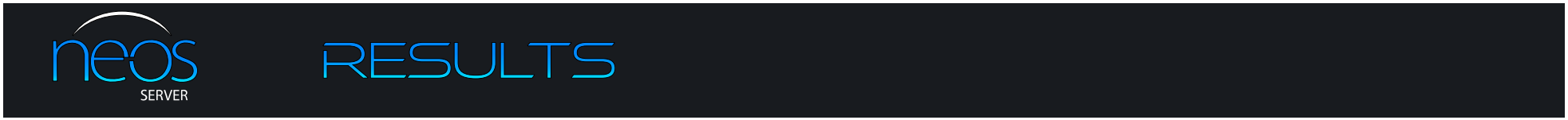


```
************************************************************

   NEOS Server Version 6.0
   Job#     : 12737842
   Password : GyDezMjq
   User     :
   Solver   : go:BARON:GAMS
   Start    : 2023-02-08 15:21:31
   End      : 2023-02-08 15:21:37
   Host     : prod-sub-1.neos-server.org

   Disclaimer:

   This information is provided without any express or
   implied warranty. In particular, there is no warranty
   of any kind concerning the fitness of this
   information for any particular purpose.

   Announcements:
************************************************************
Executed on prod-exec-6.neos-server.org
GAMS 41.4.0  caab8bc0 Dec 14, 2022          LEX-LEG x86 64bit/Linux - 02/08/23 15:21:35 Page 1
G e n e r a l   A l g e b r a i c   M o d e l i n g   S y s t e m
C o m p i l a t i o n



COMPILATION TIME     =        0.000 SECONDS      2 MB  41.4.0 caab8bc0 LEX-LEG
GAMS 41.4.0  caab8bc0 Dec 14, 2022          LEX-LEG x86 64bit/Linux - 02/08/23 15:21:35 Page 2
G e n e r a l   A l g e b r a i c   M o d e l i n g   S y s t e m
Range Statistics    SOLVE First_Illustrative_Example_Section_3_1 Using NLP From line 302


RANGE STATISTICS (ABSOLUTE NON-ZERO FINITE VALUES)

RHS       [min, max] : [ 2.000E-02, 1.000E+00] - Zero values observed as well
Bound     [min, max] : [        NA,        NA] - Zero values observed as well
Matrix    [min, max] : [ 1.000E+00, 2.000E+00] - Zero values observed as well

GAMS 41.4.0  caab8bc0 Dec 14, 2022          LEX-LEG x86 64bit/Linux - 02/08/23 15:21:35 Page 3
G e n e r a l   A l g e b r a i c   M o d e l i n g   S y s t e m
Model Statistics    SOLVE First_Illustrative_Example_Section_3_1 Using NLP From line 302
```

This is the Output File when the program in file <First_Example_Synthetic_Data_Model_B1.txt> was executed.

It forces alternative A3 to be the best. The value of the control parameter is set to be equal to 0.020.

```
MODEL STATISTICS

BLOCKS OF EQUATIONS          54     SINGLE EQUATIONS           54
BLOCKS OF VARIABLES          60     SINGLE VARIABLES           60
NON ZERO ELEMENTS           207     NON LINEAR N-Z             96
CODE LENGTH                 318     CONSTANT POOL              16


GENERATION TIME      =        0.002 SECONDS      3 MB  41.4.0 caab8bc0 LEX-LEG
GAMS 41.4.0  caab8bc0 Dec 14, 2022          LEX-LEG x86 64bit/Linux - 02/08/23 15:21:35 Page 4
G e n e r a l   A l g e b r a i c   M o d e l i n g   S y s t e m
Solution Report     SOLVE First_Illustrative_Example_Section_3_1 Using NLP From line 302


               S O L V E      S U M M A R Y

     MODEL   First_Illustrative_Example_Section_3_1   OBJECTIVE  Z
     TYPE    NLP                                     DIRECTION  MINIMIZE
     SOLVER  BARON                                   FROM LINE  302

**** SOLVER STATUS     1 Normal Completion
**** MODEL STATUS      2 Locally Optimal
**** OBJECTIVE VALUE                0.2209

 RESOURCE USAGE, LIMIT          1.250 10000000000.000
 ITERATION COUNT, LIMIT         0    2147483647
 EVALUATION ERRORS              0             0

GAMS/BARON       41.4.0 caab8bc0 Dec 14, 2022          LEG x86 64bit/Linux

BARON is a product of The Optimization Firm, LLC. http://www.minlp.com/
Parts of the BARON software were created at the
University of Illinois at Urbana-Champaign.


