



ΠΑΝΕΠΙΣΤΗΜΙΟ
ΠΑΤΡΩΝ
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Περιγραφή γλώσσας part1 σε bnf :

```
<last>::'last'<COLON><LCURLY><gameId><drawId><drawTime><status><drawBreak>
    <visualDraw><pricePoints><winningNumbers><PrizeCategories><wagerStatistics>
    <RCURLY><COMMA>
;

<active>::'active'<COLON><LCURLY><gameId><drawId><drawTime><drawBreak>
    <visualDraw><pricePoints><prizeCategories><wagerStatistics><RCURLY>
;

<gameId>::'gameId'<COLON><INTEGER><COMMA>
;

<drawId>::'drawId'<COLON><INTEGER><COMMA>
;

<drawTime>::'drawTime'<COLON><INTEGER><COMMA>
;

<status>::'status'<COLON><STRING><COMMA>
;

<drawBreak>::'drawBreak'<COLON><INTEGER><COMMA>
;

<visualDraw>::'visualDraw'<COLON><INTEGER><COMMA>
;

<pricePoints>::'pricePoints'<COLON><LCURLY><amount><RCURLY><COMMA>
;

<amount>::'amount'<COLON><FLOAT>
;

<winningNumbers>::'winningNumbers'<COLON><LCURLY><list><bonus><RCURLY><COMMA>
;

<list>::'list'<COLON><LBRAC><lists><RBRAC><COMMA>
;

<lists>::<INTEGER> | <INTEGER><COMMA><lists>
;
```

<bonus>::'bonus'<COLON><LBRAC><bonuses><RBRAC>

;

<bonuses>::<INTEGER> | <INTEGER><COMMA><bonuses>

;

<prizeCategories>::'prizeCategories'<COLON><LBRAC><arrayPrizeCategories><RBRAC><COMMA>

;

<arrayPrizeCategories>::<LCURLY><id><divident><winners><distributed><jackpot><fixed>

<categoryType><gameType><minimumDistributed><RCURLY>

| <LCURLY><id><divident><winners><distributed>

<jackpot><fixed><categoryType><gameType><minimumDistributed>

<RCURLY><COMMA><arrayPrizeCategories>

| <LCURLY><id><divident><winners><distributed><jackpot><fixed>

<categoryType><gameType><RCURLY>

|<LCURLY><id><divident><winners><distributed><jackpot><fixed><categoryType><gameType><RCURLY><COMMA><arrayPrizeCategories>

;

<id>::'id'<COLON>'1' | '2' | '3' | '4' | '5' | '6' | '7' | '8' <COMMA>

;

<divident>::'divident'<COLON><FLOAT><COMMA>

;

<winners>::'winners'<COLON><INTEGER><COMMA>

;

<distributed>::'distributed'<COLON><FLOAT><COMMA>

;

<jackpot>::'jackpot'<COLON><FLOAT><COMMA>

;

<fixed>::'fixed'<COLON><FLOAT><COMMA>

;

<categoryType>::'categoryType'<COLON>'0' | '1' <COMMA>

```

;
<gameType>::'gameType'<COLON><STRING><COMMA> | 'gameType'<COLON><STRING>
;
<minimumDistributed>::'minimumDistributed'<COLON><FLOAT>
;
<wagerStatistics>::'wagerStatistics'<COLON><LCURLY><columns><wagers><addOn><RCURLY>
;
<columns>::'columns'<COLON><INTEGER><COMMA>
;
<wagers>::'wagers'<COLON><INTEGER><COMMA>
;
<addOn>::'addOn'<COLON><LBRAC><addOns><RBRAC>
;
<addOns>::<INTEGER> | <INTEGER><COMMA><addOns> | /* empty */
;
<digit>::'0' | '1' | '2' | '3' | '4' | '5' | '6' | '7' | '8' | '9'
;
<INTEGER>::<digit>{<digit>}
;
<FLOAT>::{<INTEGER>} '.' <INTEGER>
;
<LETTER>::'a' | 'b' | 'c' | 'd' | 'e' | 'f' | 'g' | 'h' | 'i' | 'j' | 'k' | 'l' | 'm' | 'n' | 'o' | 'p' | 'q' | 'r' | 's' | 't' | 'u' | 'v' | 'w' | 'x' | 'y' | 'z'
      | 'A' | 'B' | 'C' | 'D' | 'E' | 'F' | 'G' | 'H' | 'I' | 'J' | 'K' | 'L' | 'M' | 'N' | 'O' | 'P' | 'Q' | 'R' | 'S' | 'T' | 'U' | 'V' | 'U' | 'X' | 'Y' | 'Z'
;
<STRING>::{(<LETTER> | <INTEGER> )}
<LCURLY>:: '{'
;
<RCURLY>:: '}'
;
<LBRAC>:: '['
;

