OTTAWA IBM P.C. USERS' GROUP

NEWSLETTER

April 23,1987 - - Issue 87 (3)

Executive:		home:	work:
President:	Anne Moxley	592 - 4933	230 - 909
Past president:	Gord Hopkins	828 - 3834	726 - 359
Treasury:	Mike Luckham	832 - 3829	592 - 6500 x 203
Secretary:	Eric Clyde	749 - 2387	993 - 3291
Membership Chairman:	Claude Jarry	521 - 3366	----------
Meeting Facilities:	Stu Moxley	592 - 4933	----------
Publicity:	Harry Gross	733 - 7989	----------
Software librarian:	Chris Taylor	723 - 1329	995 - 4987
" Assistant:	John Ings	----------	----------
Newsletter Editor:	Jacques Lemay	684 - 7754	684 - 7874

MEETING DATES

Meeting schedule:

8:00 pm, last Wednesday of every month except July and December
1987: Apr. 29, May 27, June 24, Aug. 26, Sept.30 , Oct. 28 ,

Meeting location: NRC AUDITORIUM, 100 Sussex Drive
(Gothic Building facing King Edward Avenue - Parking in rear)

UPCOMING SPEAKERS

Guest Speaker at the April Meeting:

The April Meeting will feature a talk on the 80386 chip and its architecture. The speaker will be John Hansen from Intel who will discuss such items as operation under UNIX and DOS and other features which have not yet been discussed in any papers.

Guest Speaker at the May meeting:

At the May meeting, we will have a talk on the legal aspects of computing. Bernadette Eischen of the Gowling & Henderson law firm will discuss copywrite and piracy also distribution and licensing, don't miss this one.

MENU

The Ottawa PCUG newsletter is published monthly, except for three combined issues:

February - March
July - August
December - January.

It contains: club news, reviews, feature articles, user tips, a classified section, listing of additions to the software library, list of contents of the disk of the month, and any other information of interest to members.

Comments, inquiries, announcements or submissions should be addressed to the Newsletter Editor, via the Club's mailing address, the Comments and Suggestions Box at the Monthly General Meeting, or via the BBS, at (613) 745-8015. (If you direct your input via the BBS, please leave a message to the Sysop informing him that your upload is for the Newsletter)

Submissions should include your name and are subject to editing and formating to conform with space requirements.

RETURNED MAIL:

Newsletters addressed to the following addresses were returned for different reasons:

Louise Campagna, Regina Street
Brian McKinley, Placid Street
Wylie Tom, Russel Road

If anybody knows the whereabouts of these people, and/or their intentions as to holding their memberships in the club, could you please inform the membership chairman, by mail or in the input box.

NEWSLETTER DEADLINE:

The deadline for a Newsletter submission is 9 days before the next General Staff Meeting. The next two deadlines are:

May 18 for Issue 87(4)
June 15 for Issue 87(5)

There are still 128 ex-members who have not renewed their memberships yet. As with any insurance company, you were given thirty days grace. However, anyone who has not renewed his membership by the end of April, will not receive the Newsletter anymore. If you intend to renew, you may do so at the next meeting, before 8:00 PM or during breaks, possibly have your cheque made out ahead of time to avoid line-ups. You may want to pay by mail, send your cheque made out to Ottawa I.B.M PC Users' Group and mail it to the Club's address:

3 Thatcher Street
Nepean, Ontario
K2G 1S6

In line with our objective to improve the Newsletter, is any one interested in contributing regularly on a subject which is dear to their heart ? Pascal? C? dBase?.. If so, please let me or any member of the executive know.

GENERAL INFORMATION

The Ottawa IBM PC Users' Group is an idependent, non-profit association for people who use or are interested in, IBM-PC or compatible micro-computers.

Founded in 1983, the Club now has over 300 members; beginners, hobyists, hackers and professionals, whose interests go the full range from Games to Expert systems.

For an annual fee of $20.00, members are entitled to:
- attend Monthly General meetings
- attend SIGs' meetings
- access to a BBS 24 hours a day , 7 days a week.
- to obtain disks of the Month at $3.00 each or $25.00 a year for a subscription of 10 disks.
- to acquire public domain software and/or shareware disks at $3.00
- Receive the Newsletter by mail.
- access to bulk purchases...

A membership is effective from April 1, current year to March 31 of the following year.