================================================================================
 BARON version 22.9.30. Built: LNX-64 Fri Sep 30 09:06:37 EDT 2022

 BARON is a product of The Optimization Firm.
 For information on BARON, see https://minlp.com/about-baron

 If you use this software, please cite publications from
 https://minlp.com/baron-publications, such as:

 Khajavirad, A. and N. V. Sahinidis,
 A hybrid LP/NLP paradigm for global optimization relaxations,
 Mathematical Programming Computation, 10, 383-421, 2018.
```

```
================================================================================
 This BARON run may utilize the following subsolver(s)
 For LP/MIP/QP: CLP/CBC, ILOG CPLEX
 For NLP: MINOS, SNOPT, External NLP, IPOPT, FILTERSQP

Solution      = 0.220939842172782  found at node 11
Best possible = 0.220917750398
Absolute gap  = 2.20917747823512E-5  optca = 1E-9
Relative gap  = 9.99899998347729E-5  optcr = 0.0001


                        LOWER     LEVEL     UPPER    MARGINAL

---- EQU Equation2      0.020     0.020     0.020    22.131
---- EQU Constrain~       .    -3.73E-12     +INF      1.135
---- EQU Constrain~       .    -1.22E-12     +INF      1.603
---- EQU Constrain~       .    1.171E-12     +INF      0.864
---- EQU Constrain~       .    -5.52E-12     +INF      1.160
---- EQU Constrain~       .    1.072E-12     +INF      1.012
---- EQU Constrain~       .    -6.33E-14     +INF      0.839
---- EQU Constrain~       .    -4.46E-12     +INF      1.110
---- EQU Constrain~       .    -5.88E-14     +INF      1.553
---- EQU Constrain~       .    -4.86E-12     +INF      1.330
---- EQU Constrain~       .    -9.40E-13     +INF      1.160
---- EQU Constrain~       .    8.798E-13     +INF      1.012
---- EQU Constrain~       .    -4.87E-12     +INF      0.839
---- EQU Constrain~       .    -4.98E-12     +INF      0.443
---- EQU Constrain~       .    -5.33E-14     +INF      0.962
---- EQU Constrain~       .    -4.69E-12     +INF      0.814
---- EQU Constrain~       .    5.198E-14     +INF      1.135
---- EQU Constrain~       .    -1.26E-12     +INF      1.603
---- EQU Constrain~       .    -3.30E-12     +INF      0.864
---- EQU Equation1      1.000     1.000     1.000    -0.443
---- EQU EQ_t1_1          .    -4.190E-6       .        1.000
---- EQU EQ_t1_2          .    -4.190E-6       .        1.000
---- EQU EQ_t1_3          .    -3.581E-6       .        1.000
---- EQU EQ_t1_4          .    -4.190E-6       .        1.000
---- EQU EQ_t2_1          .    -3.421E-6       .        1.000
---- EQU EQ_t2_2          .    -3.421E-6       .        1.000
---- EQU EQ_t2_3          .    -2.925E-6       .        1.000
---- EQU EQ_t2_4          .    -3.421E-6       .        1.000
---- EQU EQ_t3_1          .    -3.839E-6       .        1.000
---- EQU EQ_t3_2          .    -3.839E-6       .        1.000
---- EQU EQ_t3_3          .    -3.282E-6       .        1.000
---- EQU EQ_t3_4          .    -3.839E-6       .        1.000
---- EQU EQ_t4_1          .    -3.708E-6       .        1.000
---- EQU EQ_t4_2          .    -3.708E-6       .        1.000
---- EQU EQ_t4_3          .    -3.169E-6       .        1.000
---- EQU EQ_t4_4          .    -3.708E-6       .        1.000
```

```
---- EQU EQ_t5_1          .     -3.459E-6      .         1.000
---- EQU EQ_t5_2          .     -3.459E-6      .         1.000
---- EQU EQ_t5_3          .     -2.957E-6      .         1.000
---- EQU EQ_t5_4          .     -3.459E-6      .         1.000
---- EQU EQ_t6_1          .     -3.462E-6      .         1.000
---- EQU EQ_t6_2          .     -3.462E-6      .         1.000
---- EQU EQ_t6_3          .     -2.959E-6      .         1.000
---- EQU EQ_t6_4          .     -3.462E-6      .         1.000
---- EQU EQ_tt1           .          .         .          .
