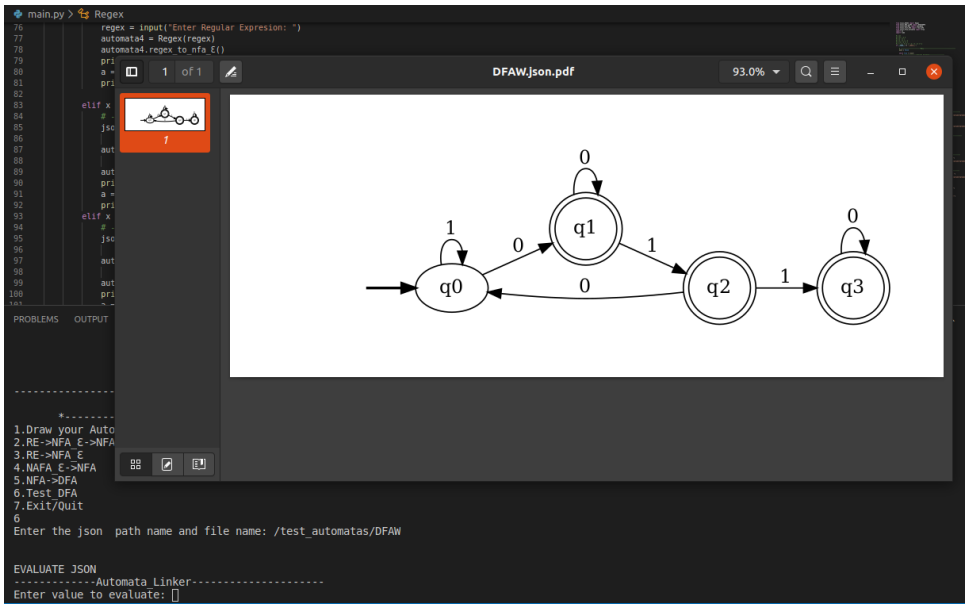
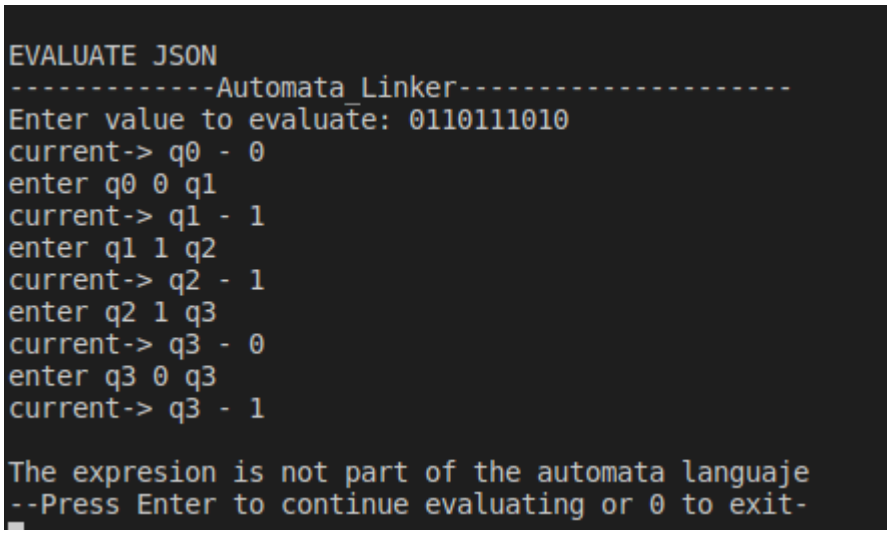
2.1) Ingresar un autómata para el siguiente lenguaje: {w | w no contiene la subcadena “010”}

Autómata



Tests



```
EVALUATE JSON
------------Automata_Linker--------------------
Enter value to evaluate: 010
current-> q0 - 0
enter q0 0 q1
current-> q1 - 1
enter q1 1 q2
current-> q2 - 0
enter q2 0 q0
--> q q0
--> q3 q0
--> q q0
--> q2 q0
--> q q0
--> q1 q0

The expresion is not part of the automata languaje
--Press Enter to continue evaluating or 0 to exit-
```