```

```
<RBRAC>:: ']'
;
<COMMA>:: ','
;
<COLON>:: ':'
;
```

Αρχείο flex:

```
%{
//flex file part2
#include <string.h>
#include "parser2.tab.h"
#include <stdio.h>
#include <stdlib.h>
#include <string.h>
#define ECHO fwrite( yytext, yyleng, 1, yyout)
extern void yyerror(char *);
%}

%option noyywrap
EXP ([Ee][-+]?[0-9]+)

%%

\"last\" {printf(\"%s\",yytext); return lastT;}
\"active\" {printf(\"%s\",yytext); return activeT;}
\"gameId\" {printf(\"%s\",yytext); return gameIdT;}
\"drawId\" {printf(\"%s\",yytext); return drawIdT;}
\"drawTime\" {printf(\"%s\",yytext); return drawTimeT;}
\"status\" {printf(\"%s\",yytext); return statusT;}
\"drawBreak\" {printf(\"%s\",yytext); return drawBreakT;}
\"visualDraw\" {printf(\"%s\",yytext); return visualDrawT;}
\"pricePoints\" {printf(\"%s\",yytext); return pricePointsT;}
\"prizeCategories\" {printf(\"%s\",yytext); return prizeCategoriesT;}
\"wagerStatistics\" {printf(\"%s\",yytext); return wagerStatisticsT;}
\"amount\" {printf(\"%s\",yytext); return amountT;}
\"winningNumbers\" {printf(\"%s\",yytext); return winningNumbersT;}
\"list\" {printf(\"%s\",yytext); return listT;}
\"bonus\" {printf(\"%s\",yytext); return bonusT;}
\"id\" {printf(\"%s\",yytext); return idT;}
\"divident\" {printf(\"%s\",yytext); return dividentT;}
\"winners\" {printf(\"%s\",yytext); return winnersT;}
\"distributed\" {printf(\"%s\",yytext); return distributedT;}
```

```

"\jackpot\" {printf("%s",yytext); return jackpotT;}
"\fixed\" {printf("%s",yytext); return fixedT;}
"\categoryType\" {printf("%s",yytext); return categoryTypeT;}
"\gameType\" {printf("%s",yytext); return gameTypeT;}
"\minimumDistributed\" {printf("%s",yytext);return minimumDistributedT;}
"\columns\" {printf("%s",yytext); return columnsT;}
"\wagers\" {printf("%s",yytext); return wagersT;}
"\addOn\" {printf("%s",yytext); return addOnT;}
"\content\" {printf("%s",yytext); return contentT;}
"\totalPages\" {printf("%s",yytext); return totalPagesT;}
"\totalElements\" {printf("%s",yytext); return totalElementsT;}
"\numberOfElements\" {printf("%s",yytext); return numberOfElementsT ;}
"\sort\" {printf("%s",yytext); return sortT;}
"\first\" {printf("%s",yytext); return firstT;}
"\size\" {printf("%s",yytext); return sizeT;}
"\number\" {printf("%s",yytext); return numberT;}
"\direction\" {printf("%s",yytext); return directionT;}
"\property\" {printf("%s",yytext); return propertyT;}
"\ignoreCase\" {printf("%s",yytext); return ignoreCaseT;}
"\nullHandling\" {printf("%s",yytext); return nullHandlingT;}
"\descending\" {printf("%s",yytext); return descendingT;}
"\ascending\" {printf("%s",yytext); return ascendingT;}
"{" { printf("%s \n" ,yytext); return LCURLY; }
"}" { printf("%s \n" ,yytext); return RCURLY; }
"[" { printf("%s \n" ,yytext); return LBRAC; }
"]" { printf("%s \n" ,yytext); return RBRAC; }
"," { printf("%s \n" ,yytext); return COMMA; }
":" { printf("%s",yytext); return COLON; }
"true" {printf("%s",yytext) ; return TRUET;}
>false" {printf("%s",yytext) ; return FALSET;}
[ \t\r\n]+ { /* eat whitespace */ }
\[^\"]*\ { yylval.string = strdup(yytext); printf("%s",yytext); return
STRING;}
\-[0-9]+[0-9]* {printf("%s",yytext); yylval.integer = atoi(yytext); return
INTEGER;}

\-[0-9]+"."?[0-9]*{EXP}? { printf("%s",yytext); float f = atof(yytext);
yylval.decimal = f; return FLOAT;}

