC by using the standard tape loading procedure. When you RUN MASTERMIND, after the instructions you will see five grey bars at the top of the screen, and a row of colors with their matching first letters at the bottom. The computer has secretly chosen a sequence of colors in a random combination. You play by guessing the
correct colors and their sequence. Just type the first letter of the color you want to guess. Use the arrow keys to make corrections if you need to. Press the RETURN key when you want to end your guess and have the computer evaluate it. After each guess, you will be given:

a red dot if one color is correct, but in the wrong position; a white dot if one color is correct, and in the correct position; a blank, if none of the colors are correct.

For example, suppose the secret color sequence is R R Y V V. If your first guess is B B O O G, then you’ll get a blank. If your second guess is R G G G Y you’ll get a red and a white dot, because one color is in the wrong place (Yellow) and one is in the right place (Red).

Program Name: OTHHELLO
Software Bank Number: 00034
Submitted By: J. Crossley
Program Language: Integer BASIC
Minimum Memory Size: 24K Bytes

OTHELLO is a two-player game. Like Chess, and so many other games, the full flavor of the competition doesn’t develop until you’ve played it a few times. There are many surprising subtleties in OTHHELLO.

This game was popular a century ago under the name REVERSI. The name suits the game. A piece, once played, may reverse its color many times. The game is full of sudden reverses of fortune. You may be way behind, yet with a single move find fortune’s favor, and the game is yours.

One of the problems with REVERSI, or OTHHELLO, is that without a computer it can be tedious to flip over all the pieces when you are supposed to. It is easy to miss some. Here, the computer takes care of all the bothersome details leaving you and a friend to enjoy the game. The program also counts up pieces at the end and tells you who won.

INSTRUCTIONS

LOAD OTHHELLO into Integer BASIC by using the standard tape loading procedure. Then type: HIMEM:16384. When you RUN this program, you’ll see an 8 by 8 grid, with two yellow and two blue chips in the center. Both players take turns placing one of their colored chips on the screen. The object of the game is to be the player with the most chips on the screen at the end of the game. When it is your turn to put a chip down, use your game controller to move the flashing square prompt about the screen, and press your game button when you have the prompt in the square where you want your chip. There are two rules restricting where you can place your chip,

1) You must place your chip adjacent to one of your opponent’s chips.
2) You must outflank at least one of your opponent’s chips every time you
put a chip down. You outflank an opponent's chip if your new chip and one of your old chips are on any two opposite sides of your opponent's chip, and both of your chips are in squares that are touching your opponent's square. You can outflank a row of chips by having a chip of your color on the square at both ends of the row. Chips that you outflank change to your color and become yours.

Program Name: BLACKJACK
Software Bank Number: 00036
Submitted By: J. Legg
Program Language: Integer BASIC
Minimum Memory Size: 8K

There is one game that you can win at Vegas (or Reno, or Atlantic City); that's Blackjack. All the others are guaranteed losers. But you can't win unless you are very, very, very good. To get very, very, very good, you must practice, practice, practice. And what better opponent for your drill than a computer?

This is a full-color version, played on a Nevada-green table for as high stakes as you dare.

INSTRUCTIONS

You are dealt two cards, face up. The dealer starts with one card face up. The idea is to get the sum of your cards to total exactly 21. That's a win. If you fail at that, and go over 21, then you go "bust." However, if you stop before 21 (you type an S for the word "Stay"), then the dealer will take cards and try to get closer to 21 than you. The player with a score closer to 21 wins. That's the essence of the game. Doubles, Splitting, and Insurance are described in any book of card games.

Program Name: 23 BRICKS
Software Bank Number: 0107
Submitted By: Alan Shapiro
Program Language: Integer BASIC
Minimum Memory Size: 4K Bytes

Tote those bales,
Lift those bricks,
Your Apple II is up to more tricks!
Take one, two or three,
Then you'll see
What your computer's response will be.

INSTRUCTIONS

LOAD the program into Integer BASIC and RUN it. The instructions will be
briefly displayed, along with the copyright notice.