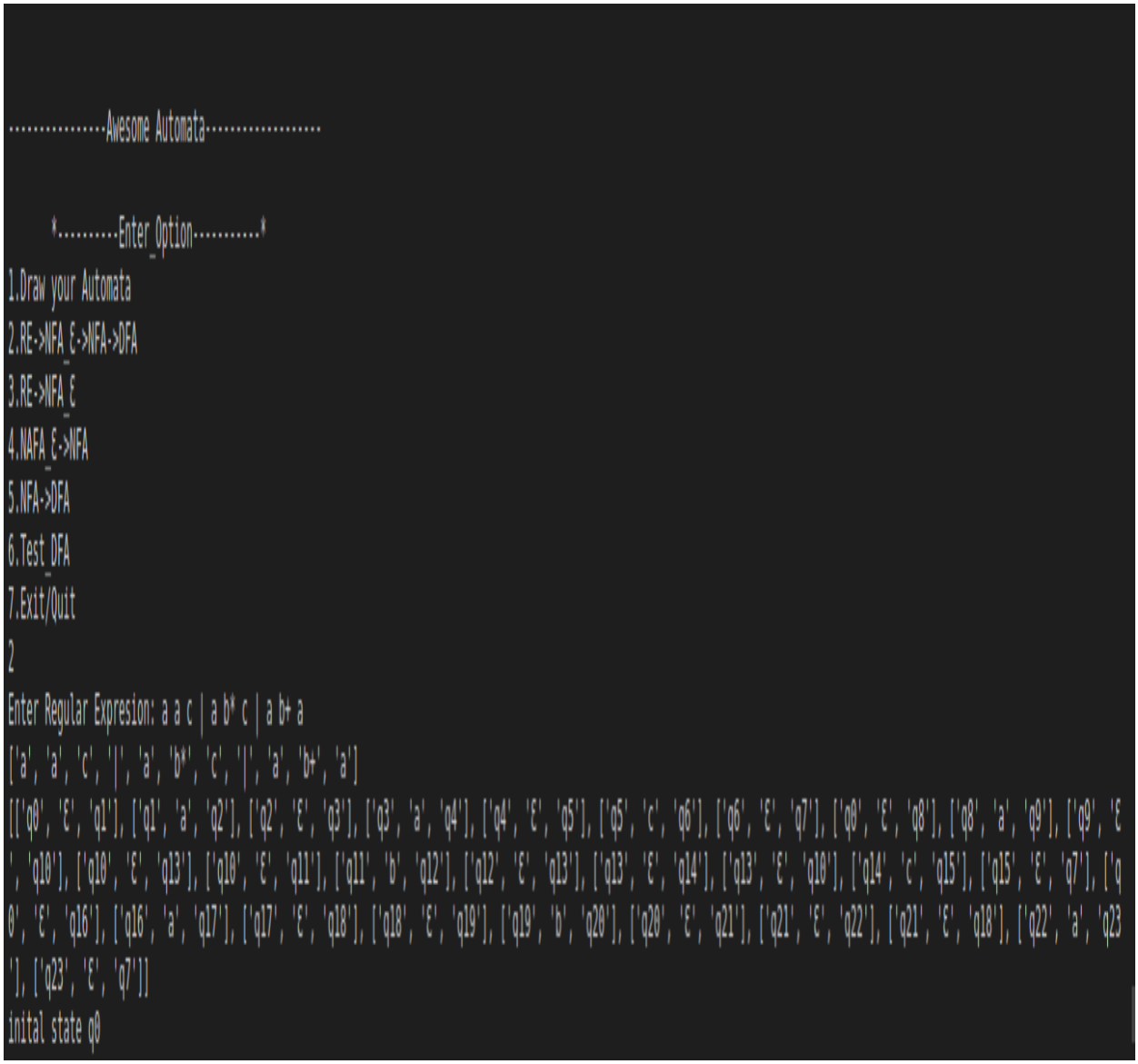
```
EVALUATE JSON
------------Automata_Linker--------------------
Enter value to evaluate: 011100011111010
current-> q0 - 0
enter q0 0 q1
current-> q1 - 1
enter q1 1 q2
current-> q2 - 1
enter q2 1 q3
current-> q3 - 1

The expresion is not part of the automata languaje
--Press Enter to continue evaluating or 0 to exit-
```

```
EVALUATE JSON
------------Automata_Linker--------------------
Enter value to evaluate: 000000000011111111111111
current-> q0 - 0
enter q0 0 q1
current-> q1 - 0
enter q1 0 q1
current-> q1 - 0
enter q1 0 q1
current-> q1 - 0
enter q1 0 q1
current-> q1 - 0
enter q1 0 q1
current-> q1 - 0
enter q1 0 q1
current-> q1 - 0
enter q1 0 q1
current-> q1 - 0
enter q1 0 q1
current-> q1 - 0
enter q1 0 q1
current-> q1 - 0
enter q1 0 q1
current-> q1 - 1
enter q1 1 q2
current-> q2 - 1
enter q2 1 q3
current-> q3 - 1

The expresion is not part of the automata languaje
--Press Enter to continue evaluating or 0 to exit-
```

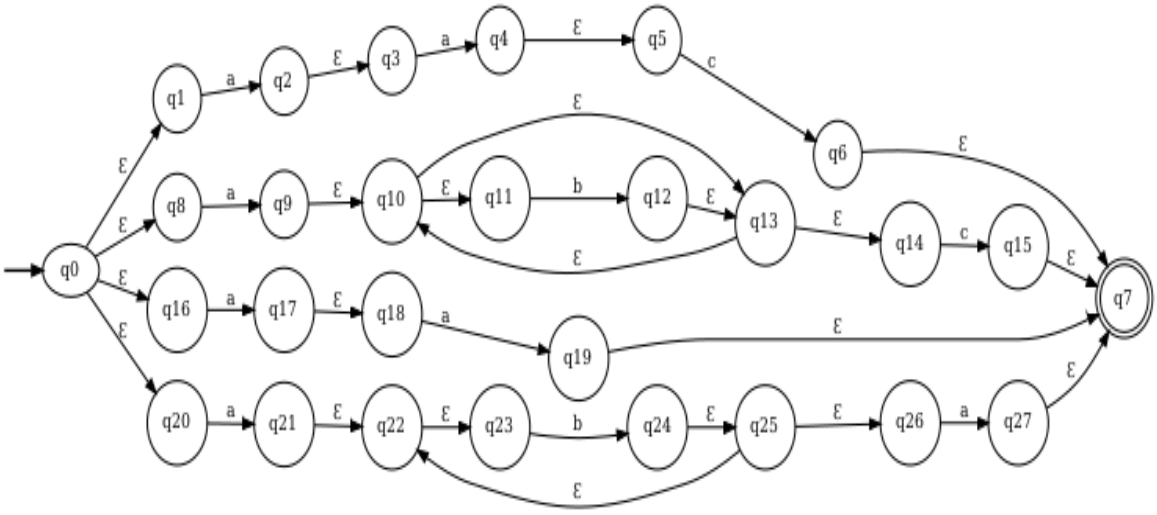
```
EVALUATE JSON
------------Automata_Linker--------------------
Enter value to evaluate: 011011101111111110000001110
current-> q0 - 0
enter q0 0 q1
current-> q1 - 1
enter q1 1 q2
current-> q2 - 1
enter q2 1 q3
current-> q3 - 0
enter q3 0 q3
current-> q3 - 1

The expresion is not part of the automata languaje
--Press Enter to continue evaluating or 0 to exit-
```