FINANCES! If it is not the right time of the year for you, you may want to count yourself amongst the lucky ones. For a lot of people, myself included, it is always the right time of year to think finances in some form or another, and some of us don't find this half bad.

When we talk about finances, it doesn't always mean to borrow money to complete some project or other (like buying a car or a house), but also to save money or make money through investments. There is a good side to finances.

LOTUS 1-2-3 has very useful formulas that can make financial decisions somewhat easier, that is if we know how to use them properly. Financial formulas are provided to calculate a regular payment amount, a present value and a future value of money, the net present value of an investment, and the internal rate of return of an investment.

In this article, I will discuss the practical use of these financial formulas as well as other useful formulas which are not built-in to LOTUS version 1A. I will not discuss the new formulas available in version 2 of LOTUS 1-2-3, since most users are still using version 1A (I am still using version 1A and I am not ashamed of it at all).

In the formulas described later, I will use the following terminology to be consistent with that of the LOTUS manual and help screens:

PRN - The principal amount
INT - The PER PAYMENT interest rate
TERM - The number of payments
        (not the number of years)
PMT - The regular payment amount
GUESS- (When all else fails)
        The estimated internal
        rate of return
RANGE- The range of cash flows

The built-in formulas are:

PAYMENT: @PMT(PRN , INT , TERM)

Calculates the regular payment required to reimburse a mortgage (PRN) at the given PER PAYMENT interest rate (INT) in a given number of payments (TERM).

FUTURE VALUE: @FV(PMT , INT , TERM)

Returns the future value of a series of payments (PMT) at the specified PER PAYMENT interest rate (INT) for a given number of payments (TERM).

PRESENT VALUE: @PV(PMT , INT , TERM)

The present value of a series of payments (PMT) at the specified PER PAYMENT interest rate (INT) for a given number of payments (TERM).

NET PRESENT VALUE: @NPV(INT , RANGE)

The net present value of a series of future cash flows made at regular intervals at the specified PER PERIOD interest (INT). The RANGE defines the values of the future cash flows.

The PER PERIOD interest rate that makes the net present value of a series of future cash flows zero. The GUESS is your best estimate as to the value of the internal rate of return for the series of future cash flows defined by RANGE.

As the title of the article suggests, there is a catch. There is a reason to mention a Canadian context. Quite simply stated, it is the way that mortgage interest rates are specified in Canada as opposed to the United States.

In Canada, the stated or nominal interest rate for mortgages is compounded semi-annually (twice per year). In the US, the rate is compounded monthly and matches the number of payments per year.

We must convert the Canadian rate to an equivalent rate compounded monthly (which matches the number of payments per year). From this equivalent rate, we can easily find the PER PAYMENT interest rate used in all the formulas we will discuss.

It should be noted that the interest rate specified for personal loans in Canada is already compounded monthly, and can be used directly to find the PER PAYMENT interest rate (provided that we have 12 payments per year).

We have:

o CDN Mortgage Interest Rate:
  Compounded Semi-Annually

o USA Mortgage Interest Rate:
  Compounded Monthly

o Loan Interest Rate:
  Compounded Monthly

Given a 10% canadian mortgage interest rate:

  (K is the stated compounding period
  N is the number of payments per year)

o Nominal Interest Rate:
  Stated Interest rate compounded
  K times per year (eg. 10%)

o Effective Interest Rate:
  Compounded once per year
  (eg. 10.25%)

o Equivalent Interest Rate:
  Rate compounded N times per year
  (eg. 9.8%)

o Per Payment Interest Rate:
  Equivalent rate over N
  (eg. .0081666)

It should be noted, not considering the value of money, that a 10% nominal Canadian mortgage interest rate is better than a 9.9% nominal US mortgage interest rate because the interest in a US mortgage is calculated more often than the Canadian counter part. The equivalent interest rate shows that the 10% Canadian rate is similar to a 9.8% US rate.