The object of the game is to force your opponent (the computer) to take the last of a collection of 23 bricks. You and the computer take turns; you get to go first.

On each turn, either 1 or 2 or 3 bricks may be removed. Type the number of bricks you wish to remove, then press the return key, and whoosh . . . the specified bricks disappear into thin air, crackling gently as they go.

OK, strain your brain and figure out the winning strategy—yes, there really is one. Good luck!

Program Name: BONE TUMOR DIFFERENTIAL DIAGNOSIS
Software Bank Number: ØØ114
Submitted By: Jeffrey Dach, M.D.
Program Language: APPLESOFT II BASIC
Minimum Memory Size: 32K Bytes

This program is intended for use by qualified medical practitioners. While the specific data are of interest only to those familiar with bone pathologies, the programming techniques may well interest a wide range of computer users.

INSTRUCTIONS

LOAD the program into APPLESOFT II BASIC, and type RUN. Follow the instructions displayed on the screen. The program asks a series of questions concerning radiographic and clinical details of the bone tumor in question. For each question, type the number of the appropriate answer and press the RETURN key. Finally, the program uses Baye's rule and a predetermined probability matrix from Lodwick (1963) to calculate the relative probabilities of 9 different diagnoses.

Some knowledge of descriptive terms for bone tumors is needed to answer the questions. Only a qualified physician should attempt to use this program as a diagnostic tool.

Program Name: YAHTZEE
Software Bank Number: ØØ115
Submitted By: Gary A. Foote
Program Language: Integer BASIC
Minimum Memory Size: 16K Bytes

Contrary to popular opinion, the game of YAHTZEE did not spring fullblown from the back room of a games' manufacturer. Instead, the game is found the world 'round wherever 5 dice get together. On highways, in byways, and of course in bars from Athens to Zanzibar, you'll find people playing variations
of this classic game.

In the past, the major problem in playing YAHTZEE has been in finding 5 dice; now that you have an APPLE the problem is solved. Not only will your computer keep track of your “dice” for you, but it will provide up to 4 cheerful opponents who are always ready to play another game.

INSTRUCTIONS

LOAD this program into Integer BASIC, then RUN it. If you don’t know how the game is scored, when the question DO YOU WANT INSTRUCTIONS? appears, type the letter “Y” or “YES” and press the RETURN key—all will be revealed.

You start the game by typing in the names of from one to five players. If a player’s name begins with APPLE, then the computer will be your opponent when it’s that player’s turn. Next, each player rolls the dice to determine the order of his turn.

The object of the game is to get as high a score as possible in 13 different categories by rolling 5 dice. Each player gets three rolls of the dice per turn. You start a turn by rolling all 5 dice and then, if you like, you can re-roll any or all of the dice twice more before choosing your scoring category.

To re-roll dice, type the letter “R” and then press the RETURN key. When you are asked which dice to re-roll, just type a list of the numbers shown beside each die (that’s the singular for “dice”) and press the RETURN key. For example, if you want to re-roll the dice labeled 1 and 3 and 5 you can type 513 and then press the RETURN key.

When you’re ready to score, type the letter “S” and press the RETURN key; you’ll be asked to choose the category in which to score. If you wish, the program will tell you what possible scores are available for a turn; just type the letter “P” then press the RETURN key.

The game continues until all categories are filled for all players.

Program Name: HEX CONVERTER
Software Bank Number: 00120
Submitted By: Paul Lutus
Program Language: APPLESOFT II BASIC
Minimum Memory Size: 16K Bytes

Converts numbers between bases 10, 16 and 2. Simple sums and differences in these bases can also be computed.

INSTRUCTIONS

After you RUN the program, it asks you to indicate in which base you want to enter the number. The choices are D, H or B, for Decimal, Hexadecimal or
Binary respectively. You may enter a single number, the sum of two numbers, or the difference of two numbers. You must enter them in the chosen base. The program, after a short delay (less than five seconds), returns the number or sum in all three bases.

