

“A Priority Queue for a simplified agenda manager in a rule based expert system shell”

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1. Objective

To create an application for building a priority queue system implemented by using a heap. This agenda manager application should get the input through a file & fires out the higher priority rule to be executed after each execution cycle.

2. Program Description

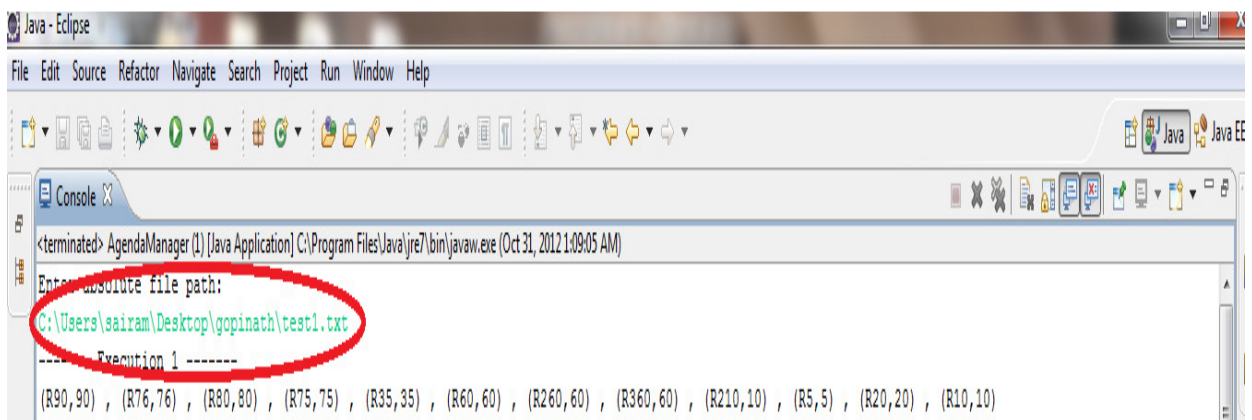
The program gets the absolute path from the user. Once the user provides the filepath, file is obtained & started process each line of the input file. The first line will be read & parses the names of the rule & priority value. After the whole line is read, a heap will be built using `buildheap()` & `heapify()` methods. After building the heap, the higher priority rule will be found out & displayed as output through `Heap_extractmax()` method. The displayed element will be removed from the heap.

Similarly rules present in further lines of input file will be added into the heap built. At the end of adding all elements in each line of input file, the highest priority rule will be displayed. After the input file is fully read, the rules will be displayed as per the highest priority until all the rules are processed.

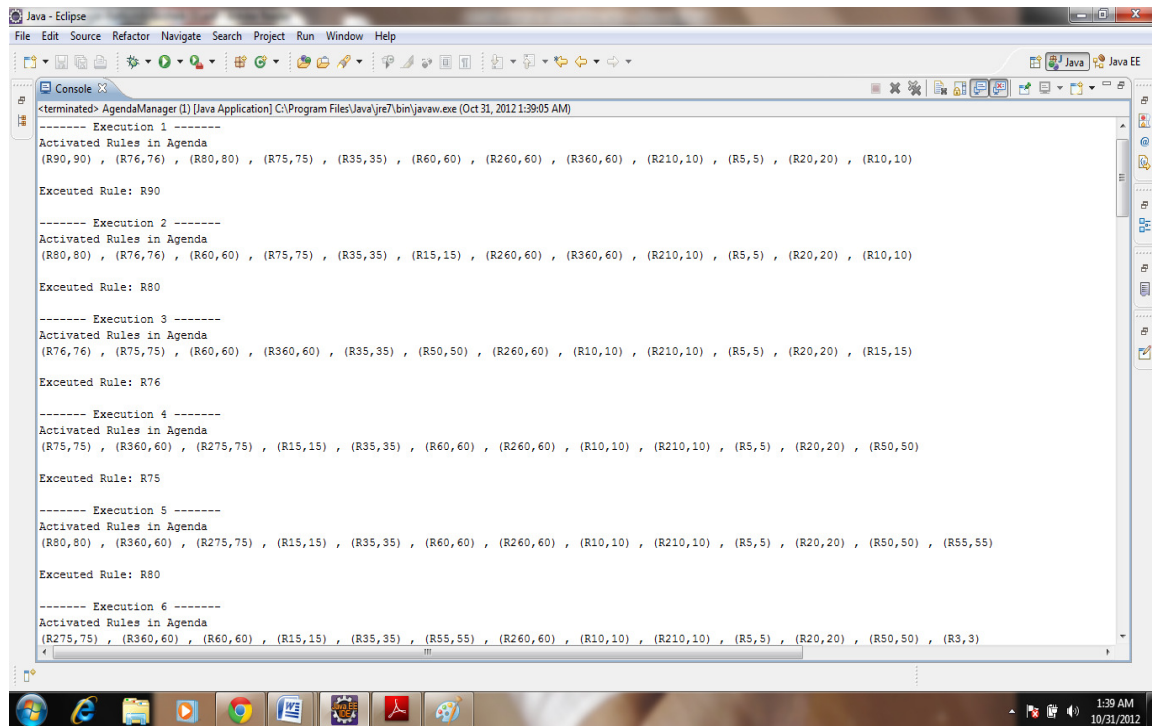
3. Instructions to execute the program

Step1:-Run the program using any IDE or in the command prompt.

Step2:-Enter the absolute path of the test file in the console as shown in the figure.



Step3:- The results for the given input file will be printed in the console as shown below.



```
<terminated> AgendaManager (1) [Java Application] C:\Program Files\Java\jre7\bin\javaw.exe (Oct 31, 2012 1:39:05 AM)

----- Execution 1 -----
Activated Rules in Agenda
(R90,90) , (R76,76) , (R80,80) , (R75,75) , (R35,35) , (R60,60) , (R260,60) , (R360,60) , (R210,10) , (R5,5) , (R20,20) , (R10,10)

Exceuted Rule: R90

----- Execution 2 -----
Activated Rules in Agenda
(R80,80) , (R76,76) , (R60,60) , (R75,75) , (R35,35) , (R15,15) , (R260,60) , (R360,60) , (R210,10) , (R5,5) , (R20,20) , (R10,10)

Exceuted Rule: R80

----- Execution 3 -----
Activated Rules in Agenda
(R76,76) , (R75,75) , (R60,60) , (R360,60) , (R35,35) , (R50,50) , (R260,60) , (R10,10) , (R210,10) , (R5,5) , (R20,20) , (R15,15)

Exceuted Rule: R76

----- Execution 4 -----
Activated Rules in Agenda
(R75,75) , (R360,60) , (R275,75) , (R15,15) , (R35,35) , (R60,60) , (R260,60) , (R10,10) , (R210,10) , (R5,5) , (R20,20) , (R50,50)

Exceuted Rule: R75

----- Execution 5 -----
Activated Rules in Agenda
(R80,80) , (R360,60) , (R275,75) , (R15,15) , (R35,35) , (R60,60) , (R260,60) , (R10,10) , (R210,10) , (R5,5) , (R20,20) , (R50,50) , (R55,55)

Exceuted Rule: R80

----- Execution 6 -----
Activated Rules in Agenda
(R275,75) , (R360,60) , (R60,60) , (R15,15) , (R35,35) , (R55,55) , (R260,60) , (R10,10) , (R210,10) , (R5,5) , (R20,20) , (R50,50) , (R3,3)
```

