

1) Κανόνες της γραμματικής

Grammar	
Stmt_list →	Stmt Stmt_list | .
Stmt →	identifier equal Expr | print Expr .
Expr →	Term Term_tail.
Term_tail →	XOR Term Term_tail | .
Term →	Factor Factor_tail.
Factor_tail →	OR Factor Factor_tail | .
Factor →	Atom Atom_tail.
Atom_tail →	AND Atom Atom_tail | .
Atom →	(Expr ) | identifier | bit_token.

Some sentences generated by this grammar: {ε, print bit_token, print identifier, print (bit_token), print (identifier), identifier equal bit_token, identifier equal identifier, identifier equal (bit_token), identifier equal (identifier), print identifier print identifier, identifier equal bit_token print bit_token, identifier equal bit_token print identifier, identifier equal identifier print bit_token, print identifier identifier equal bit_token, identifier equal identifier print identifier, print identifier identifier equal identifier, identifier equal bit_token identifier equal bit_token, identifier equal bit_token identifier equal identifier, identifier equal identifier identifier equal bit_token, identifier equal identifier identifier equal identifier}

- You have unrealizable nonterminals in your grammar. They are: XOR OR AND
- The nullable nonterminals are: Stmt_list Term_tail Factor_tail Atom_tail.
- The endable nonterminals are: Atom_tail Atom Factor_tail Factor Term_tail Term Expr Stmt_list Stmt.
- No cycles.

2) Αποτελέσματα ελέγχου για LL(1) συμβατότητα

Και

Πίνακας με τα FIRST και FOLLOW sets για όλα τα μη τερματικά σύμβολα

nonterminal	first set	follow set	nullable	endable
Stmt_list	identifier print	∅	yes	yes
Stmt	identifier print	identifier print	no	yes
XOR	∅	∅	no	no
Term_tail	∅	) identifier print	yes	yes
Term	(identifier bit_token	) identifier print	no	yes
OR	∅	∅	no	no
Factor_tail	∅	) identifier print	yes	yes
Factor	(identifier bit_token	) identifier print	no	yes
AND	∅	∅	no	no
Atom_tail	∅	) identifier print	yes	yes
Atom	(identifier bit_token	) identifier print	no	yes
Expr	(identifier bit_token	) identifier print	no	yes

The grammar is LL(1).

4) Αποτελέσματα εξόδου για έγκυρες και άκυρος μορφές εισόδου

Έγκυρες μορφές εισόδου :

```

1 a = 1001
2 print a
3 b = 1111 OR 1001 AND (0011)
4 print b

```

scanner.py - Rur

parser.py - Stop

runner.py - Stop

dikom.txt - Stop

Run Command: runner.py

Your code is running at <https://awd-vageliskeramidas.c9users.io>.
Important: use `os.getenv(PORT, 8080)` as the port and `os.getenv(IP, 0.0.0.0)` as the host in your scripts!

```

1001
1111

```

```

1 a = 1101
2 print a
3 b = 1100 OR 1011 AND (0001)
4 print b

```

scanner.py - Rur

parser.py - Stop

runner.py - Stop

dikom.txt - Stop

Run Command: runner.py

Your code is running at <https://awd-vageliskeramidas.c9users.io>.
Important: use `os.getenv(PORT, 8080)` as the port and `os.getenv(IP, 0.0.0.0)` as the host in your scripts!

```

1101
1101

```

Process exited with code: 0

Άκυρες μορφές εισόδου :

The screenshot shows a web-based Python IDE with four tabs: scanner.py, runner.py, parser.py, and dikom.txt. The runner.py tab is active, displaying a Python script with four lines: `1 a = 1111`, `2 print a`, `3 b = 1001 OR (1111`, and `4 print b`. Below the code editor, there is a 'Run' button and a 'Command' field set to 'runner.py'. The output area shows the result of running the code: `1111`. Below the output, a traceback is displayed, indicating a `__main__.ParseError: den leitoyrgei swsta giati leipei ! ? (` at line 41 of runner.py. The traceback lists the following files and line numbers: `File "/home/ubuntu/workspace/runner.py", line 131, in <module>`, `File "/home/ubuntu/workspace/runner.py", line 45, in parse`, `File "/home/ubuntu/workspace/runner.py", line 50, in stmt_list`, `File "/home/ubuntu/workspace/runner.py", line 50, in stmt_list`, `File "/home/ubuntu/workspace/runner.py", line 49, in stmt_list`, `File "/home/ubuntu/workspace/runner.py", line 60, in stmt`, `File "/home/ubuntu/workspace/runner.py", line 70, in expr`, `File "/home/ubuntu/workspace/runner.py", line 87, in term`, `File "/home/ubuntu/workspace/runner.py", line 98, in factor`, `File "/home/ubuntu/workspace/runner.py", line 114, in atom`, and `File "/home/ubuntu/workspace/runner.py", line 41, in match`.

5) Πηγές που χρησιμοποιήθηκαν για την πρόοδο της εργασίας

- Google.gr
- Youtube.com
- C9.io
- <http://www.csd.uwo.ca/~moreno/CS447/Lectures/Syntax.html/node14.html>
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