2.2 Convertir esta expresión regular a a c | a b* c | a b+ a en un NFA_E -> NFA -> DFA y testear.

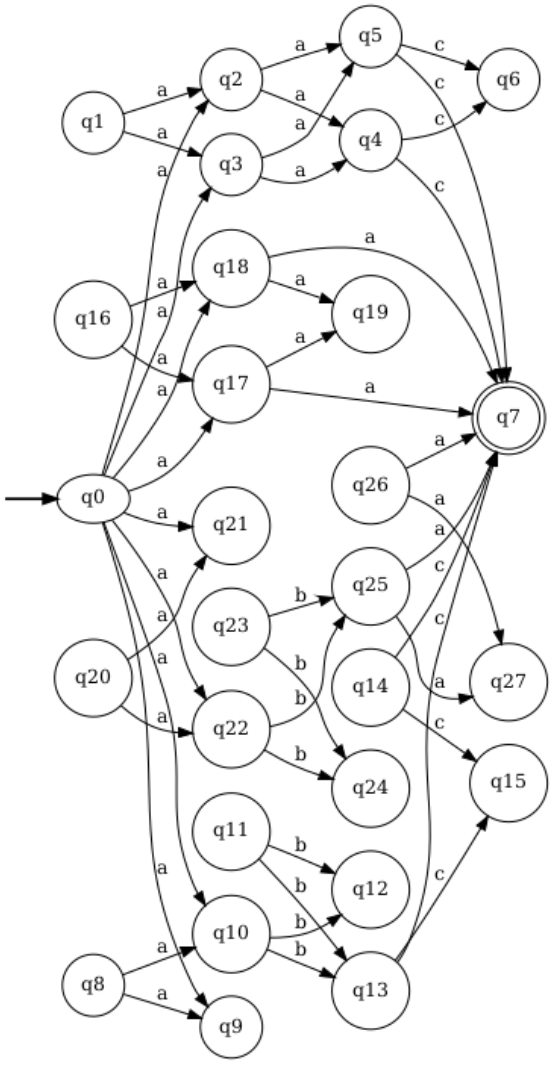
Regex:



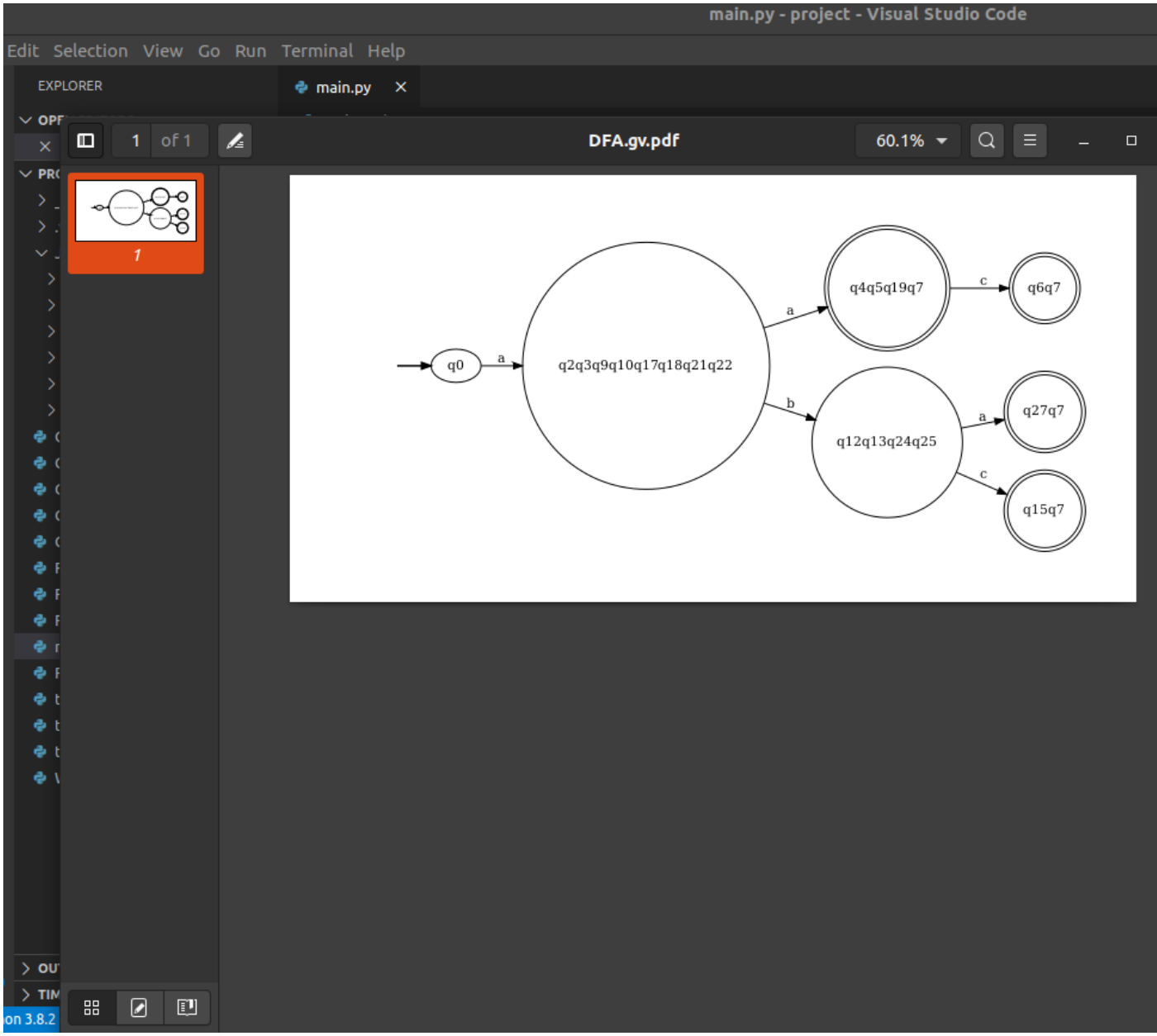
NFA_E


q0
q1
q2
q3
q4
q5
q6
q7
q8
q9
q10
q11
q12
q13
q14
q15
q16
q17
q18
q19
q20
q21
q22
q23
q24
q25
q26
q27
a
b
c
ε

NFA


q0
q1
q2
q3
q4
q5
q6
q7
q8
q9
q10
q11
q12
q13
q14
q15
q16
q17
q18
q19
q20
q21
q22
q23
q24
q25
q26
q27
a
b
c

DFA:


main.py - project - Visual Studio Code
Edit Selection View Go Run Terminal Help
EXPLORER
main.py
1 of 1
DFA.gv.pdf
60.1%
q0
a
q2q3q9q10q17q18q21q22
a
q4q5q19q7
c
q6q7
b
q12q13q24q25
a
q27q7
c
q15q7

Test1:

```
EVALUATE JSON
------------Automata_Linker--------------------
Enter value to evaluate: aac
current-> q0 - a
enter q0 a q2q3q9q10q17q18q21q22
current-> q2q3q9q10q17q18q21q22 - a
enter q2q3q9q10q17q18q21q22 a q4q5q19q7
current-> q4q5q19q7 - c
enter q4q5q19q7 c q6q7
--> q q6q7
--> q4 q6q7
--> q4q q6q7
--> q4q5 q6q7
--> q4q5q q6q7
--> q4q5q1 q6q7
--> q4q5q19 q6q7
--> q4q5q19q q6q7
--> q4q5q19q7 q6q7
--> q q6q7
--> q6 q6q7
--> q6q q6q7
--> q6q7 q6q7

The expresion is part of the automata languaje
--Press Enter to continue evaluating or 0 to exit-
```

Test2:

```
EVALUATE JSON
-------------Automata_Linker---------------------
Enter value to evaluate: abaa
current-> q0 - a
enter q0 a q2q3q9q10q17q18q21q22
current-> q2q3q9q10q17q18q21q22 - b
enter q2q3q9q10q17q18q21q22 b q12q13q24q25
current-> q12q13q24q25 - a
enter q12q13q24q25 a q27q7
current-> q27q7 - a

The expresion is not part of the automata languaje
--Press Enter to continue evaluating or 0 to exit-
```

Test3:

```
EVALUATE JSON
-------------Automata_Linker---------------------
Enter value to evaluate: aa
current-> q0 - a
enter q0 a q2q3q9q10q17q18q21q22
current-> q2q3q9q10q17q18q21q22 - a
enter q2q3q9q10q17q18q21q22 a q4q5q19q7
--> q q4q5q19q7
--> q4 q4q5q19q7
--> q4q q4q5q19q7
--> q4q5 q4q5q19q7
--> q4q5q q4q5q19q7
--> q4q5q1 q4q5q19q7
--> q4q5q19 q4q5q19q7
--> q4q5q19q q4q5q19q7
--> q4q5q19q7 q4q5q19q7

The expresion is part of the automata languaje
--Press Enter to continue evaluating or 0 to exit-
```

Test4:

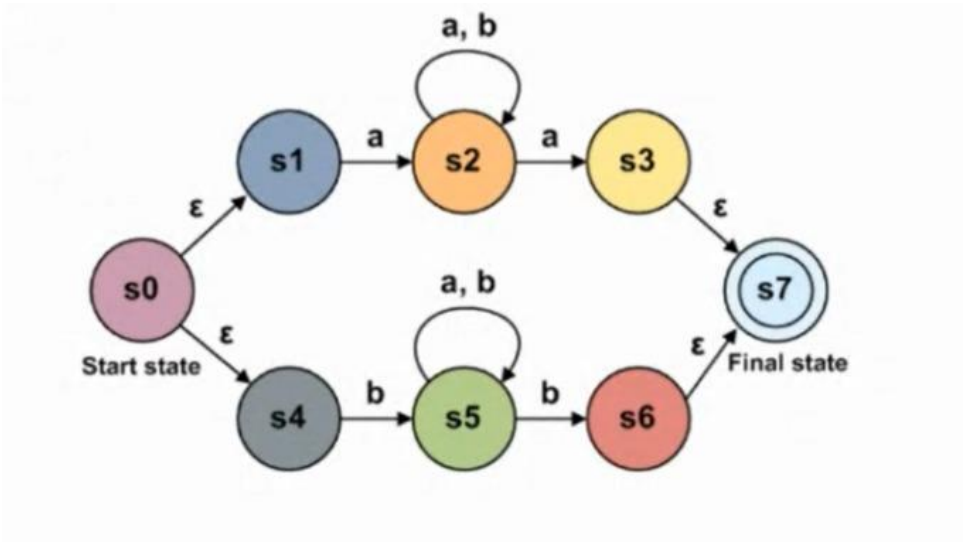
```
EVALUATE JSON
-------------Automata_Linker---------------------
Enter value to evaluate: bababa
current-> q0 - b

The expresion is not part of the automata languaje
--Press Enter to continue evaluating or 0 to exit-
```

Test5:

```
-------------Automata_Linker---------------------
Enter value to evaluate: aba
current-> q0 - a
enter q0 a q2q3q9q10q17q18q21q22
current-> q2q3q9q10q17q18q21q22 - b
enter q2q3q9q10q17q18q21q22 b q12q13q24q25
current-> q12q13q24q25 - a
enter q12q13q24q25 a q27q7
--> q q27q7
--> q4 q27q7
--> q4q q27q7
--> q4q5 q27q7
--> q4q5q q27q7
--> q4q5q1 q27q7
--> q4q5q19 q27q7
--> q4q5q19q q27q7
--> q4q5q19q7 q27q7
--> q q27q7
--> q6 q27q7
--> q6q q27q7
--> q6q7 q27q7
--> q q27q7
--> q2 q27q7
--> q27 q27q7
--> q27q q27q7
--> q27q7 q27q7

The expresion is part of the automata languaje
--Press Enter to continue evaluating or 0 to exit-
```