4. Test Results

4.1 Input File:Test1.txt

----- Execution 1 -----

Activated Rules In the Agenda:-

(R90,90),(R76,76),(R80,80),(R75,75),(R35,35),(R60,60),(R260,60),(R360,60),(R210,10),(R5,5),(R20,20),(R10,10)

Executed Rule: R90

----- Execution 2 -----

Activated Rules In the Agenda:-

(R80,80),(R76,76),(R60,60),(R75,75),(R35,35),(R15,15),(R260,60),(R360,60),(R210,10),(R5,5),(R20,20),(R10,10)

Executed Rule: R80

----- Execution 3 -----

Activated Rules In the Agenda:-

(R76,76) , (R75,75) , (R60,60) , (R360,60) , (R35,35) , (R50,50) , (R260,60) , (R10,10) ,
(R210,10) , (R5,5) , (R20,20) , (R15,15)

Executed Rule: R76

----- Execution 4 -----

Activated Rules In the Agenda:-

(R75,75) , (R360,60) , (R275,75) , (R15,15) , (R35,35) , (R60,60) , (R260,60) , (R10,10) ,
(R210,10) , (R5,5) , (R20,20) , (R50,50)

Executed Rule: R75

----- Execution 5 -----

Activated Rules In the Agenda:-

(R80,80) , (R360,60) , (R275,75) , (R15,15) , (R35,35) , (R60,60) , (R260,60) , (R10,10) ,
(R210,10) , (R5,5) , (R20,20) , (R50,50) , (R55,55)

Executed Rule: R80

----- Execution 6 -----

Activated Rules In the Agenda:-

(R275,75) , (R360,60) , (R60,60) , (R15,15) , (R35,35) , (R55,55) , (R260,60) , (R10,10) ,
(R210,10) , (R5,5) , (R20,20) , (R50,50) , (R3,3)

Executed Rule: R275

----- Execution 7 -----

Activated Rules In the Agenda:-

(R360,60) , (R35,35) , (R60,60) , (R15,15) , (R20,20) , (R55,55) , (R260,60) , (R10,10) ,
(R210,10) , (R5,5) , (R3,3) , (R50,50) , (R310,10)

Executed Rule: R360

----- Execution 8 -----

Activated Rules In the Agenda:-

(R95,95) , (R35,35) , (R60,60) , (R15,15) , (R20,20) , (R260,60) , (R310,10) , (R10,10) ,
(R210,10) , (R5,5) , (R3,3) , (R50,50) , (R55,55)

Executed Rule: R95

----- Execution 9 -----

Activated Rules In the Agenda:-

(R60,60) , (R56,56) , (R260,60) , (R255,55) , (R20,20) , (R59,59) , (R58,58) , (R35,35) ,
(R54,54) , (R5,5) , (R3,3) , (R50,50) , (R55,55) , (R310,10) , (R57,57) , (R10,10) , (R15,15) ,
(R210,10) , (R53,53)

Executed Rule: R60

----- Execution 10 -----

Activated Rules In the Agenda:-

(R260,60) , (R56,56) , (R59,59) , (R255,55) , (R20,20) , (R55,55) , (R58,58) , (R35,35) ,
(R54,54) , (R5,5) , (R3,3) , (R50,50) , (R53,53) , (R310,10) , (R57,57) , (R10,10) , (R15,15) ,
(R210,10) , (R220,20)

Executed Rule: R260

----- Execution 11 -----

Activated Rules In the Agenda:-

(R60,60) , (R59,59) , (R58,58) , (R56,56) , (R20,20) , (R55,55) , (R57,57) , (R35,35) ,
(R255,55) , (R5,5) , (R3,3) , (R50,50) , (R53,53) , (R310,10) , (R220,20) , (R10,10) , (R15,15)
, (R210,10) , (R54,54)

Executed Rule: R60

----- Execution 12 -----

Activated Rules In the Agenda:-

(R90,90) , (R59,59) , (R58,58) , (R56,56) , (R20,20) , (R55,55) , (R57,57) , (R35,35) ,
(R255,55) , (R5,5) , (R3,3) , (R50,50) , (R53,53) , (R310,10) , (R220,20) , (R10,10) , (R15,15)
, (R210,10) , (R54,54)

Executed Rule: R90

----- Execution 13 -----

Activated Rules In the Agenda:-

(R59,59) , (R56,56) , (R58,58) , (R255,55) , (R20,20) , (R55,55) , (R57,57) , (R35,35) ,
(R54,54) , (R5,5) , (R3,3) , (R50,50) , (R53,53) , (R310,10) , (R220,20) , (R10,10) , (R15,15) ,
(R210,10) , (R1,1) , (R2,1) , (R1,1)

Executed Rule: R59

----- Execution 14 -----

Activated Rules In the Agenda:-

(R58,58) , (R56,56) , (R57,57) , (R255,55) , (R20,20) , (R55,55) , (R220,20) , (R35,35) ,
(R54,54) , (R5,5) , (R3,3) , (R50,50) , (R53,53) , (R310,10) , (R1,1) , (R10,10) , (R15,15) ,
(R210,10) , (R1,1) , (R2,1)

Executed Rule: R58

----- Execution 15 -----

Activated Rules In the Agenda:-

(R57,57) , (R56,56) , (R55,55) , (R255,55) , (R20,20) , (R53,53) , (R220,20) , (R35,35) ,
(R54,54) , (R5,5) , (R3,3) , (R50,50) , (R2,1) , (R310,10) , (R1,1) , (R10,10) , (R15,15) ,
(R210,10) , (R1,1)