The following data will be used unless otherwise specified:

  PRN = $50,000
  INT = 10% compounded twice per year
  TERM = 25 Years (monthly payments)

EQUIVALENT INTEREST RATE

To calculate the Equivalent Interest Rate (EIR), we can use the following formula:

$$EIR = P * ((1 + INT / C) \char`\^ (C / P) - 1)$$

where P = Number of payments per year (12)
      C = Stated compounding period   (2)
    INT = Nominal Interest Rate over 100:
          (10 / 100 = .1)

$$EIR = 12 * ((1 + .1 / 2) \char`\^ (2 / 12) - 1)$$
$$= .098 \quad or \quad 9.8\%$$

PER PAYMENT INTEREST RATE

The per payment interest rate (PPIR) used in ALL the LOTUS 1-2-3 financial formulas is the equivalent rate over the number of payments:

$$PPIR = EIR / P$$
$$= .098 / 12$$
$$= .00816 \quad or \quad .82\%$$

PAYMENT

The first LOTUS 1-2-3 built-in formula calculates the regular payment required to re-imburse a loan or mortgage at the given PER PAYMENT interest rate (PPIR) in the term specified (number of payments).

$$PMT = @PMT(PRN , PPIR , TERM)$$
$$= @PMT(50000 , .00816 , 300)$$
$$= \$447.24$$

(cont'd next page)

Therefore, 300 payments of $447.24 are required to repay the $50,000 loan at 10% for 25 years.

FUTURE VALUE

The future value of a series of equal payments can be found by the @FV formula. It calculates how much money will be received at the end of the term if a regular amount is deposited at the PER PAYMENT interest rate.

$$FV = @FV(\ PMT \ , \ INT \ , \ TERM \ )$$

If you deposit $100 each month for 5 years in a bank with a stated interest rate of 9% compounded monthly, you will have the following amount in your bank account at the end of the 5 years:

$$FV = @FV(\ 100 \ , \ .09 \ / \ 12 \ , \ 5 * 12 \ )$$
$$FV = \$7,542.41$$

You have gained $1,542.41 in interest ($7,542.41 - (100 * 5 * 12)).

PRESENT VALUE

The @PV formula calculates the present value of a series of equal payments made at the PER PAYMENT interest rate for a given term.

$$PV = @PV(\ PMT \ , \ INT \ , \ TERM \ )$$

If you were to receive $100 each month for 5 years from an investment, and you use 9% compounded monthly as the time value of money, it would be the same as having the following amount of money now:

$$PV = @PV(\ 100 \ , \ .09 \ / \ 12 \ , \ 5 * 12 \ )$$
$$PV = \$4,817.34$$

Another way of looking at this example involves determining how much money you can borrow from a bank if you can pay back $100 per month for 5 years at 9% compounded monthly. In this case, the bank could lend you $4,817.34.

NET PRESENT VALUE

The net present value formula (@NPV) gives you the sum of all future cash flows generated by a project or investment, but with each cash flow discounted back to the present. The interest rate given represents the time value of money.

$$NPV = @NPV(\ INT \ , \ RANGE \ )$$

The initial investment amount must be subtracted from the net present value of future cash flows. The result will be positive for acceptable projects, and negative for projects that will cost more than they can generate.

Given an initial investment of $10,000, with expected future cash flows of $4,000, $5,000 and $6,000 in years 1 to 3 respectively (the range in the formula), and a per period discount rate of 10.5%, the net present value is:

$$NPV = @NPV(\ .105 \ , \ range \ ) - 10000$$
$$= \$2,161.80$$

INTERNAL RATE OF RETURN

The internal rate of return is the rate of discount which, when applied to the cash flows of an investment, will yield a net present value of zero.

$$IRR = @IRR(\ GUESS \ , \ RANGE \ )$$

LOTUS 1-2-3 uses an iterative scheme to calculate the internal rate of return. You must guess the correct answer in order to start the iterative process. ERR will be generated if the answer cannot be approximated to within .0000001 after 20 iterations. Your guess should be between 0 and 1 in most cases. Different results can be generated with different guesses. A few guesses should be used.

Internal Rate of Return (continued)
The first cash flow in the range specified should be the initial investment amount (as a negative number). Given the same example as in the net present value formula above, the internal rate of return, using a guess of .1 is:

```
IRR = @IRR ( .1 , range )
    = .216477
    = 21.6% discount rate
    (where net present value is 0)
```

Now we will see some uses of the PRESENT VALUE formula, especially when it comes to mortgages. Assume a $50,000 mortgage at 10% compounded semi-annually for 25 years. The regular payment is calculated as $447.24 using the @PMT formula.

