

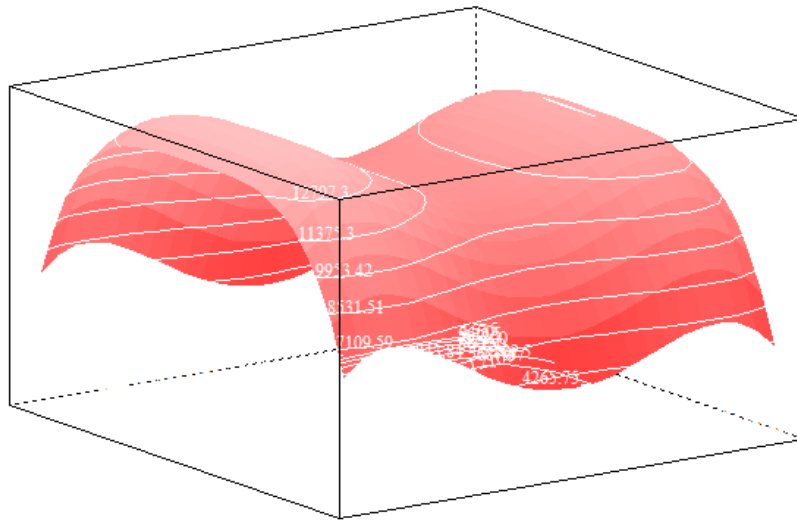
C4E: COMPUTATION FOR ECONOMISTS

Course Packet for *Econ 354. Computational Methods in Economics and Finance*, Fall 2017

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81. Simulated Annealing
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1. keywords
words or symbols with special meaning in a language *See:Basic Instinct:: Elements of An Ox Program*
2. string constant
a sequence of hard coded characters *See:Basic Instinct:: Elements of An Ox Program*
3. double constant
a real number that appears in the source code *See:Basic Instinct:: Elements of An Ox Program*
4. matrix constant
a matrix of hardcoded numbers appearing in the source code *See:Basic Instinct:: Elements of An Ox Program*
5. array constant
a list of constants in the source code *See:Basic Instinct:: Elements of An Ox Program*
6. left value or lvalue
An identifier in a program that has a memory cell associated with that can be modified during execution *See:Express Yourself: Ox Syntax for Calculations*
7. bit
Binary digIT *See:Tim: Hardware for DummiesEconomists*
8. GPU
Graphical Processing Unit *See:Tim: Hardware for DummiesEconomists*
9. RAM
random access memory *See:Tim: Hardware for DummiesEconomists*
10. word
a fixed number of bits in RAM located at an addressed treated as one piece of information *See:Tim: Hardware for DummiesEconomists*
11. IR
instruction register: location on the CPU that contains the binary instruction to be executed in the next step of the execution cycle *See:Tim: Hardware for DummiesEconomists*
12. unsigned binary integer
the code for storing non-negative whole numbers in a fixed number of bits *See:Numb3rs: Integers & Reals*
13. 2s Complement Arithmetic
The coding and hardware design for arithmetic involving signed integers *See:Numb3rs: Integers & Reals*
14. bit bucket
The term for where carried 1s from the leftmost bit in a word goes. *See:Numb3rs: Integers & Reals*
15. numeric overflow
The event of attempting to store the result of an arithmetic operation that is too large to fit in the word being used. *See:Numb3rs: Integers & Reals*
16. floating point real number (FPR)
The code that uses 2 signed integers to represent real numbers *See:Numb3rs: Integers & Reals*
17. machine precision
A measure of how accurate arithmetic is on a computer system. It is defined as the smallest number that if subtracted from 1.0 results in a value strictly less than 1.0. *See:Numb3rs: Integers & Reals*
18. round off error
When an operation on floating point reals is not exact. *See:Numb3rs: Integers & Reals*
19. NaN
Not a Number *See:Numb3rs: Integers & Reals*
20. static feature of a language
An aspect of a program that is determined before execution begins *See:The Ties that Bind: When Things Happen in a Program*
21. executable file
a file that consists of binary instructions that can be loaded into memory and take over the CPU *See:Across The Great Divide: The Two Kinds of Programming Languages*
22. compiled language
A language that can produce an executable file and does not require an interpreter. *See:Across The Great Divide: The Two Kinds of Programming Languages*
23. gcc
The GNU C Compiler. *See:Across The Great Divide: The Two Kinds of Programming Languages*
24. token list
a list of all the individual items gleaned from a program to be parsed for meaning *See:Across The Great Divide: The Two Kinds of Programming Languages*
25. parse tree
a structure that is created during syntax analysis in order to produce object code *See:Across The Great Divide: The Two Kinds of Programming Languages*
26. object code
a binary file that contains the instructions implied by a program, whether machine instructions or pseudo-code; it cannot be executed directly because code from outside libraries must be linked into it first *See:Across The Great Divide: The Two Kinds of Programming Languages*
27. linker
the program that combines object files with library files in order to produce an executable file or prepares the interpreter to execute *See:Across The Great Divide: The Two Kinds of Programming Languages*
28. sequential optimization
an algorithm to optimize an objective function starting from some pre-determined starting vector *See:Optimization*
29. BFGS
Broyden-Fletcher-Goldfarb-Shanno *See:The Great Curve: Gradient-and-Hessian Optimization*
30. random experiment
an uncertain situation *See:Known Unknowns*
31. random variable
a numerical value associated with random outcomes *See:Known Unknowns*
32. discrete random variable
discreterv *See:Known Unknowns*
33. continuous random variable
continuousrv *See:Known Unknowns*
34. continuous distribution function (cdf)
 $\text{Prob}(X < x)$ *See:Known Unknowns*
35. pdf of a discrete pdf1 *See:Known Unknowns*
36. pdf of a continuous random variable
the derivative of the cdf *See:Known Unknowns*
37. the joint cumulative distribution function (joint cdf)
 $\text{Prob}(X < x, Y < y)$, for example *See:Known Unknowns*
38. joint pdf
the probability all the individual random variables take on the specified values *See:Known Unknowns*
39. joint pdf

- the partial derivative of the cdf with respect to all the individual random variables *See:Known Unknowns*
40. marginal cdf
marginal *See:Known Unknowns*
41. marginal pdf
the pdf of a random variable(s) after summing over other jointly distributed random variables *See:Known Unknowns*
42. marginal cdf

- " *See:Known Unknowns*
43. marginal pdf
the pdf of a random variable(s) after integrating over the other jointly distributed random variables *See:Known Unknowns*
44. $Z \sim \mathcal{N}(0, 1)$
Z *See:Known Unknowns*
45. $X \sim \mathcal{N}(\mu, \sigma^2)$
normal *See:Known Unknowns*