```

%%

Αρχείο bison :

```
%{
```

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

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

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

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

```
extern char* yytext;
```

```
extern FILE *yyin;
```

```
extern FILE *yyout;
```

```
extern int yyparse();
```

```
extern int yylex();
```

```
%}
```

```
%token lastT
```

```
%token activeT
```

```
%token gameIdT
```

```
%token drawIdT
```

```
%token drawTimeT
```

```
%token statusT
```

```
%token drawBreakT
```

```
%token visualDrawT
```

```
%token pricePointsT
```

```
%token winningNumbersT
```

```
%token prizeCategoriesT
```

```
%token wagerStatisticsT
```

```
%token arrayPrizeCategoriesT
```

```
%token idT
```

```
%token dividendT
```

%token winnersT
%token distributedT
%token jackpotT
%token fixedT
%token categoryTypeT
%token gameTypeT
%token minimumDistributedT
%token columnsT
%token wagersT
%token addOnT
%token amountT
%token bonusT
%token dividendT
%token listT
%token LCURLY
%token RCURLY
%token LBRAC
%token RBRAC
%token COMMA
%token COLON
%token contentT
%token totalPagesT
%token totalElementsT
%token numberOfElementsT
%token sortT
%token firstT
%token sizeT
%token numberT
%token directionT
%token propertyT
%token ignoreCaseT

%token nullHandlingT

%token descendingT

%token ascendingT

%token <string> STRING;

%token <decimal> DECIMAL;

%token <integer> INTEGER;

%token <float> FLOAT;

%token TRUET;

%token FALSET;

%union {

char *string;

double decimal;

int integer;

}

%%

json: json1 |json2 ;

json1: LCURLY last active RCURLY ;

json2: LCURLY content totalPages totalElements last numberOfElements sort first size number
RCURLY

;

content: contentT COLON LBRAC contents RBRAC COMMA

;

contents: LCURLY gameId drawId drawTime status drawBreak visualDraw pricePoints
winningNumbers prizeCategories wagerStatistics RCURLY COMMA contents

| LCURLY gameId drawId drawTime status drawBreak visualDraw pricePoints winningNumbers
prizeCategories wagerStatistics RCURLY COMMA

;

totalPages: totalPagesT COLON INTEGER COMMA

```
;
totalElements: totalElementsT COLON INTEGER COMMA
;
numberOfElements: numberOfElementsT COLON INTEGER COMMA
;
sort: sortT COLON LBRAC sorts RBRAC COMMA
;
sorts: LCURLY direction property ignoreCase nullHandling descending ascending RCURLY
;
direction: directionT COLON STRING COMMA
;
property: propertyT COLON STRING COMMA
;
ignoreCase: ignoreCaseT COLON TRUET COMMA | ignoreCaseT COLON FALSET COMMA
;
nullHandling: nullHandlingT COLON STRING COMMA
;
descending: descendingT COLON TRUET COMMA | descendingT COLON FALSET COMMA
;
ascending: ascendingT COLON TRUET | ascendingT COLON FALSET
;
first: firstT COLON TRUET COMMA | firstT COLON FALSET COMMA
;
size: sizeT COLON INTEGER COMMA
;
number: numberT COLON INTEGER
;
last: lastT COLON LCURLY gameId drawId drawTime status drawBreak visualDraw pricePoints
winningNumbers prizeCategories wagerStatistics RCURLY COMMA | lastT COLON TRUET COMMA |
lastT COLON FALSET COMMA
;
```

active: activeT COLON LCURLY gameId drawId drawTime drawBreak visualDraw pricePoints
prizeCategories wagerStatistics RCURLY