2.3 Pase el NFA_E -> NFA -> DFA y haga 5 Test.

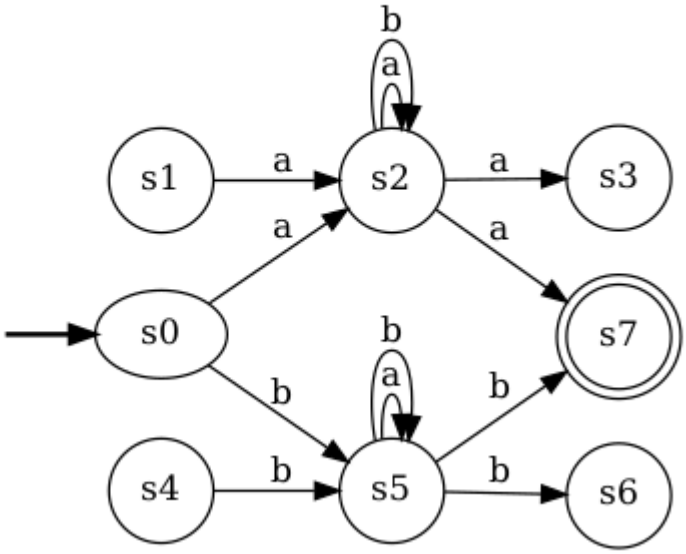
NFA_E



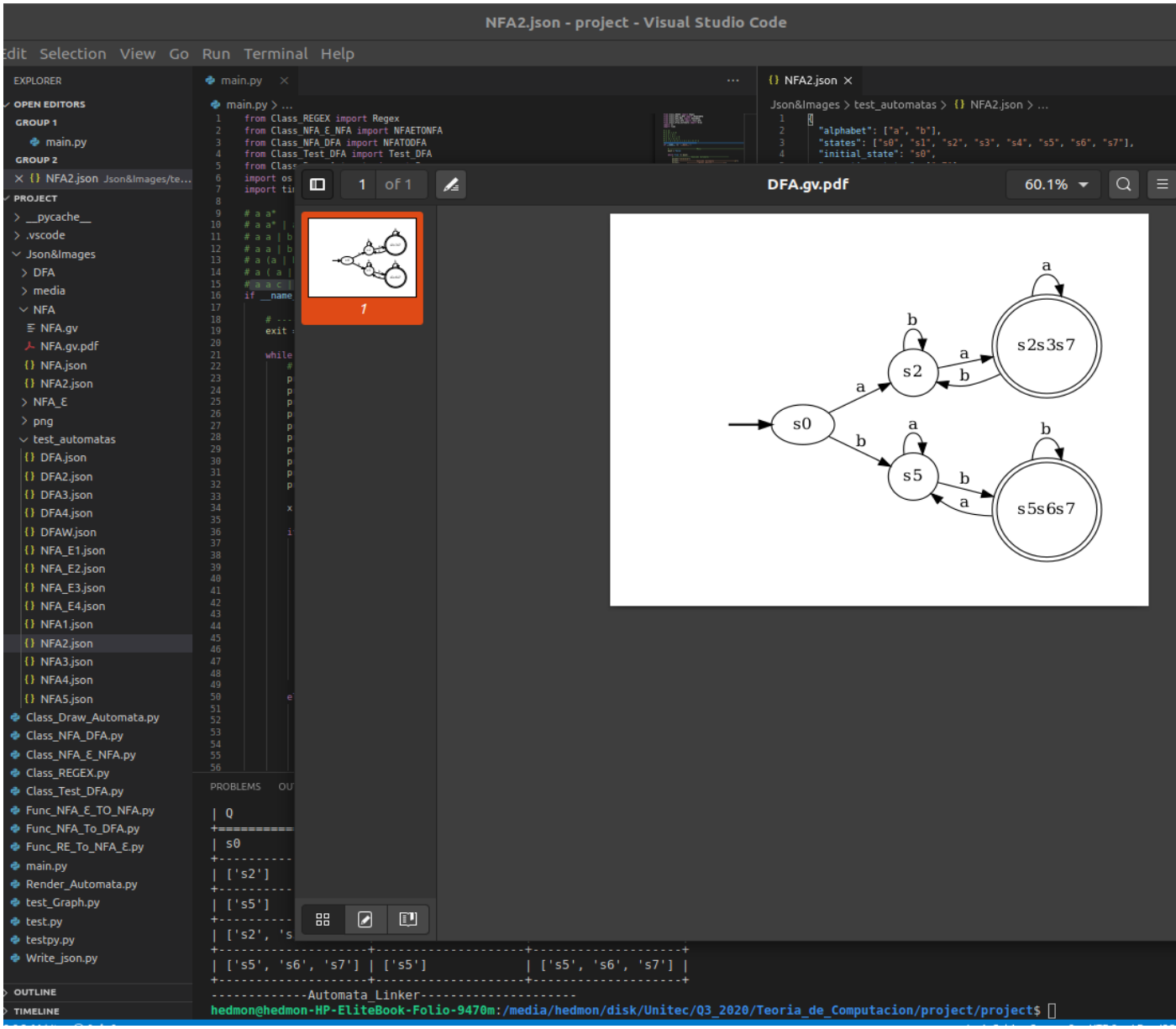
JSON_NFA_E


```
{
  "alphabet": ["a", "b", "Ɛ"],
  "states": ["s0", "s1", "s2", "s3", "s4", "s5", "s6", "s7"],
  "initial_state": "s0",
  "accepting_states": ["s7"],
  "transitions": [
    ["s0", "Ɛ", "s1"],
    ["s1", "a", "s2"],
    ["s2", "a", "s2"],
    ["s2", "b", "s2"],
    ["s2", "a", "s3"],
    ["s3", "Ɛ", "s7"],
    ["s0", "Ɛ", "s4"],
    ["s4", "b", "s5"],
    ["s5", "a", "s5"],
    ["s5", "b", "s5"],
    ["s5", "b", "s6"],
    ["s6", "Ɛ", "s7"]
  ]
}
```


NFA:



DFA:


NFA2.json - project - Visual Studio Code
Edit Selection View Go Run Terminal Help
EXPLORER
OPEN EDITORS
GROUP 1
main.py
GROUP 2
NFA2.json Json&Images/te...
PROJECT
__pycache__
.vscode
Json&Images
DFA
media
NFA
NFA.gv
NFA.gv.pdf
NFA.json
NFA2.json
NFA_Ɛ
png
test_automatas
DFA.json
DFA2.json
DFA3.json
DFA4.json
DFAW.json
NFA_E1.json
NFA_E2.json
NFA_E3.json
NFA_E4.json
NFA1.json
NFA2.json
NFA3.json
NFA4.json
NFA5.json
Class_Draw_Automata.py
Class_NFA_DFA.py
Class_NFA_Ɛ_NFA.py
Class_REGEX.py
Class_Test_DFA.py
Func_NFA_Ɛ_TO_NFA.py
Func_NFA_To_DFA.py
Func_RE_To_NFA_Ɛ.py
main.py
Render_Automata.py
test_Graph.py
test.py
testpy.py
Write_json.py
OUTLINE
TIMELINE
main.py
NFA2.json
Json&Images > test_automatas > NFA2.json > ...
DFA.gv.pdf
1 of 1
60.1%
s0
s2
s2s3s7
s5
s5s6s7
a
b
PROBLEMS
| Q
| s0
| ['s2']
| ['s5']
| ['s2', 's
| ['s5', 's6', 's7'] | ['s5'] | ['s5', 's6', 's7'] |
----------Automata_Linker----------
hedmon@hedmon-HP-EliteBook-Folio-9470m:/media/hedmon/disk/Unitec/Q3_2020/Teoria_de_Computacion/project/project$