Executed Rule: R57

----- Execution 16 -----

Activated Rules In the Agenda:-

(R56,56) , (R255,55) , (R55,55) , (R54,54) , (R20,20) , (R53,53) , (R220,20) , (R35,35) ,
(R210,10) , (R5,5) , (R3,3) , (R50,50) , (R2,1) , (R310,10) , (R1,1) , (R10,10) , (R15,15) ,
(R1,1)

Executed Rule: R56

----- Execution 17 -----

Activated Rules In the Agenda:-

(R255,55) , (R54,54) , (R55,55) , (R35,35) , (R20,20) , (R53,53) , (R220,20) , (R15,15) ,
(R210,10) , (R5,5) , (R3,3) , (R50,50) , (R2,1) , (R310,10) , (R1,1) , (R10,10) , (R1,1)

Executed Rule: R255

----- Execution 18 -----

Activated Rules In the Agenda:-

(R55,55) , (R54,54) , (R53,53) , (R35,35) , (R20,20) , (R50,50) , (R220,20) , (R15,15) ,
(R210,10) , (R5,5) , (R3,3) , (R1,1) , (R2,1) , (R310,10) , (R1,1) , (R10,10)

Executed Rule: R55

----- Execution 19 -----

Activated Rules In the Agenda:-

(R54,54) , (R35,35) , (R53,53) , (R15,15) , (R20,20) , (R50,50) , (R220,20) , (R10,10) ,
(R210,10) , (R5,5) , (R3,3) , (R1,1) , (R2,1) , (R310,10) , (R1,1)

Executed Rule: R54

----- Execution 20 -----

Activated Rules In the Agenda:-

(R53,53) , (R35,35) , (R50,50) , (R15,15) , (R20,20) , (R1,1) , (R220,20) , (R10,10) ,
(R210,10) , (R5,5) , (R3,3) , (R1,1) , (R2,1) , (R310,10)

Executed Rule: R53

----- Execution 21 -----

Activated Rules In the Agenda:-

(R50,50) , (R35,35) , (R220,20) , (R15,15) , (R20,20) , (R1,1) , (R310,10) , (R10,10) ,
(R210,10) , (R5,5) , (R3,3) , (R1,1) , (R2,1)

Executed Rule: R50

----- Execution 22 -----

Activated Rules In the Agenda:-

(R35,35) , (R20,20) , (R220,20) , (R15,15) , (R5,5) , (R1,1) , (R310,10) , (R10,10) , (R210,10)
, (R2,1) , (R3,3) , (R1,1)

Executed Rule: R35

----- Execution 23 -----

Activated Rules In the Agenda:-

(R20,20) , (R15,15) , (R220,20) , (R10,10) , (R5,5) , (R1,1) , (R310,10) , (R1,1) , (R210,10) ,
(R2,1) , (R3,3)

Executed Rule: R20

----- Execution 24 -----

Activated Rules In the Agenda:-

(R220,20) , (R15,15) , (R310,10) , (R10,10) , (R5,5) , (R1,1) , (R3,3) , (R1,1) , (R210,10) , (R2,1)

Executed Rule: R220

----- Execution 25 -----

Activated Rules In the Agenda:-

(R15,15) , (R10,10) , (R310,10) , (R210,10) , (R5,5) , (R1,1) , (R3,3) , (R1,1) , (R2,1)

Executed Rule: R15

----- Execution 26 -----

Activated Rules In the Agenda:-

(R10,10) , (R210,10) , (R310,10) , (R2,1) , (R5,5) , (R1,1) , (R3,3) , (R1,1)

Executed Rule: R10

----- Execution 27 -----

Activated Rules In the Agenda:-

(R210,10) , (R5,5) , (R310,10) , (R2,1) , (R1,1) , (R1,1) , (R3,3)

Executed Rule: R210

----- Execution 28 -----

Activated Rules in the Agenda:-

(R310,10) , (R5,5) , (R3,3) , (R2,1) , (R1,1) , (R1,1)

Executed Rule: R310

----- Execution 29 -----

Activated Rules in the Agenda:-

(R5,5) , (R1,1) , (R3,3) , (R2,1) , (R1,1)

Executed Rule: R5

----- Execution 30 -----

Activated Rules in the Agenda:-

(R3,3) , (R1,1) , (R1,1) , (R2,1)

Executed Rule: R3

----- Execution 31 -----

Activated Rules in the Agenda:-

(R2,1) , (R1,1) , (R1,1)

Executed Rule: R2

----- Execution 32 -----

Activated Rules in the Agenda:-

(R1,1) , (R1,1)

Executed Rule: R1

----- Execution 33 -----

Activated Rules in the Agenda:-

(R1,1)

The inference terminates after 33 cycles

Elapsed time for 33 cycle: 0.025 Secs

4.2 Input File:Test2.txt

----- Execution 1 -----

Activated Rules in Agenda

(r15,15) , (r2,2)

Executed Rule: r15

----- Execution 2 -----

Activated Rules in Agenda

(r20,20) , (r2,2)

Executed Rule: r20

----- Execution 3 -----

Activated Rules in Agenda

(r100,100) , (r2,2)

Executed Rule: r100

----- Execution 4 -----

Activated Rules in Agenda
(r2,2) , (r0,0)

Executed Rule: r2

----- Execution 5 -----

Activated Rules in Agenda
(r100,100) , (r103,100) , (r102,100) , (r0,0)

Executed Rule: r100

----- Execution 6 -----

Activated Rules in Agenda
(r103,100) , (r104,100) , (r102,100) , (r0,0)

Executed Rule: r103

----- Execution 7 -----

Activated Rules in Agenda
(r104,100) , (r105,100) , (r102,100) , (r0,0)

Executed Rule: r104

----- Execution 8 -----

Activated Rules in Agenda
(r105,100) , (r28,28) , (r102,100) , (r0,0) , (r19,19) , (r02,0)

Executed Rule: r105

----- Execution 9 -----

Activated Rules in Agenda
(r102,100) , (r28,28) , (r35,35) , (r0,0) , (r19,19) , (r02,0)

Executed Rule: r102

----- Execution 10 -----

Activated Rules in Agenda
(r35,35) , (r28,28) , (r20,20) , (r0,0) , (r19,19) , (r02,0)

Executed Rule: r35

----- Execution 11 -----

Activated Rules in Agenda

(r28,28) , (r19,19) , (r20,20) , (r0,0) , (r02,0) , (rule2,2)