Numbers whose decimal equivalent is greater than 1,000,000,000 may show rounding errors.

**Program Name:** MORSE CODE  
**Software Bank Number:** 00121  
**Submitted By:** Paul Lutus  
**Program Language:** Integer BASIC  
**Minimum Memory Size:** 8K Bytes

The APPLE II now has a perfect fist. This Morse Code generator has the correct timings, and has a wide range of speeds, from novice to Samual B. Morse himself.

**INSTRUCTIONS**

RUN the program, and type in the speed (from 1 to 250, with 1 being very slow, and 250 too fast to follow). Then type the phrase you wish to hear in Morse Code. When you press the RETURN button, the APPLE II will send the message you typed in good Morse Code.

The maximum number of characters in one entry is 256. The tone also appears at the cassette output so that code practice tapes may be created with this program.

**Program Name:** INTEGER BASIC CHR$ FUNCTION  
**Software Bank Number:** 00128  
**Submitted By:** Bruce Tognazzini  
**Program Language:** Integer BASIC  
**Minimum Memory Size:** 4K Bytes

In BASIC, the CHR$ function returns a character, given its numerical position in the list of ASCII characters. Many characters cannot be generated on the APPLE II since its keyboard is upper-case only. Other characters, such as CONTROL C, cannot be stored in a program since they have special functions in the system. Yet these characters are often necessary when controlling external devices, writing programs that write programs and in many other applications.

This program gives you the same ability in Integer BASIC that the CHR$ function delivers in, for example, APPLESOFT BASIC.

**INSTRUCTIONS**

LIST this program and read the REMarks. To use the function, place lines
1₀ and 1₁ into your program. It is important that line 11 is typed exactly as shown. To use the function, set the numeric variable CHR to the ASCII code for the desired character. Then call this routine. For example, to get a CONTROL C you would use the commands:

CHR = 3
GOSUB 1₀

At this point the value of the string variable CHR$ would be a CONTROL C. Many computer reference works list the ASCII characters and their codes.

The CHR$ Function subroutine may be placed at line numbers other than 1₀ and 1₁. The line number is the only part of the second statement (line 11 as shown in the program) that may be changed.
APPLE SOFTWARE BANK CONTRIBUTED PROGRAMS

VOLUME 2

Entitled: THE APPLE MAGIC LANTERN

In the late 1800's, powerful projectors were used to show lantern slides of famous scenes, persons and drawings on the flat bases of clouds over our major cities. By the middle 1900's anybody could have a "slide projector" in their own home, and take slides by the hundred with almost any camera. But in the late 1970's, APPLE Computer came out with slide shows that you can show on any TV set. They demonstrate the APPLE's unmatched ability (in the personal computer world) to present highly detailed and even photographic pictures. On this disk are 11 pictures:

1. Musical notation, with drawings of instruments obligato.
2. A map of the world. Careful observers will find a new continent.
3. A handsome woman's face.
4. An isomorphic view of a double Bessel function with hidden line suppression. Or, if you'd rather, a fantasy landscape.
5. A woodcut of William Shakespeare.
6. Uncle Sam, who can tapdance.
7. "Joe sent me..."
8. Spirallogram. Whatever that is.
9. Rocky Raccoon
10. A neat set of characters that can be generated on the APPLE II. You can get upper and lower case—at least in a drawing.

INSTRUCTIONS

Place the disk in the drive and, from BASIC, type PR#6 as usual, to boot the disk. A menu will appear. You can choose to just watch the show—the slides come on in random order (but they don't repeat until you've seen them all exactly once)—you can copy a slide onto another disk (in both single and dual disk systems), you can put a slide onto a cassette, or you can selectively view any slide. Just follow the instructions as they appear on the screen. To stop viewing a "slide" and go back to the menu, press the key marked ESC.
The information contained in this manual is believed to be correct at the time of publication, but Apple Computer Inc. assumes no liability arising from the use of this material.