

# Εργασία στο μάθημα ΑΡΧΕΣ ΓΛΩΣΣΩΝ ΚΑΙ ΠΡΟΓΡΑΜΜΑΤΙΣΜΟΥ



**CEID**  
COMPUTER ENGINEERING & INFORMATICS DEPARTMENT

Βραχνής Παύλος

ΑΜ: 236010

Παρασκευόπουλος Βασίλης

ΑΜ: 236179

Ματζάκος-Χωριανόπουλος Αντώνης

ΑΜ: 5831

Τα αρχεία που δημιουργήσαμε που υλοποιούν την άσκηση είναι τα παρακάτω:

## **To BNF**

```
<json>::= '{' <main_jsn> '}'  
<main_jsn>::= <commands> | <main_jsn> ',' <commands>
```

```
<commands>::= <created_at> | <id_str> | <user> |  
<text>  
| <retweeted_status>  
| <truncated> | <extended_tweet> | <tweet>  
| <json_tags>
```

```
<created_at>::= CRT_LEX ':' A_DAY A_MONTH INT_NUMBER INT_NUMBER ':'  
INT_NUMBER ':' INT_NUMBER INT_NUMBER ;
```

```
<user>::= USER_LEX ':' '{' <ujson> '}'
```

```
<ujson>::= <user_parts>  
| <ujson> ',' <user_parts>
```

```
<user_parts>::= <id> | <name>  
| <screen_name>  
| <location> | <json_tags>
```

```
<id>::= ID_LEX ':' INT_NUMBER;  
<name>::= NAME_LEX ':' STRING;
```

```

<screen_name>::=          SCR_NM_LEX ':' STRING;

<location>::=              LOC_LEX ':' STRING;

<id_str>::=                ID_S_LEX ':' STR_NUMBER ;
<text>::=                  TEXT_LEX ':' STRING ;


<json_tags>::=            STRING ':' STRING ;


<retweeted_status>::=      RT_LEX ':' '{' json_rt '}' ;

<json_rt>::=               <text> ',' <user>;

<tweet>::=                 TWT_LEX ':' '{' <json_rt> '}' ;


<truncated>::=            TRUNCATED ':' TRUE_LEX ',' <display_text_range >
<display_text_range>:      DISPLAY_TEXT_RANGE ':' <array_num>

<extended_tweet>::=        EXT_TW_LEX '{' <full_text> ',' <display_text_range>    '}' ;
<full_text> ::=            FULL_TEXT ':' STRING;


<array_num >::=            '[' <nums> ']';
<array_string>::=          '[' <strings> ']';
<nums>::=                  INT_NUMBER | <nums> ',' INT_NUMBER;
<strings>::=               STRING | STRING ',' STRING;

```

Οι αντίστοιχες λέξεις φαίνονται στην λεκτικό αναλύτη που δημιουργήσαμε:

```

%{
#include <stdio.h>
#include <string.h>
#include <stdlib.h>
#include "parser.tab.h"

%}

DIGIT [0-9]
DIGITS      {DIGIT}+
HEXS [0-9a-f]

ALL_CHARS [ -!#-\[ ]~]

```

ESC\_CHARS \\["\\bfnrt/]

UNCD \\u{HEXS}{HEXS}{HEXS}{HEXS}  
CHAR {ALL\_CHARS}|{ESC\_CHARS}|{UNCD}

CHARS\_A {CHAR}+  
%%

\ "user\" {printf("%s", yytext); return USER\_LEX; }

\ "text\" {printf("%s", yytext); return TEXT\_LEX; }

\ "location\" {printf("%s", yytext); return LOC\_LEX; }

\ "name\" {printf("%s", yytext); return NAME\_LEX; }

\ "screen\_name\" {printf("%s", yytext); return SCR\_NM\_LEX; }

\ "id\_str\" {printf("%s", yytext); return ID\_S\_LEX; }

\ "id\" {printf("%s", yytext); return ID\_LEX; }

\ "created\_at\" {printf("%s", yytext); return CRT\_LEX; }

\ "retweeted\_status\" {printf("%s", yytext); return RT\_LEX; }

\ "tweet\" {printf("%s", yytext); return TWT\_LEX; }

\ "extended\_tweet\" {printf("%s", yytext); return EXT\_TW\_LEX; }

\ "true\" {printf("%s", yytext); return TRUE\_LEX; }

\ "false\" {printf("%s", yytext); return FALSE\_LEX; }

Mon|Thu|Wed|Tue|Fri|Sat|Sun { printf("%s",  
yytext); return A\_DAY;}

Jan|Feb|Mar|Apr|May|Jun|Jul|Aug|Sep|Oct|Nov|Dec {printf("%s",yytext); return  
A\_MONTH;}