Executed Rule: r28

----- Execution 12 -----

Activated Rules in Agenda

(r80,80) , (r19,19) , (r20,20) , (r16,16) , (r02,0) , (rule2,2) , (r15,15) , (r0,0)

Executed Rule: r80

----- Execution 13 -----

Activated Rules in Agenda

(r20,20) , (r19,19) , (r15,15) , (r16,16) , (r02,0) , (rule2,2) , (r0,0) , (r13,13)

Executed Rule: r20

----- Execution 14 -----

Activated Rules in Agenda

(r100,100) , (r19,19) , (r15,15) , (r16,16) , (r02,0) , (rule2,2) , (r0,0) , (r13,13)

Executed Rule: r100

----- Execution 15 -----

Activated Rules in Agenda

(r100,100) , (r99,99) , (r15,15) , (r19,19) , (r30,30) , (rule2,2) , (r0,0) , (r13,13) , (r16,16) , (r02,0)

Executed Rule: r100

----- Execution 16 -----

Activated Rules in Agenda

(r99,99) , (r88,88) , (r99,99) , (r19,19) , (r30,30) , (r15,15) , (r0,0) , (r13,13) , (r16,16) , (r02,0) , (r5,5) , (rule2,2)

Executed Rule: r99

----- Execution 17 -----

Activated Rules in Agenda

(r99,99) , (r88,88) , (r70,70) , (r19,19) , (r30,30) , (r55,55) , (r0,0) , (r13,13) , (r16,16) , (r02,0) , (r5,5) , (rule2,2) , (r15,15)

Executed Rule: r99

----- Execution 18 -----

Activated Rules in Agenda

(r88,88) , (r30,30) , (r70,70) , (r19,19) , (r15,15) , (r55,55) , (r0,0) , (r13,13) , (r16,16) ,
(r02,0) , (r5,5) , (rule2,2) , (r45,45)

Executed Rule: r88

----- Execution 19 -----

Activated Rules in Agenda

(r70,70) , (r30,30) , (r55,55) , (r19,19) , (r15,15) , (r45,45) , (r0,0) , (r13,13) , (r16,16) ,
(r02,0) , (r5,5) , (rule2,2) , (rr1,0)

Executed Rule: r70

----- Execution 20 -----

Activated Rules in Agenda

(r55,55) , (r30,30) , (r45,45) , (r19,19) , (r15,15) , (rule2,2) , (r0,0) , (r13,13) , (r16,16) ,
(r02,0) , (r5,5) , (rr1,0) , (rr2,0)

Executed Rule: r55

----- Execution 21 -----

Activated Rules in Agenda

(r45,45) , (r30,30) , (rule2,2) , (r19,19) , (r15,15) , (rr2,0) , (r0,0) , (r13,13) , (r16,16) ,
(r02,0) , (r5,5) , (rr1,0) , (rr3,0)

Executed Rule: r45

----- Execution 22 -----

Activated Rules in Agenda

(r30,30) , (r19,19) , (rule2,2) , (r16,16) , (r15,15) , (rr2,0) , (r0,0) , (r13,13) , (rr3,0) ,
(r02,0) , (r5,5) , (rr1,0) , (rr4,0)

Executed Rule: r30

----- Execution 23 -----

Activated Rules in Agenda

(r19,19) , (r16,16) , (rule2,2) , (r13,13) , (r15,15) , (rr2,0) , (r0,0) , (rr4,0) , (rr3,0) , (r02,0) ,
(r5,5) , (rr1,0) , (rr5,0)

Executed Rule: r19

----- Execution 24 -----

Activated Rules in Agenda

(r16,16) , (r15,15) , (rule2,2) , (r13,13) , (r5,5) , (rr2,0) , (r0,0) , (rr4,0) , (rr3,0) , (r02,0) ,
(rr5,0) , (rr1,0) , (rr6,0)

Executed Rule: r16

----- Execution 25 -----

Activated Rules in Agenda

(r15,15) , (r13,13) , (rule2,2) , (rr6,0) , (r5,5) , (rr2,0) , (r0,0) , (rr4,0) , (rr3,0) , (r02,0) ,
(rr5,0) , (rr1,0) , (rr7,0)

Executed Rule: r15

----- Execution 26 -----

Activated Rules in Agenda

(r13,13) , (r5,5) , (rule2,2) , (rr6,0) , (rr7,0) , (rr2,0) , (r0,0) , (rr4,0) , (rr3,0) , (r02,0) ,
(rr5,0) , (rr1,0) , (rr8,0)

Executed Rule: r13

----- Execution 27 -----

Activated Rules in Agenda

(r5,5) , (rr8,0) , (rule2,2) , (rr6,0) , (rr7,0) , (rr2,0) , (r0,0) , (rr4,0) , (rr3,0) , (r02,0) , (rr5,0)
, (rr1,0) , (rr9,0)

Executed Rule: r5

----- Execution 28 -----

Activated Rules in Agenda

(rule2,2) , (rr8,0) , (rr9,0) , (rr6,0) , (rr7,0) , (rr2,0) , (r0,0) , (rr4,0) , (rr3,0) , (r02,0) , (rr5,0)
, (rr1,0) , (rr10,0)

Executed Rule: rule2

----- Execution 29 -----

Activated Rules in Agenda

(rr10,0) , (rr8,0) , (rr9,0) , (rr6,0) , (rr7,0) , (rr2,0) , (r0,0) , (rr4,0) , (rr3,0) , (r02,0) , (rr5,0)
, (rr1,0) , (rr11,0)

Executed Rule: rr10

----- Execution 30 -----

Activated Rules in Agenda

(rr11,0) , (rr8,0) , (rr9,0) , (rr6,0) , (rr7,0) , (rr2,0) , (r0,0) , (rr4,0) , (rr3,0) , (r02,0) , (rr5,0)
, (rr1,0) , (rr12,0)

Executed Rule: rr11

----- Execution 31 -----

Activated Rules in Agenda

(cycle31,100) , (rr8,0) , (rr12,0) , (rr6,0) , (rr7,0) , (rr9,0) , (r0,0) , (rr4,0) , (rr3,0) , (r02,0) ,
(rr5,0) , (rr1,0) , (rr2,0)

Executed Rule: cycle31

----- Execution 32 -----

Activated Rules in Agenda

(cycle32,100) , (rr8,0) , (rr2,0) , (rr6,0) , (rr7,0) , (rr12,0) , (r0,0) , (rr4,0) , (rr3,0) , (r02,0) ,
(rr5,0) , (rr1,0) , (rr9,0)