---- EQU EQ_tt2           .          .         .          .
---- EQU EQ_tt3           .          .         .          .
---- EQU EQ_tt4           .          .         .          .
---- EQU EQ_tt5           .          .         .          .
---- EQU EQ_tt6           .          .         .          .
---- EQU Objective~       .          .         .         1.000
---- EQU eq1              .     9.093E-11     +INF       1.176
---- EQU eq2              .          .        +INF       0.758
---- EQU eq3              .          .        +INF       0.758

                       LOWER      LEVEL      UPPER     MARGINAL

---- VAR Z               -INF       0.221      +INF        .
---- VAR a1               .         0.245      +INF        .
---- VAR a2               .         0.245      +INF        .
---- VAR a3               .         0.265      +INF        .
---- VAR a4               .         0.245      +INF        .
---- VAR X1_1             .         1.139      +INF        .
---- VAR X1_2             .         1.057      +INF        .
---- VAR X1_3             .         0.902      +INF        .
---- VAR X1_4             .         0.894      +INF        .
---- VAR X2_1             .         1.144      +INF        .
---- VAR X2_2             .         0.899      +INF        .
---- VAR X2_3             .         0.982      +INF        .
---- VAR X2_4             .         0.981      +INF        .
---- VAR X3_1             .         1.137      +INF        .
---- VAR X3_2             .         0.973      +INF        .
---- VAR X3_3             .         0.824      +INF        .
---- VAR X3_4             .         1.055      +INF        .
---- VAR X4_1             .         0.895      +INF        .
---- VAR X4_2             .         1.140      +INF        .
---- VAR X4_3             .         0.979      +INF        .
---- VAR X4_4             .         0.977      +INF        .
---- VAR X5_1             .         0.902      +INF        .
---- VAR X5_2             .         0.983      +INF        .
---- VAR X5_3             .         1.060      +INF        .
---- VAR X5_4             .         1.065      +INF        .
---- VAR X6_1             .         0.894      +INF        .
---- VAR X6_2             .         1.057      +INF        .
---- VAR X6_3             .         0.902      +INF        .
```

```
---- VAR X6_4            .         1.139     +INF        .
---- VAR t1_1            .         0.019     +INF        .
---- VAR t1_2            .         0.003     +INF        .
---- VAR t1_3            .         0.010     +INF        .
---- VAR t1_4            .         0.011     +INF        .
---- VAR t2_1            .         0.021     +INF        .
---- VAR t2_2            .         0.010     +INF        .
---- VAR t2_3            .     3.1954E-4     +INF        .
---- VAR t2_4            .     3.7384E-4     +INF        .
---- VAR t3_1            .         0.019     +INF        .
---- VAR t3_2            .         0.001     +INF        .
---- VAR t3_3            .         0.031     +INF        .
---- VAR t3_4            .         0.003     +INF        .
---- VAR t4_1            .         0.011     +INF        .
---- VAR t4_2            .         0.020     +INF        .
---- VAR t4_3            .     4.5038E-4     +INF        .
---- VAR t4_4            .         0.001     +INF        .
---- VAR t5_1            .         0.010     +INF        .
---- VAR t5_2            .     2.7672E-4     +INF        .
---- VAR t5_3            .         0.004     +INF        .
---- VAR t5_4            .         0.004     +INF        .
---- VAR t6_1            .         0.011     +INF        .
---- VAR t6_2            .         0.003     +INF        .
---- VAR t6_3            .         0.010     +INF        .
---- VAR t6_4            .         0.019     +INF        .
---- VAR ee           -INF         0.020     +INF        .
---- VAR tt1             .         0.043     +INF        .
---- VAR tt2             .         0.032     +INF        .
---- VAR tt3             .         0.053     +INF        .
---- VAR tt4             .         0.032     +INF        .
---- VAR tt5             .         0.018     +INF        .
---- VAR tt6             .         0.043     +INF        .


**** REPORT SUMMARY :        0     NONOPT
                             0 INFEASIBLE
                             0  UNBOUNDED
                             0     ERRORS


EXECUTION TIME       =        1.282 SECONDS      3 MB  41.4.0 caab8bc0 LEX-LEG


USER: NEOS Server License prod-exec-6.neos-server.orgS221207/0001AB-GEN
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**** FILE SUMMARY
```

```
Input      /var/lib/condor/execute/dir_144578/gamsexec/MODEL.gms
Output     /var/lib/condor/execute/dir_144578/gamsexec/solve.lst
```