

Algorithms and their history

A presentation for the euro math 2011 by Constantine Polyzois

Introduction



Ladies and gentlemen,
Dear fellow students,
I am happy to be given the chance to
participate in this conference. I would like to
share my thoughts with you, concerning this
particular branch of mathematics.

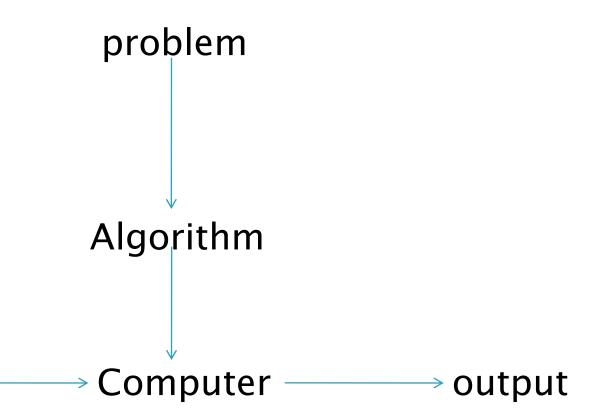
Generally and the definition



An algorithm

- Is a sequence of clear rational operations
- Aims at the solution of the problems
- Has a finite and time





Input-

Characteristics



- Its programming language
- Its sequence

Its selection

Its repetition/ iterations

The characteristics of the Programming languages



- Their own syntax
- Their own vocabulary

Programmatic languages



- Fortran
- Cobol
- ▶ PI/I
- Pascal
- Ada
- Basic
- Logo

Pseudocode



Pseudocode is a code having with the nowadays rapid development of technology educational objectives. Unlike with the computer or the programming languages identifies more and more with mathematics because it uses more mathematical symbols

History



- During the Middle Ages the term meant the performing of four mathematical calculations.
- Immediately linked to decimal numbering system.
- They originated in Arabia
- Their name is misspelling of the writer's name Al- Kuarismi

Secant method if f(x)=0



$$\lambda = \frac{f_0}{x_0 - x_2} = \frac{f_1}{x_1 - x_2}$$

$$f_0(x_1 - x_2) = f_1(x_0 - x_2)$$

$$(-f_0)x_2 + f_1x_2 = (-f_0)x_1 + f_1x_0$$

Secant method



$$(f_1 - f_0)x_2 = f_1 xo - f_0 x_1$$

$$x_2 = \frac{f_1 x_0 - f_0 x_1}{f_1 - f_0}$$

An algorithm for secant method



- REM SECANT METHOD FOR SOLUTION OF NON-LINEAR ALGEBRAIC EQUATION F(X)=0
- INPUT XO, XI, E
- $ightharpoonup 10 \, FO = XO * (XO 1!) * (XO + 1!)$
- ightharpoonup FI = XI * (XI 1!) * (XI + 1!)
- X2 = (Fl * XO FO * XI) / (Fl FO)
 PRINT X2
- XO = XIX1 = X2
- ▶ IF ABS(X1 XO) > E GOTO 10
- PRINT '_______
- **END**

Euclid's Algorithm in use euro Math



The greatest common divisor of the numbers 124 and 34.

a	b	exemplification
124	34	124>34
34	22	22=124 mod 34 (22 is the residual of 124/34)
22	12	12=34 mod 22 (12 is the residual of 34/22)
12	10	
10	2	
2	0	When the b or the a is 0 the algorithm terminate and 2 is the greatest common divisor

Euclid's algorithm in Basic euro Math



- REM Euclid's algorithm for greatest common divisor
- PRINT "Type two integers greater than 0"
- ▶ INPUT A,B
- ► IF B=0 THEN GOTO 80
- ► IF A > B THEN GOTO 60
- \rightarrow LET B=B-A
- GOTO 20
- \rightarrow LET A=A-B
- GOTO 20
- PRINT A
- END

Consulting bibliography



- Encyclopedia domi
- Introduction to Contemporary Information Technology
- Wikepedia.org

Conclusion



I would like to thank for their in the conduct of this study first of all my professor Mr Dionysis Lambrinidis and the professors Mr Dimosthenis Thanos and Mr Dimitris Vekios as well as my college Varvakeio Experimental and you for your attention