Executed Rule: cycle32

----- Execution 33 -----

Activated Rules in Agenda

(rr9,0) , (rr8,0) , (rr2,0) , (rr6,0) , (rr7,0) , (rr12,0) , (r0,0) , (rr4,0) , (rr3,0) , (r02,0) , (rr5,0)
, (rr1,0)

Executed Rule: rr9

----- Execution 34 -----

Activated Rules in Agenda

(rr1,0) , (rr8,0) , (rr2,0) , (rr6,0) , (rr7,0) , (rr12,0) , (r0,0) , (rr4,0) , (rr3,0) , (r02,0) , (rr5,0)

Executed Rule: rr1

----- Execution 35 -----

Activated Rules in Agenda

(rr5,0) , (rr8,0) , (rr2,0) , (rr6,0) , (rr7,0) , (rr12,0) , (r0,0) , (rr4,0) , (rr3,0) , (r02,0)

Executed Rule: rr5

----- Execution 36 -----

Activated Rules in Agenda

(r02,0) , (rr8,0) , (rr2,0) , (rr6,0) , (rr7,0) , (rr12,0) , (r0,0) , (rr4,0) , (rr3,0)

Executed Rule: r02

----- Execution 37 -----

Activated Rules in Agenda

(rr3,0) , (rr8,0) , (rr2,0) , (rr6,0) , (rr7,0) , (rr12,0) , (r0,0) , (rr4,0)

Executed Rule: rr3

----- Execution 38 -----

Activated Rules in Agenda

(rr4,0) , (rr8,0) , (rr2,0) , (rr6,0) , (rr7,0) , (rr12,0) , (r0,0)

Executed Rule: rr4

----- Execution 39 -----

Activated Rules in Agenda

(r0,0) , (rr8,0) , (rr2,0) , (rr6,0) , (rr7,0) , (rr12,0)

Executed Rule: r0

----- Execution 40 -----

Activated Rules in Agenda

(rr12,0) , (rr8,0) , (rr2,0) , (rr6,0) , (rr7,0)

Executed Rule: rr12

----- Execution 41 -----

Activated Rules in Agenda

(rr7,0) , (rr8,0) , (rr2,0) , (rr6,0)

Executed Rule: rr7

----- Execution 42 -----

Activated Rules in Agenda

(rr6,0) , (rr8,0) , (rr2,0)

Executed Rule: rr6

----- Execution 43 -----

Activated Rules in Agenda

(rr2,0) , (rr8,0)

Executed Rule: rr2

----- Execution 44 -----

Activated Rules in Agenda

(rr8,0)

Executed Rule: rr8

The inference terminates after 44 cycles

Elapsed time for 44 cycle: 0.027 Secs.

4.3 Input File:Test3.txt

----- Execution 1 -----

Activated Rules in Agenda

(r30,30) , (r29,29) , (r23,23) , (r28,28) , (r27,27) , (r18,18) , (r22,22) , (r26,26) , (r20,20) ,
(r16,16) , (r25,25) , (r17,17) , (r14,14) , (r19,19) , (r21,21) , (r11,11) , (r4,4) , (r7,7) , (r8,8)
, (r9,9) , (r1,1) , (r6,6) , (r24,24) , (r15,15) , (r10,10) , (r3,3) , (r2,2) , (r13,13) , (r5,5) ,
(r12,12)

Executed Rule: r30

----- Execution 2 -----

Activated Rules in Agenda

(r100,100) , (r28,28) , (r29,29) , (r26,26) , (r27,27) , (r18,18) , (r23,23) , (r12,12) , (r20,20)
, (r16,16) , (r25,25) , (r17,17) , (r14,14) , (r19,19) , (r22,22) , (r11,11) , (r4,4) , (r7,7) ,
(r8,8) , (r9,9) , (r1,1) , (r6,6) , (r24,24) , (r15,15) , (r10,10) , (r3,3) , (r2,2) , (r13,13) , (r5,5) ,
(r21,21)

Executed Rule: r100

----- Execution 3 -----

Activated Rules in Agenda

(r35,35) , (r28,28) , (r29,29) , (r26,26) , (r27,27) , (r18,18) , (r23,23) , (r12,12) , (r20,20) ,
(r16,16) , (r25,25) , (r17,17) , (r14,14) , (r19,19) , (r22,22) , (r11,11) , (r4,4) , (r7,7) , (r8,8)
, (r9,9) , (r1,1) , (r6,6) , (r24,24) , (r15,15) , (r10,10) , (r3,3) , (r2,2) , (r13,13) , (r5,5) ,
(r21,21)

Executed Rule: r35

----- Execution 4 -----

Activated Rules in Agenda

(r100,100) , (r28,28) , (r29,29) , (r26,26) , (r27,27) , (r18,18) , (r23,23) , (r12,12) , (r20,20)
, (r16,16) , (r25,25) , (r17,17) , (r14,14) , (r19,19) , (r22,22) , (r11,11) , (r4,4) , (r7,7) ,
(r8,8) , (r9,9) , (r1,1) , (r6,6) , (r24,24) , (r15,15) , (r10,10) , (r3,3) , (r2,2) , (r13,13) , (r5,5) ,
(r21,21)

Executed Rule: r100

----- Execution 5 -----

Activated Rules in Agenda

(r29,29) , (r28,28) , (r23,23) , (r26,26) , (r27,27) , (r18,18) , (r22,22) , (r12,12) , (r20,20) ,
(r16,16) , (r25,25) , (r17,17) , (r14,14) , (r19,19) , (r21,21) , (r11,11) , (r4,4) , (r7,7) , (r8,8)
, (r9,9) , (r1,1) , (r6,6) , (r24,24) , (r15,15) , (r10,10) , (r3,3) , (r2,2) , (r13,13) , (r5,5)

Executed Rule: r29

----- Execution 6 -----

Activated Rules in Agenda

(r28,28) , (r27,27) , (r23,23) , (r26,26) , (r25,25) , (r18,18) , (r22,22) , (r12,12) , (r20,20) ,
(r16,16) , (r24,24) , (r17,17) , (r14,14) , (r19,19) , (r21,21) , (r11,11) , (r4,4) , (r7,7) , (r8,8)
, (r9,9) , (r1,1) , (r6,6) , (r5,5) , (r15,15) , (r10,10) , (r3,3) , (r2,2) , (r13,13)