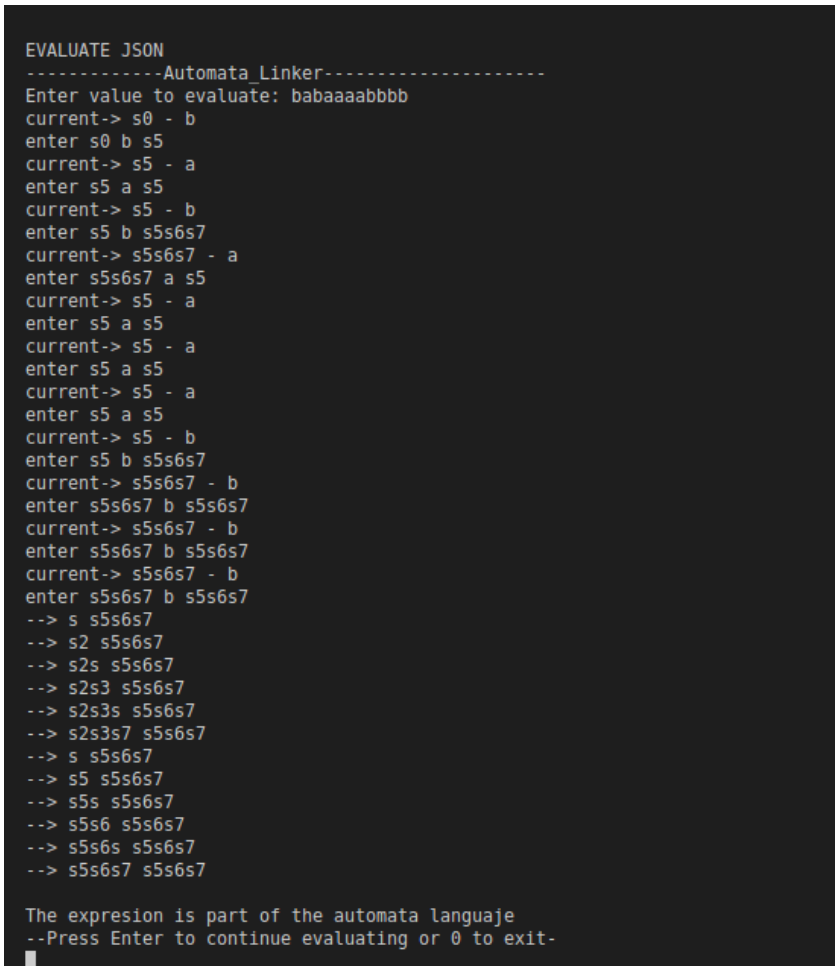
Test1

```
EVALUATE JSON
-------------Automata_Linker---------------------
Enter value to evaluate: abbbaa
current-> s0 - a
enter s0 a s2
current-> s2 - b
enter s2 b s2
current-> s2 - b
enter s2 b s2
current-> s2 - b
enter s2 b s2
current-> s2 - a
enter s2 a s2s3s7
current-> s2s3s7 - a
enter s2s3s7 a s2s3s7
--> s s2s3s7
--> s2 s2s3s7
--> s2s s2s3s7
--> s2s3 s2s3s7
--> s2s3s s2s3s7
--> s2s3s7 s2s3s7

The expresion is part of the automata languaje
--Press Enter to continue evaluating or 0 to exit-
```

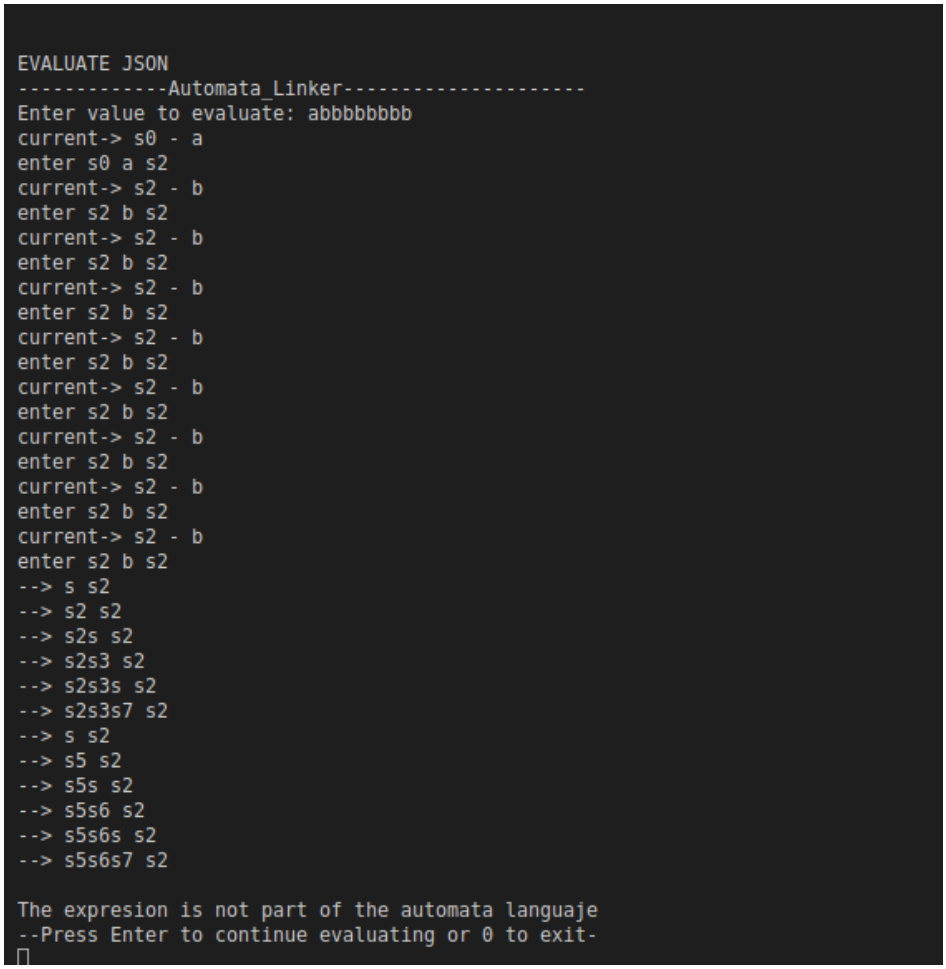
Test2

```
EVALUATE JSON
-------------Automata_Linker---------------------
Enter value to evaluate: babbba
current-> s0 - b
enter s0 b s5
current-> s5 - a
enter s5 a s5
current-> s5 - b
enter s5 b s5s6s7
current-> s5s6s7 - b
enter s5s6s7 b s5s6s7
current-> s5s6s7 - b
enter s5s6s7 b s5s6s7
current-> s5s6s7 - a
enter s5s6s7 a s5
--> s s5
--> s2 s5
--> s2s s5
--> s2s3 s5
--> s2s3s s5
--> s2s3s7 s5
--> s s5
--> s5 s5
--> s5s s5
--> s5s6 s5
--> s5s6s s5
--> s5s6s7 s5

The expresion is not part of the automata languaje
--Press Enter to continue evaluating or 0 to exit-
```