;

gameId: gameIdT COLON INTEGER COMMA

;

drawId: drawIdT COLON INTEGER COMMA

;

drawTime: drawTimeT COLON INTEGER COMMA

;

status: statusT COLON STRING COMMA

;

drawBreak: drawBreakT COLON INTEGER COMMA

;

visualDraw: visualDrawT COLON INTEGER COMMA

;

pricePoints: pricePointsT COLON LCURLY amount RCURLY COMMA

;

amount: amountT COLON FLOAT

;

winningNumbers: winningNumbersT COLON LCURLY list bonus RCURLY COMMA

;

list: listT COLON LBRAC lists RBRAC COMMA

;

lists: INTEGER | INTEGER COMMA lists

;

bonus: bonusT COLON LBRAC bonuses RBRAC

;

bonuses: INTEGER | INTEGER COMMA bonuses

;

prizeCategories: prizeCategoriesT COLON LBRAC arrayPrizeCategories RBRAC COMMA

;

arrayPrizeCategories: LCURLY id dividend winners distributed jackpot fixed categoryType gameType
minimumDistributed RCURLY | LCURLY id dividend winners distributed jackpot fixed categoryType
gameType minimumDistributed RCURLY COMMA arrayPrizeCategories | LCURLY id dividend winners
distributed jackpot fixed categoryType gameType RCURLY | LCURLY id dividend winners distributed
jackpot fixed categoryType gameType RCURLY COMMA arrayPrizeCategories

;

id: idT COLON INTEGER COMMA

;

divident: dividendT COLON FLOAT COMMA

;

winners: winnersT COLON INTEGER COMMA

;

distributed: distributedT COLON FLOAT COMMA

;

jackpot: jackpotT COLON FLOAT COMMA

;

fixed: fixedT COLON FLOAT COMMA

;

categoryType: categoryTypeT COLON INTEGER COMMA

;

gameType: gameTypeT COLON STRING COMMA | gameTypeT COLON STRING

;

minimumDistributed: minimumDistributedT COLON FLOAT

;

wagerStatistics: wagerStatisticsT COLON LCURLY columns wagers addOn RCURLY

;

columns: columnsT COLON INTEGER COMMA

;

wagers: wagersT COLON INTEGER COMMA

```

;
addOn: addOnT COLON LBRAC addOns RBRAC

;
addOns: INTEGER | INTEGER COMMA addOns | /* empty */;

%%

void yyerror(char *s){
    fprintf(stderr, "%s\n", s);
}

int main ( int argc, char **argv )
{
    ++argv; --argc;
    if ( argc > 0 )
        yyin = fopen( argv[0], "r" );
    else
        yyin = stdin;
    yyout = fopen ( "output", "w" );
    yyparse ();
    return 0;
}

```

Screenshots με παραδείγματα :

1.last_result.json

Στο αρχείο last_result.json το "status": "active", που βρίσκεται μέσα στο active δεν μπορούσε να διαβαστεί. Προσπαθήσαμε να βρούμε λύση αλλά δεν μπορέσαμε και έτσι αναγκαστήκαμε να σβήσουμε το "status": "active", από το αρχείο και την εντολή την οποία το διαβάζει ώστε να δείξουμε ότι το υπόλοιπο αρχείο διαβάζεται κανονικά.

```

number 10;
savvas@savvas-VirtualBox:~/Desktop/project_flex_bison$ bison -d parser2.y
parser2.y:42.8-16: warning: symbol dividantT redeclared [-Wother]
  42 | %token dividantT
      | ^~~~~~
parser2.y:29.8-16:      previous declaration
  29 | %token dividantT
      | ^~~~~~
savvas@savvas-VirtualBox:~/Desktop/project_flex_bison$ flex flex2.l
savvas@savvas-VirtualBox:~/Desktop/project_flex_bison$ gcc -o run lex.yy.c pars
er2.tab.c -lfl
savvas@savvas-VirtualBox:~/Desktop/project_flex_bison$ ./run last_result.json
{
  "last":{
    "gameId":5104,
    "drawId":2390,
    "drawTime":1642363200000,
    "status":"results",
    "drawBreak":1800000,
    "visualDraw":2390,
    "pricePoints":{
      "amount":0.5}
  },
  "winningNumbers":{
    "list":[
      1,
      29,
      26,
      24,
      171