Executed Rule: r28

----- Execution 7 -----

Activated Rules in Agenda

(r27,27) , (r26,26) , (r23,23) , (r20,20) , (r25,25) , (r18,18) , (r22,22) , (r12,12) , (r13,13) ,
(r16,16) , (r24,24) , (r17,17) , (r14,14) , (r19,19) , (r21,21) , (r11,11) , (r4,4) , (r7,7) , (r8,8)
, (r9,9) , (r1,1) , (r6,6) , (r5,5) , (r15,15) , (r10,10) , (r3,3) , (r2,2)

Executed Rule: r27

----- Execution 8 -----

Activated Rules in Agenda

(r26,26) , (r25,25) , (r23,23) , (r20,20) , (r24,24) , (r18,18) , (r22,22) , (r12,12) , (r13,13) ,
(r16,16) , (r6,6) , (r17,17) , (r14,14) , (r19,19) , (r21,21) , (r11,11) , (r4,4) , (r7,7) , (r8,8) ,
(r9,9) , (r1,1) , (r2,2) , (r5,5) , (r15,15) , (r10,10) , (r3,3)

Executed Rule: r26

----- Execution 9 -----

Activated Rules in Agenda

(r25,25) , (r24,24) , (r23,23) , (r20,20) , (r16,16) , (r18,18) , (r22,22) , (r12,12) , (r13,13) ,
(r9,9) , (r6,6) , (r17,17) , (r14,14) , (r19,19) , (r21,21) , (r11,11) , (r4,4) , (r7,7) , (r8,8) ,
(r3,3) , (r1,1) , (r2,2) , (r5,5) , (r15,15) , (r10,10)

Executed Rule: r25

----- Execution 10 -----

Activated Rules in Agenda

(r24,24) , (r20,20) , (r23,23) , (r13,13) , (r16,16) , (r18,18) , (r22,22) , (r12,12) , (r10,10) ,
(r9,9) , (r6,6) , (r17,17) , (r14,14) , (r19,19) , (r21,21) , (r11,11) , (r4,4) , (r7,7) , (r8,8) ,
(r3,3) , (r1,1) , (r2,2) , (r5,5) , (r15,15)

Executed Rule: r24

----- Execution 11 -----

Activated Rules in Agenda

(r23,23) , (r20,20) , (r22,22) , (r13,13) , (r16,16) , (r18,18) , (r21,21) , (r12,12) , (r10,10) ,
(r9,9) , (r6,6) , (r17,17) , (r14,14) , (r19,19) , (r15,15) , (r11,11) , (r4,4) , (r7,7) , (r8,8) ,
(r3,3) , (r1,1) , (r2,2) , (r5,5)

Executed Rule: r23

----- Execution 12 -----

Activated Rules in Agenda

(r22,22) , (r20,20) , (r21,21) , (r13,13) , (r16,16) , (r18,18) , (r19,19) , (r12,12) , (r10,10) ,
(r9,9) , (r6,6) , (r17,17) , (r14,14) , (r5,5) , (r15,15) , (r11,11) , (r4,4) , (r7,7) , (r8,8) , (r3,3) ,
(r1,1) , (r2,2)

Executed Rule: r22

----- Execution 13 -----

Activated Rules in Agenda

(r21,21) , (r20,20) , (r19,19) , (r13,13) , (r16,16) , (r18,18) , (r15,15) , (r12,12) , (r10,10) ,
(r9,9) , (r6,6) , (r17,17) , (r14,14) , (r5,5) , (r2,2) , (r11,11) , (r4,4) , (r7,7) , (r8,8) , (r3,3) ,
(r1,1)

Executed Rule: r21

----- Execution 14 -----

Activated Rules in Agenda

(r20,20) , (r16,16) , (r19,19) , (r13,13) , (r9,9) , (r18,18) , (r15,15) , (r12,12) , (r10,10) ,
(r3,3) , (r6,6) , (r17,17) , (r14,14) , (r5,5) , (r2,2) , (r11,11) , (r4,4) , (r7,7) , (r8,8) , (r1,1)

Executed Rule: r20

----- Execution 15 -----

Activated Rules in Agenda

(r19,19) , (r16,16) , (r18,18) , (r13,13) , (r9,9) , (r17,17) , (r15,15) , (r12,12) , (r10,10) ,
(r3,3) , (r6,6) , (r1,1) , (r14,14) , (r5,5) , (r2,2) , (r11,11) , (r4,4) , (r7,7) , (r8,8)

Executed Rule: r19

----- Execution 16 -----

Activated Rules in Agenda

(r18,18) , (r16,16) , (r17,17) , (r13,13) , (r9,9) , (r14,14) , (r15,15) , (r12,12) , (r10,10) ,
(r3,3) , (r6,6) , (r1,1) , (r8,8) , (r5,5) , (r2,2) , (r11,11) , (r4,4) , (r7,7)

Executed Rule: r18

----- Execution 17 -----

Activated Rules in Agenda

(r17,17) , (r16,16) , (r15,15) , (r13,13) , (r9,9) , (r14,14) , (r7,7) , (r12,12) , (r10,10) , (r3,3)
, (r6,6) , (r1,1) , (r8,8) , (r5,5) , (r2,2) , (r11,11) , (r4,4)

Executed Rule: r17

----- Execution 18 -----

Activated Rules in Agenda

(r16,16) , (r13,13) , (r15,15) , (r12,12) , (r9,9) , (r14,14) , (r7,7) , (r11,11) , (r10,10) , (r3,3)
, (r6,6) , (r1,1) , (r8,8) , (r5,5) , (r2,2) , (r4,4)

Executed Rule: r16

----- Execution 19 -----

Activated Rules in Agenda

(r15,15) , (r13,13) , (r14,14) , (r12,12) , (r9,9) , (r8,8) , (r7,7) , (r11,11) , (r10,10) , (r3,3) ,
(r6,6) , (r1,1) , (r4,4) , (r5,5) , (r2,2)

Executed Rule: r15

----- Execution 20 -----

Activated Rules in Agenda

(r14,14) , (r13,13) , (r8,8) , (r12,12) , (r9,9) , (r4,4) , (r7,7) , (r11,11) , (r10,10) , (r3,3) ,
(r6,6) , (r1,1) , (r2,2) , (r5,5)

Executed Rule: r14

----- Execution 21 -----

Activated Rules in Agenda

(r13,13) , (r12,12) , (r8,8) , (r11,11) , (r9,9) , (r4,4) , (r7,7) , (r5,5) , (r10,10) , (r3,3) , (r6,6) ,
(r1,1) , (r2,2)