Test3


EVALUATE JSON
------------Automata_Linker--------------------
Enter value to evaluate: babaaaabbbb
current-> s0 - b
enter s0 b s5
current-> s5 - a
enter s5 a s5
current-> s5 - b
enter s5 b s5s6s7
current-> s5s6s7 - a
enter s5s6s7 a s5
current-> s5 - a
enter s5 a s5
current-> s5 - a
enter s5 a s5
current-> s5 - a
enter s5 a s5
current-> s5 - b
enter s5 b s5s6s7
current-> s5s6s7 - b
enter s5s6s7 b s5s6s7
current-> s5s6s7 - b
enter s5s6s7 b s5s6s7
current-> s5s6s7 - b
enter s5s6s7 b s5s6s7
--> s s5s6s7
--> s2 s5s6s7
--> s2s s5s6s7
--> s2s3 s5s6s7
--> s2s3s s5s6s7
--> s2s3s7 s5s6s7
--> s s5s6s7
--> s5 s5s6s7
--> s5s s5s6s7
--> s5s6 s5s6s7
--> s5s6s s5s6s7
--> s5s6s7 s5s6s7
The expresion is part of the automata languaje
--Press Enter to continue evaluating or 0 to exit-

Test4


EVALUATE JSON
-------------Automata_Linker---------------------
Enter value to evaluate: abbbbbbbb
current-> s0 - a
enter s0 a s2
current-> s2 - b
enter s2 b s2
current-> s2 - b
enter s2 b s2
current-> s2 - b
enter s2 b s2
current-> s2 - b
enter s2 b s2
current-> s2 - b
enter s2 b s2
current-> s2 - b
enter s2 b s2
current-> s2 - b
enter s2 b s2
current-> s2 - b
enter s2 b s2
current-> s2 - b
enter s2 b s2
--> s s2
--> s2 s2
--> s2s s2
--> s2s3 s2
--> s2s3s s2
--> s2s3s7 s2
--> s s2
--> s5 s2
--> s5s s2
--> s5s6 s2
--> s5s6s s2
--> s5s6s7 s2
The expresion is not part of the automata languaje
--Press Enter to continue evaluating or 0 to exit-

Test5

```
EVALUATE JSON
------------Automata_Linker--------------------
Enter value to evaluate: abbbbbbaaaaaaaabbaa
current-> s0 - a
enter s0 a s2
current-> s2 - b
enter s2 b s2
current-> s2 - b
enter s2 b s2
current-> s2 - b
enter s2 b s2
current-> s2 - b
enter s2 b s2
current-> s2 - b
enter s2 b s2
current-> s2 - b
enter s2 b s2
current-> s2 - a
enter s2 a s2s3s7
current-> s2s3s7 - a
enter s2s3s7 a s2s3s7
current-> s2s3s7 - a
enter s2s3s7 a s2s3s7
current-> s2s3s7 - a
enter s2s3s7 a s2s3s7
current-> s2s3s7 - a
enter s2s3s7 a s2s3s7
current-> s2s3s7 - a
enter s2s3s7 a s2s3s7
current-> s2s3s7 - a
enter s2s3s7 a s2s3s7
current-> s2s3s7 - a
enter s2s3s7 a s2s3s7
current-> s2s3s7 - b
enter s2s3s7 b s2
current-> s2 - b
enter s2 b s2
current-> s2 - a
enter s2 a s2s3s7
current-> s2s3s7 - a
enter s2s3s7 a s2s3s7
--> s s2s3s7
--> s2 s2s3s7
--> s2s s2s3s7
--> s2s3 s2s3s7
--> s2s3s s2s3s7
--> s2s3s7 s2s3s7

The expresion is part of the automata languaje
--Press Enter to continue evaluating or 0 to exit-
```