PRINCIPAL amount borrowed

```
PRN = @PV( PMT , INT , TERM )
    = @PV(447.24 , .098 / 12 , 25 * 12)
    = $50,000
```

CAPITAL PAID AFTER n PAYMENTS (n = 12)

```
CPANP = PRN - @PV( PMT , INT , TERM - n )
      = 50000 - @PV( 447.24 , .098 / 12 , 25 * 12 - 12)
      = $489.62
```

INTEREST PAID AFTER n PAYMENTS (n = 12)

```
IPANP = PMT * N - CPANP
      = 447.24 * 12 - 489.62
      = $4,887.31
```

CAPITAL PAID AT PAYMENT n (n = 12)

```
CPAPN = CPANP - ( PRN - @PV( PMT , INT , TERM - n + 1 ))
      = 489.62 - (50000 - @PV( 447.24 , .098/12 , 25*12-12+1))
      = 489.62 - 446.97
      = $42.65
```

INTEREST PAID AT PAYMENT n (n = 12)

```
IPAPN = PMT - CPAPN
      = 447.24 - 42.65
      = $404.59
```

TERM (given a new payment)

```
TERM = (@LOG( PMT ) - @LOG( PMT - PRN * INT )) / @LOG( 1+INT )

PMT = 500  (instead of 447.24)

TERM = (@LOG(500)- @LOG(500- 50000*.098/12)) / @LOG(1+.098/12)
     = 208.50 or
     = 17 years and 4.5 months
```

LOTUS 1-2-3 FINANCIAL FORMULAS IN A CANADIAN CONTEXT - G.Mousseau (Conclusion)

LAST PAYMENT
(given a balance after the last regular payment)

```
LP = @PV( PMT , INT , TERM - @INT( TERM ))
   = @PV( 500 , .098/12 , 208.5 - 208)
   = $248.39 (paid at the same time as the last regular payment)
   = $248.39 * (1 + .098 / 12)
   = $250.42 (paid one period after the last regular payment)
```

SAMPLE LOTUS 1-2-3 WORKSHEET

On your current disk of the month *, you will find a worksheet file called MORT.WKS.
This example includes most of the formulas discussed here.

Happy mortgaging............................. Gilles Mousseau

* The disk referred to in this article is the club's disk of the month # 37. Ed.

UPDATE OF THE SOFTWARE LIBRARY .... CHRIS TAYLOR

Two fresh additions to the library from Jim Button!

PC-FILE + (2 disks) The latest simple-to-use database from ButtonWare. It is up to 5 times faster than previous versions, has over 175 context sensitive help screens, a report writer, the ability to paint entry screens, embed calculations, merge form letters, and more!

```
Maximum databases open (simultan.) is 71
Maximum field length is 1665
Maximum fields per database is 70
Maximum records per database is 65,533
Maximum number of sort fields is 10
```

XD - A program providing extended DOS functions. It allows you to change file attributes, copy/move files, delete files, delete entire branches (including file) of your subdirectory, list files to screen or printer, rename files/subdirectories, search files for text strings, change the time/date and more!

Other new programs in the specialty library

Telix V2.12 - The latest version of this great Canadian Comm. program.

Genealogy on Display V5 - An update to this popular "roots" program.

PC-Magazine Benchmarks V4 - The latest benchmarks for comparing computers.

DANCAD 3D V1.3 (4 disks) - A very nice 3D drawing and animation program. Requires CGA and 640K. A 512K version is available from the author.

This is probably a appropriate time for me to restate the policy on 'user-supported', or 'shareware', software. This is software that is protected by copywrite, but which the author has given permission for you to copy freely.

(cont'd next page)

However, if after you try the program out, and find it to be of enough value that you continue to use it, you are expected to register the software with the author and send in the amount requested (generally from $10 to $80).

The benefits of registering the software vary from simply knowing you are doing great things for your Karma to getting complete printed documentation and even money back schemes whereby you get cash everytime someone registers their program with a copy you distributed. Perhaps the most important aspect is that you are supporting an industry which allows you to actually USE the software, in the environment you intend to use it, BEFORE you have to shell out the bucks.

Shareware or user supported software should always be complete in the operational aspects. Programs that remove the ability to save files, or any other function, are demonstration programs and are classed as such in the software listings. The most crippling thing you should find in user supported software is the lack of complete documentation. Although I personally find this a somewhat crippling factor, shareware authors probably find this adds to the incentive to register.