Executed Rule: r13

----- Execution 22 -----

Activated Rules in Agenda

(r12,12) , (r11,11) , (r8,8) , (r10,10) , (r9,9) , (r4,4) , (r7,7) , (r5,5) , (r2,2) , (r3,3) , (r6,6) , (r1,1)

Executed Rule: r12

----- Execution 23 -----

Activated Rules in Agenda

(r11,11) , (r10,10) , (r8,8) , (r5,5) , (r9,9) , (r4,4) , (r7,7) , (r1,1) , (r2,2) , (r3,3) , (r6,6)

Executed Rule: r11

----- Execution 24 -----

Activated Rules in Agenda

(r10,10) , (r9,9) , (r8,8) , (r5,5) , (r6,6) , (r4,4) , (r7,7) , (r1,1) , (r2,2) , (r3,3)

Executed Rule: r10

----- Execution 25 -----

Activated Rules in Agenda

(r9,9) , (r6,6) , (r8,8) , (r5,5) , (r3,3) , (r4,4) , (r7,7) , (r1,1) , (r2,2)

Executed Rule: r9

----- Execution 26 -----

Activated Rules in Agenda

(r8,8) , (r6,6) , (r7,7) , (r5,5) , (r3,3) , (r4,4) , (r2,2) , (r1,1)

Executed Rule: r8

----- Execution 27 -----

Activated Rules in Agenda

(r7,7) , (r6,6) , (r4,4) , (r5,5) , (r3,3) , (r1,1) , (r2,2)

Executed Rule: r7

----- Execution 28 -----

Activated Rules in Agenda

(r6,6) , (r5,5) , (r4,4) , (r2,2) , (r3,3) , (r1,1)

Executed Rule: r6

----- Execution 29 -----

Activated Rules in Agenda

(r5,5) , (r3,3) , (r4,4) , (r2,2) , (r1,1)

Executed Rule: r5

----- Execution 30 -----

Activated Rules in Agenda

(r4,4) , (r3,3) , (r1,1) , (r2,2)

Executed Rule: r4

----- Execution 31 -----

Activated Rules in Agenda

(r3,3) , (r2,2) , (r1,1)

Executed Rule: r3

----- Execution 32 -----

Activated Rules in Agenda

(r2,2) , (r1,1)

Executed Rule: r2

----- Execution 33 -----

Activated Rules in Agenda

(r1,1)

Executed Rule: r1

The inference terminates after 33 cycles

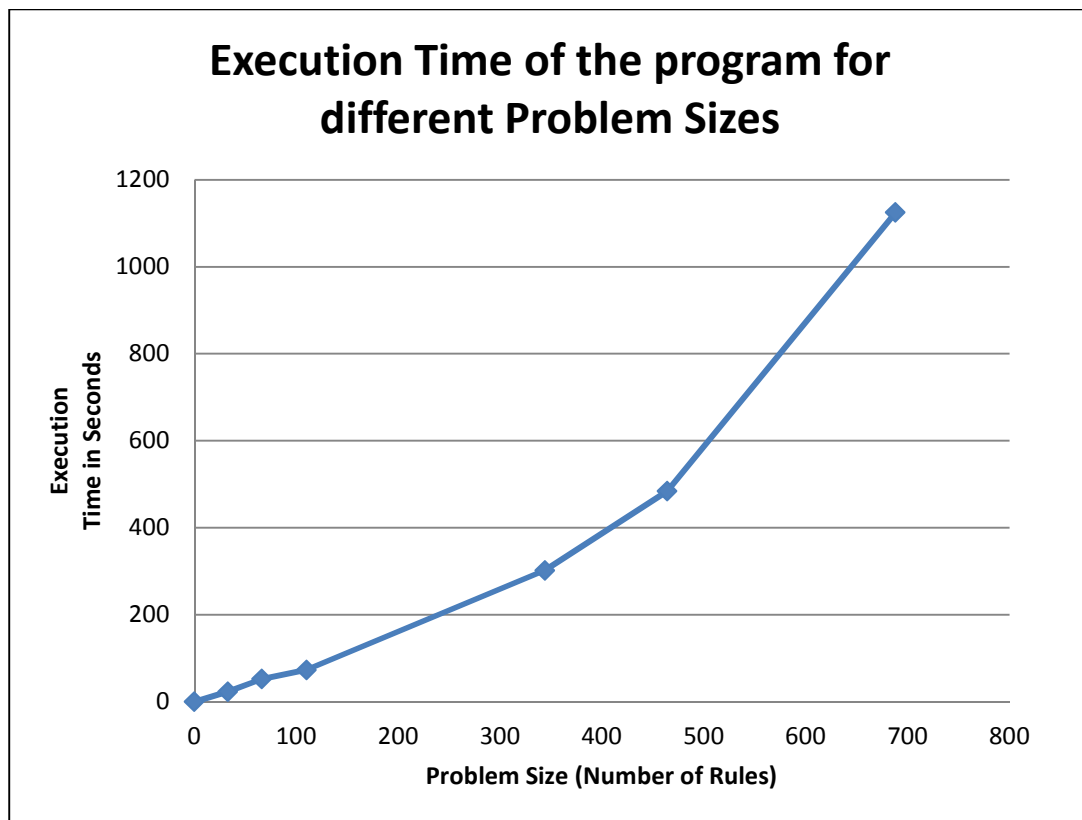
Elapsed time for 33 cycle: 0.028 Secs

5. Performance Evaluation

5.1 Experiment Results & Graph

Execution Time of the program for different Problem Sizes

<i>Problem Size (No of Rules)</i>	<i>Time Elapsed (milli seconds)</i>
33	28
66	57
110	74
464	484
688	1124