```

```

      "amount":0.5}
    },
    "winningNumbers":{
      "list":[
        1,
        29,
        26,
        24,
        17]
      },
      "bonus":[
        6]
    }
  },
  "prizeCategories":[
    {
      "id":1,
      "divident":0.0,
      "winners":0,
      "distributed":356871.53,
      "jackpot":748954.15,
      "fixed":0.0,
      "categoryType":0,
      "gameType":"Normal",
      "minimumDistributed":0.0}
    },
    {
      "id":2,
      "divident":22575.97,

```

```
"id":2,
"divident":22575.97,
"winners":4,
"distributed":55178.93,
"jackpot":35124.97,
"fixed":0.0,
"categoryType":0,
"gameType":"Normal"}
,
{
  "id":3,
  "divident":2500.0,
  "winners":20,
  "distributed":50000.0,
  "jackpot":0.0,
  "fixed":2500.0,
  "categoryType":1,
  "gameType":"Normal"}
,
{
  "id":4,
  "divident":50.0,
  "winners":326,
  "distributed":16300.0,
  "jackpot":0.0,
  "fixed":50.0,
  "categoryType":1,
  "gameType":"Normal"}
,
```

```
"id":5,
"divident":50.0,
"winners":816,
"distributed":40800.0,
"jackpot":0.0,
"fixed":50.0,
"categoryType":1,
"gameType":"Normal"}
,
{
  "id":6,
  "divident":2.0,
  "winners":16634,
  "distributed":33268.0,
  "jackpot":0.0,
  "fixed":2.0,
  "categoryType":1,
  "gameType":"Normal"}
,
{
  "id":7,
  "divident":2.0,
  "winners":10341,
  "distributed":20682.0,
  "jackpot":0.0,
  "fixed":2.0,
  "categoryType":1,
  "gameType":"Normal"}
,
```

```
"id":8,
"divident":1.5,
"winners":49233,
"distributed":73849.5,
"jackpot":0.0,
"fixed":1.5,
"categoryType":1,
"gameType":"Normal"}
]
,
"wagerStatistics":{
"columns":2866438,
"wagers":503579,
"addOn":[
]
}
}
,
"active":{
"gameId":5104,
"drawId":2391,
"drawTime":1642536000000,
"drawBreak":1800000,
"visualDraw":2391,
"pricePoints":{
"amount":0.5}
,
"prizeCategories":[
```

```
"prizeCategories":[
{
"id":1,
"divident":0.0,
"winners":0,
"distributed":0.0,
"jackpot":1105825.68,
"fixed":0.0,
"categoryType":0,
"gameType":"Normal",
"minimumDistributed":1300000.0}
,
{
"id":2,
"divident":0.0,
"winners":0,
"distributed":0.0,
"jackpot":0.0,
"fixed":0.0,
"categoryType":0,
"gameType":"Normal"}
,
{
"id":3,
"divident":0.0,
"winners":0,
"distributed":0.0,
"jackpot":0.0,
"fixed":2500.0,
```



```
1+1 savvas@savvas-VirtualBox: ~/Desktop/project_flex_bison
{"fixed":2500.0,
 "categoryType":1,
 "gameType":"Normal"}
,
{
 "id":4,
 "divident":0.0,
 "winners":0,
 "distributed":0.0,
 "jackpot":0.0,
 "fixed":50.0,
 "categoryType":1,
 "gameType":"Normal"}
,
{
 "id":5,
 "divident":0.0,
 "winners":0,
 "distributed":0.0,
 "jackpot":0.0,
 "fixed":50.0,
 "categoryType":1,
 "gameType":"Normal"}
,
{
 "id":6,
 "divident":0.0,
 "winners":0,
 "distributed":0.0,
 "jackpot":0.0
```

```

{"fixed":2.0,
 "categoryType":1,
 "gameType":"Normal"}
,
{
 "id":7,
 "divident":0.0,
 "winners":0,
 "distributed":0.0,
 "jackpot":0.0,
 "fixed":2.0,
 "categoryType":1,
 "gameType":"Normal"}
,
{
 "id":8,
 "divident":0.0,
 "winners":0,
 "distributed":0.0,
 "jackpot":0.0,
 "fixed":1.5,
 "categoryType":1,
 "gameType":"Normal"}
]
,
"wagerStatistics":{
 "columns":0,
 "wagers":0,
 "addOn":[
 ,
```

```

 "wagerStatistics":{
 "columns":0,
 "wagers":0,
 "addOn":[
 ]
 }
}
}
```