The registration fees (Jim Button uses the term 'price') for the above programs is as follows;

```
DANCAD 3D - $10.00 (US)
PC-Mag. Benchmarks - Free
Genealogy - $45.00 (US)
Telix     - $34.00 (CAN)
PC-FILE+  - $69.95 (US)
XD        - $29.95 (US)
```

Don't forget, all disks in the software library are now only $3.00 each.

Chris Taylor ▪

Report on the PC Users' Group Meeting, 25th March 1987

Anne Moxley, the President, announced that meetings start at 7:30, with the program part starting at 8:00. There would be further opportunities to renew memberships or get disks at the tea break or after the meeting.

SIG News:
-- The AT SIG is looking for someone interested in being convenor.
-- The PCJr SIG will meet on April 8th. The topic is more instruction on BASIC, plus peripherals.
-- The Enable SIG will be meeting on April 8th at PC Nova in the basement training room. The topic will be word processing.
-- The Packages SIG will be meeting on April 8th at the Main Street Community Centre. The topics will be Problem solving, and using utilities with word processing packages.

Bulletin Board:

During the peak hours of 6:00 to 9:00 p.m., paid up members will be limited to 15 minutes connect time, with a downloading limit of 50K. To encourage access at other times, access will be doubled between 12:00 and 3:00 p.m. and between 6:00 a.m. and 12:00 noon.

Next month's program will deal with the Intel 80386 chip; the May meeting will deal with software piracy.

The speaker of the evening was Richard Benneworth, Vice President, Software Development, Xanthe Information Inc. He compared the evolution of mainframes and microcomputers, stating that only the timescale differed.

Just as there were a lot of dropouts in the mainframe business, so there have been in microcomputers, the difference being that, with the availablity of inexpensive hardware, especially memory, much of the software developed for micros was developed 'in basements', and did not take advantage of the research being done at universities. This has resulted in a lot of software with 'low level verbose coding' and ' much adhoc-ery,' leading to a lack of standardization and difficulties in debugging programs.

Fourth generation languages are now available for micros, and the fifth generation is on its way. The latter will incorporate the latest research and development in database modelling, manipulation and presentation, and will result in rapid development of applications. Programs will be totally open-ended, 100% portable, and will have a multiuser interface with proper transaction control.

Attendance was about 200.

OTTAWA IBM PC Users' Group   DISK # 40   April 1987

AUTO1   BAT   2103 (C**)
Spruce up your batch files using ANSI sequences. Designed for use with a colour monitor. Related files AUTO2.BAT, AUTO.DOC

COPYSAFE COM   1266 (***)
De-bugged copy of program on DISK-39. Related file COPYSAFE.COR

DATE   PAS   6217 (***)
Some Turbo Pascal functions and procedures to help out with date manipulation. Related file DATE.DOC

GDEL   COM   21143 (***)
Global DELete utility will delete a wild-card specification from all subdirectories on a disk. Asks permission before deleting. Related files GDEL.DOC, GDEL.PAS

PCBALL86 COM   64512 (C**)
Pinball game made with the Pinball Construction Set. Related file PCBALL86.DOC

PLAY   COM   896 (***)
Play tunes from DOS. Works just like the BASIC PLAY command. Related files PLAY.ASM, PLAY.DAT, PLAY2.DAT, PLAY.DOC

REBEEP   COM   256 (***)
When you really have to get someone's attention...beeps every second until a key is pressed. Related file REBEEP.DOC

RMAP   COM   10396 (***)
Memory resident program that maps out all programs in memory, including itself. Related file RMAP.DOC

SPKR   SYS   1692 (***)
Device driver that allows you to send output to the speaker. Runs in background, so you can play a tune while doing other things. Related file SPRK.DOC

STATUS   COM   1920 (***)
Check out the settings of your configuration switches without opening the hood. Related files STATUS.ASM, STATUS.DOC

TIMER   COM   18476 (***)
Time the execution of programs. Related files TIMER.C, TIMER.DOC

UNBLINK COM   1920 (***)
Tired of the blinking cursor? UNBLINK will turn it into a solid block. Related file UNBLINK.DOC

XDIR   COM   1408 (***)
A nifty memory resident program to provide a directory listing at any time. Related files XDIR.ASM, XDIR.DOC

List edited and disk prepared by your Software Librarian.

Chris Taylor ▓