5.2 Experiment Snapshots

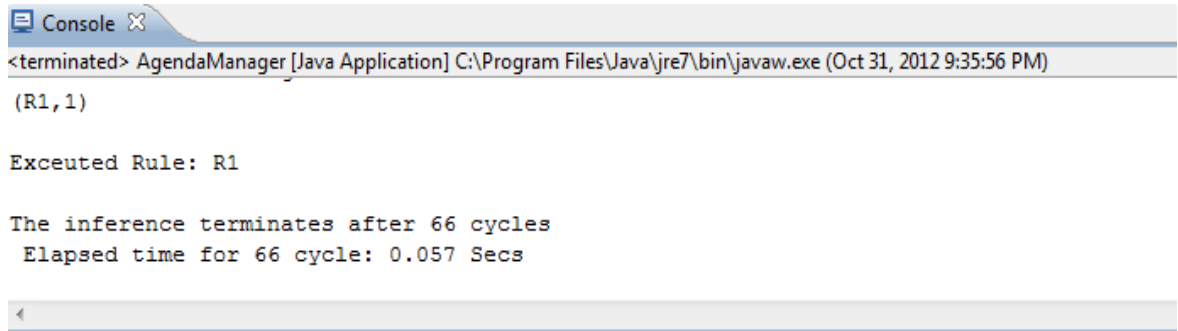
Test Case with 33 cycles:

```
Console X
<terminated> AgendaManager [Java Application] C:\Program Files\Java\jre7\bin\javaw.exe (Oct 31, 2012 9:37:58 PM)
(R1,1)

Exceuted Rule: R1

The inference terminates after 33 cycles
Elapsed time for 33 cycle: 0.028 Secs
```

Test Case with 66 cycles:

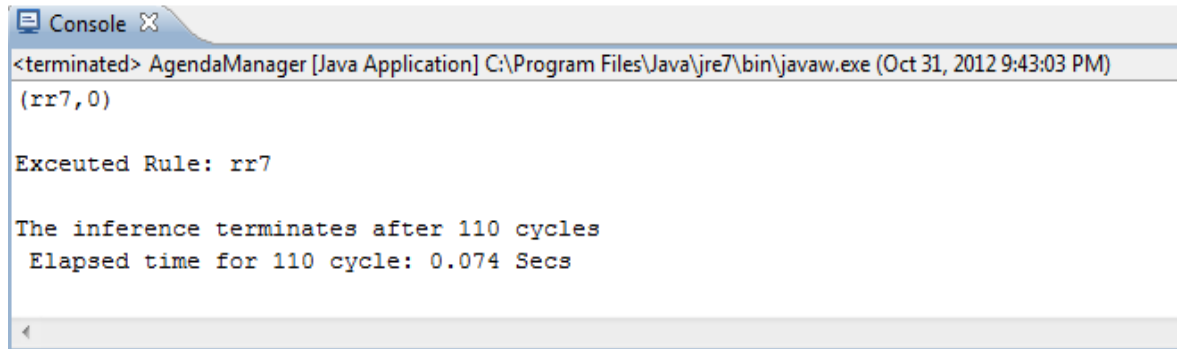


```
Console X
<terminated> AgendaManager [Java Application] C:\Program Files\Java\jre7\bin\javaw.exe (Oct 31, 2012 9:35:56 PM)
(R1,1)

Exceuted Rule: R1

The inference terminates after 66 cycles
Elapsed time for 66 cycle: 0.057 Secs
```

Test Case with 110 cycles:

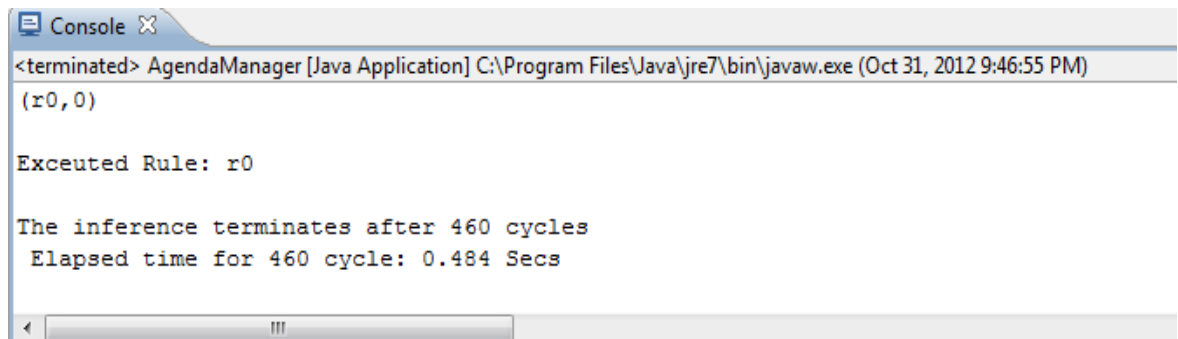


```
Console X
<terminated> AgendaManager [Java Application] C:\Program Files\Java\jre7\bin\javaw.exe (Oct 31, 2012 9:43:03 PM)
(rr7,0)

Exceuted Rule: rr7

The inference terminates after 110 cycles
Elapsed time for 110 cycle: 0.074 Secs
```

Test Case with 460 cycles:

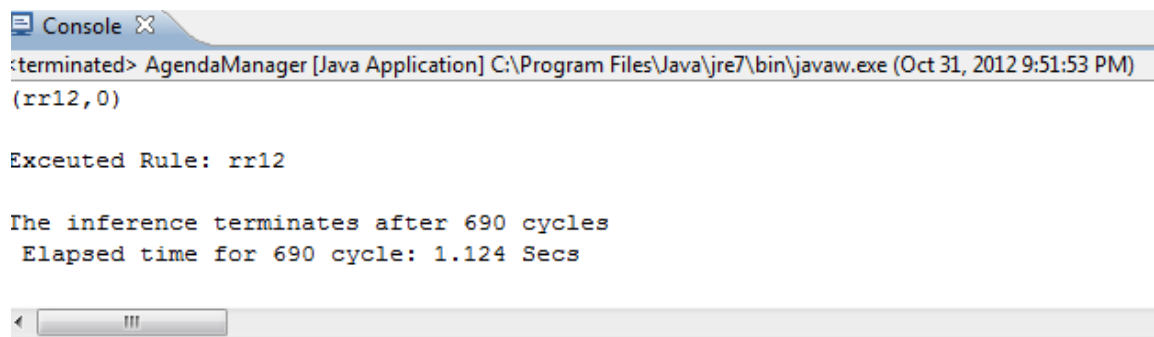


```
Console X
<terminated> AgendaManager [Java Application] C:\Program Files\Java\jre7\bin\javaw.exe (Oct 31, 2012 9:46:55 PM)
(r0,0)

Exceuted Rule: r0

The inference terminates after 460 cycles
Elapsed time for 460 cycle: 0.484 Secs
```


Test Case with 690 cycles:



```
Console X
:terminated> AgendaManager [Java Application] C:\Program Files\Java\jre7\bin\javaw.exe (Oct 31, 2012 9:51:53 PM)
(rr12,0)

Exceuted Rule: rr12

The inference terminates after 690 cycles
Elapsed time for 690 cycle: 1.124 Secs
```