2.last_result_lathos.json:

Σε αυτό το αρχείο λείπει η γραμμή "drawBreak":1800000, Έτσι, όταν εκτελεστεί η run στο αρχείο last_result_lathos.json βλέπουμε ότι σταματάει εκεί που θα έπρεπε να ήταν η γραμμή αυτή.

```
savvas@savvas-VirtualBox:~/Desktop/project_flex_bison$ ./run last_result_lathos
.json
{
  "last":{
    "gameId":5104,
    "drawId":2390,
    "drawTime":1642363200000,
    "status":"results",
    syntax error
  "visualDraw"savvas@savvas-VirtualBox:~/Desktop/project_flex_bison$
```

3. range_result.json

Ακολουθως, βλέπουμε ότι με το ίδιο run, ο αναλυτής μας μπορεί να ξεχωρίσει τα αρχεία last_result.json και range_result.json. Αυτό επιτυγχάνεται με την χρήση της εντολής json: json1 | json2 όπου json1 είναι το ένα αρχείο και json2 το άλλο.

```
syntax error
savvas@savvas-VirtualBox:~/Desktop/project_flex_bison$ ./run range_result.json
{
  "content":[
    {
      "gameId":5104,
      "drawId":2414,
      "drawTime":1647374400000,
      "status":"results",
      "drawBreak":1800000,
      "visualDraw":2414,
      "pricePoints":{
        "amount":0.5}
    },
    "winningNumbers":{
      "list":[
        2,
        38,
        23,
        25,
        32]
    },
    "bonus":[
      9]
    },
    "prizeCategories":[
      {
        "id":1,
```

```
{
  "id":1,
  "divident":0.0,
  "winners":0,
  "distributed":253146.35,
  "jackpot":1089396.17,
  "fixed":0.0,
  "categoryType":0,
  "gameType":"Normal",
  "minimumDistributed":0.0}
,
{
  "id":2,
  "divident":93990.61,
  "winners":1,
  "distributed":39141.1,
  "jackpot":54849.51,
  "fixed":0.0,
  "categoryType":0,
  "gameType":"Normal"}
,
{
  "id":3,
  "divident":2500.0,
  "winners":16,
  "distributed":40000.0,
  "jackpot":0.0,
  "fixed":2500.0,
  "categoryType":1,
```

```
"fixed":2500.0,
"categoryType":1,
"gameType":"Normal"}
,
{
  "id":4,
  "divident":50.0,
  "winners":265,
  "distributed":13250.0,
  "jackpot":0.0,
  "fixed":50.0,
  "categoryType":1,
  "gameType":"Normal"}
,
{
  "id":5,
  "divident":50.0,
  "winners":803,
  "distributed":40150.0,
  "jackpot":0.0,
  "fixed":50.0,
  "categoryType":1,
  "gameType":"Normal"}
,
{
  "id":6,
  "divident":2.0,
  "winners":11148,
  "distributed":22296.0,
```

```
"winners":11148,
"distributed":22296.0,
"jackpot":0.0,
"fixed":2.0,
"categoryType":1,
"gameType":"Normal"}
,
{
  "id":7,
  "divident":2.0,
  "winners":9917,
  "distributed":19834.0,
  "jackpot":0.0,
  "fixed":2.0,
  "categoryType":1,
  "gameType":"Normal"}
,
{
  "id":8,
  "divident":1.5,
  "winners":46429,
  "distributed":69643.5,
  "jackpot":0.0,
  "fixed":1.5,
  "categoryType":1,
  "gameType":"Normal"}
]
,
"usersStatistics":{
```

```
,
"wagerStatistics":{
  "columns":2033304,
  "wagers":359687,
  "addOn":[
  ]
}
},
{
  "gameId":5104,
  "drawId":2413,
  "drawTime":1647201600000,
  "status":"results",
  "drawBreak":1800000,
  "visualDraw":2413,
  "pricePoints":{
    "amount":0.5}
  ,
  "winningNumbers":{
    "list":[
      36,
      44,
      16,
      31,
      38]
    ,
    "bonus":[
      8]
  }
}
```

```
"bonus":[
8]
}
,
"prizeCategories":[
{
"id":1,
"divident":0.0,
"winners":0,
"distributed":354740.96,
"jackpot":734655.21,
"fixed":0.0,
"categoryType":0,
"gameType":"Normal",
"minimumDistributed":0.0}
,
{
"id":2,
"divident":0.0,
"winners":0,
"distributed":54849.51,
"jackpot":0.0,
"fixed":0.0,
"categoryType":0,
"gameType":"Normal"}
,
{
"id":3,
"divident":2500.0,
```

```
"id":3,
"divident":2500.0,
"winners":17,
"distributed":42500.0,
"jackpot":0.0,
"fixed":2500.0,
"categoryType":1,
"gameType":"Normal"}
,
{
"id":4,
"divident":50.0,
"winners":271,
"distributed":13550.0,
"jackpot":0.0,
"fixed":50.0,
"categoryType":1,
"gameType":"Normal"}
,
{
"id":5,
"divident":50.0,
"winners":796,
"distributed":39800.0,
"jackpot":0.0,
"fixed":50.0,
"categoryType":1,
"gameType":"Normal"}
,
```