\{ {printf("{"); return '{';}

\} {printf("}"); return '}';}

\[ {printf("["); return '[';}

\] {printf("]"); return ']';}

\ " {printf("\""); return QUOT;}

, {printf(","); return ',';}

```
: {printf(":"); return ':';}
```

```
\">{DIGITS}\ " {printf("%s", yytext); return STR_NUMBER; }
```

```
\">{CHARS_A}\ " {printf("%s", yytext); return STRING; }
```

```
{DIGITS} {printf("%s", yytext); return INT_NUMBER; }
```

```
\n { printf("%s",yytext); n++; }
```

```
[ ] {printf("%s",yytext);};
```

```
[\t] {printf("%s",yytext);};
```

```
%%
```

Το αρχείο για το bison είναι το παρακάτω:

```
%{
```

```
#include <stdio.h>
```

```
#include <string.h>
```

```
#include <stdlib.h>
```

```
FILE *yyin;
```

```
void yyerror(const char *s);
```

```
extern char* yytext;
```

```
%}
```

```
%token QUOT
```

```
%token STRING
```

```
%token INT_NUMBER
```

```
%token TEXT_LEX
```

```
%token A_MONTH
```

```
%token A_DAY
```

```
%token ID_S_LEX
```

```
%token STR_NUMBER
```

```
%token USER_LEX
```

```
%token ID_LEX
```

```
%token NAME_LEX
```

```
%token SCR_NM_LEX
```

```
%token LOC_LEX
```

```
%token CRT_LEX
```

```
%token RT_LEX
```

```
%token TWT_LEX
```

%token TRUNCATED  
%token EXT\_TW\_LEX  
%token TRUE\_LEX  
%token FALSE\_LEX  
%token FULL\_TEXT  
%token DISPLAY\_TEXT\_RANGE

%%

json: '{' main\_jsn '}';  
main\_jsn: commands | main\_jsn ',' commands;

commands: created\_at | id\_str | user | text  
| retweeted\_status  
| truncated | extended\_tweet | tweet  
| json\_tags;

created\_at: CRT\_LEX ':' A\_DAY A\_MONTH INT\_NUMBER INT\_NUMBER ':'  
INT\_NUMBER ':' INT\_NUMBER INT\_NUMBER ;

user: USER\_LEX ':' '{' ujson '}';

ujson: user\_parts  
| ujson ',' user\_parts;

user\_parts: id | name  
| screen\_name  
| location | json\_tags;

id: ID\_LEX ':' INT\_NUMBER;  
name: NAME\_LEX ':' STRING;  
screen\_name: SCR\_NM\_LEX ':' STRING;

location: LOC\_LEX ':' STRING;

id\_str: ID\_S\_LEX ':' STR\_NUMBER ;  
text: TEXT\_LEX ':' STRING ;

json\_tags: STRING ':' STRING ;

retweeted\_status: RT\_LEX ':' '{' json\_rt '}';

json\_rt: text ',' user;

tweet: TWT\_LEX ':' '{' json\_rt '}';

```

truncated:                                TRUNCATED ':' TRUE_LEX ',' display_text_range ;
display_text_range:                      DISPLAY_TEXT_RANGE ':' array_num;

extended_tweet:                          EXT_TW_LEX '{' full_text ',' display_text_range '}';
full_text :                             FULL_TEXT ':' STRING;

array_num :                              '[' nums ']';
array_string:                            '[' strings ']';
nums:                                    INT_NUMBER | nums ',' INT_NUMBER;
strings:                                 STRING | STRING ',' STRING;

%%

void yyerror(const char *s) {
    printf("Error\n"); exit(1);
}

int main(int argc, char* argv[]) {
    FILE *f;

    f = fopen(argv[1], "r");

    yyin = f;

    yyparse();
}

```

Αποτέλεσμα εξόδου από το πρόγραμμα:

```

: "33332222" ,
minima 1" ,

:"testuser",
333322211,

n_name":"testuser",
tion":"NNNN"

http://www.upatras.gr"

```

```

{
  "created_at": "Thu Jun 18 12:05:00 2019",
  "id_str": "33332222" ,
  "text": "minima 1" ,
  "user": {
    "name": "testuser",
    "id": 333322211,
    "screen_name": "testuser",
    "location": "NNNN"
  },
  "url": "http://www.upatras.gr"
}
user12@user-VirtualBox: /

```