```
"gameType":"Normal"}
,
{
  "id":6,
  "divident":2.0,
  "winners":11150,
  "distributed":22300.0,
  "jackpot":0.0,
  "fixed":2.0,
  "categoryType":1,
  "gameType":"Normal"}
,
{
  "id":7,
  "divident":2.0,
  "winners":12080,
  "distributed":24160.0,
  "jackpot":0.0,
  "fixed":2.0,
  "categoryType":1,
  "gameType":"Normal"}
,
{
  "id":8,
  "divident":1.5,
  "winners":68804,
  "distributed":103206.0,
  "jackpot":0.0,
  "fixed":1.5,
```

```
"jackpot":0.0,
"fixed":1.5,
"categoryType":1,
"gameType":"Normal"}
]
,
"wagerStatistics":{
  "columns":2849325,
  "wagers":498453,
  "addOn":[
  ]
}
}
,
{
  "gameId":5104,
  "drawId":2412,
  "drawTime":1646942400000,
  "status":"results",
  "drawBreak":1800000,
  "visualDraw":2412,
  "pricePoints":{
    "amount":0.5}
  ,
  "winningNumbers":{
    "list":[
      23,
      16,
      17,
```

```
"winningNumbers":{
  "list":[
    23,
    16,
    17,
    27,
    40]
  ,
  "bonus":[
    16]
}
,
"prizeCategories":[
  {
    "id":1,
    "divident":0.0,
    "winners":0,
    "distributed":230875.17,
    "jackpot":519124.83,
    "fixed":0.0,
    "categoryType":0,
    "gameType":"Normal",
    "minimumDistributed":0.0}
  ,
  {
    "id":2,
    "divident":56795.63,
    "winners":2,
    "distributed":35697.57
```

```
"winners":2,
"distributed":35697.57,
"jackpot":77893.7,
"fixed":0.0,
"categoryType":0,
"gameType":"Normal"}
,
{
  "id":3,
  "divident":2500.0,
  "winners":7,
  "distributed":17500.0,
  "jackpot":0.0,
  "fixed":2500.0,
  "categoryType":1,
  "gameType":"Normal"}
,
{
  "id":4,
  "divident":50.0,
  "winners":191,
  "distributed":9550.0,
  "jackpot":0.0,
  "fixed":50.0,
  "categoryType":1,
  "gameType":"Normal"}
,
{
  "id":5,
```

```
{
  "id":5,
  "divident":50.0,
  "winners":571,
  "distributed":28550.0,
  "jackpot":0.0,
  "fixed":50.0,
  "categoryType":1,
  "gameType":"Normal"}
,
{
  "id":6,
  "divident":2.0,
  "winners":9782,
  "distributed":19564.0,
  "jackpot":0.0,
  "fixed":2.0,
  "categoryType":1,
  "gameType":"Normal"}
,
{
  "id":7,
  "divident":2.0,
  "winners":7047,
  "distributed":14094.0,
  "jackpot":0.0,
  "fixed":2.0,
  "categoryType":1,
  "gameType":"Normal"}
,
```

```
{
  "id":8,
  "divident":1.5,
  "winners":31989,
  "distributed":47983.5,
  "jackpot":0.0,
  "fixed":1.5,
  "categoryType":1,
  "gameType":"Normal"}
]
,
"wagerStatistics":{
  "columns":1854419,
  "wagers":338607,
  "addOn":[
  ]
}
}
,
{
  "gameId":5104,
  "drawId":2411,
  "drawTime":1646769600000,
  "status":"results",
  "drawBreak":1800000,
  "visualDraw":2411,
  "pricePoints":{
    "amount":0.5}
  ,
```



```
"amount":0.5}
,
"winningNumbers":{
  "list":[
    16,
    2,
    3,
    14,
    39]
,
"bonus":[
  7]
}
,
"prizeCategories":[
{
  "id":1,
  "divident":0.0,
  "winners":0,
  "distributed":191738.84,
  "jackpot":408261.16,
  "fixed":0.0,
  "categoryType":0,
  "gameType":"Normal",
  "minimumDistributed":0.0}
,
{
  "id":2,
  "divident":0.0,
```

```
"id":2,
"divident":0.0,
"winners":0,
"distributed":29646.37,
"jackpot":48247.33,
"fixed":0.0,
"categoryType":0,
"gameType":"Normal"}
,
{
  "id":3,
  "divident":2500.0,
  "winners":11,
  "distributed":27500.0,
  "jackpot":0.0,
  "fixed":2500.0,
  "categoryType":1,
  "gameType":"Normal"}
,
{
  "id":4,
  "divident":50.0,
  "winners":202,
  "distributed":10100.0,
  "jackpot":0.0,
  "fixed":50.0,
  "categoryType":1,
  "gameType":"Normal"}
,
```

```

"gameType":"Normal"}
,
{
  "id":5,
  "divident":50.0,
  "winners":572,
  "distributed":28600.0,
  "jackpot":0.0,
  "fixed":50.0,
  "categoryType":1,
  "gameType":"Normal"}
,
{
  "id":6,
  "divident":2.0,
  "winners":8301,
  "distributed":16602.0,
  "jackpot":0.0,
  "fixed":2.0,
  "categoryType":1,
  "gameType":"Normal"}
,
{
  "id":7,
  "divident":2.0,
  "winners":8441,
  "distributed":16882.0,
  "jackpot":0.0,
  "fixed":2.0,

```

```

"gameType":"Normal"}
,
{
  "id":8,
  "divident":1.5,
  "winners":40987,
  "distributed":61480.5,
  "jackpot":0.0,
  "fixed":1.5,
  "categoryType":1,
  "gameType":"Normal"}
]
,
"wagerStatistics":{
  "columns":1540071,
  "wagers":283493,
  "addOn":[
  ]
}
}
,
]
,
"totalPages":1,
"totalElements":4,
"last":true,
"numberOfElements":7,
"sort":[
{

```

```

"sort":[
{
  "direction":"DESC",
  "property":"id.drawId",
  "ignoreCase":false,
  "nullHandling":"NATIVE",
  "descending":true,
  "ascending":false}
]
,
"first":true,
"size":10,
"number":0}
savvas@savvas-VirtualBox:~/Desktop/project_flex_bison$

```

4. range_result_lathos.json

Αυτό το αρχείο είναι το range_result.json, όμως λείπει το κομμάτι "amount":0.5 το οποίο βρίσκεται μέσα στο pricePoints. Βλέπουμε ότι διαβάζεται το "pricePoints":{} όμως μέσα δεν περιέχεται το "amount":0.5 και έτσι σταματάει εκεί.

```
number :0j
savvas@savvas-VirtualBox:~/Desktop/project_flex_bison$ ./run range_result_latho
s.json
{
  "content":[
    {
      "gameId":5104,
      "drawId":2414,
      "drawTime":1647374400000,
      "status":"results",
      "drawBreak":1800000,
      "visualDraw":2414,
      "pricePoints":{
    }
  ]
}
syntax error
savvas@savvas-VirtualBox:~/Desktop/project_flex_bison$
```

Σχόλια και παραδοχές:

Τα πεδία "id" και "categoryType" τα τροποποιήσαμε έτσι ώστε να δέχονται INTEGER και όχι θετικούς ακέραιους από 1-8 και 0-1 αντίστοιχα. Έτσι, ό,τι θετικό ακέραιο και να βάλουμε σε αυτά δεν θα εμφανιστεί λάθος. Επίσης το "minimumDistrubuted" μπορεί να εμφανιστεί και όταν το "id" δεν είναι 1.