A6-Implementation of Syntax Checker using Yacc Tool

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02-04-2021

1 Code

scheck.l

```
1  %{
2  #include <stdio.h>
3  #include<math.h>
4  extern FILE * yyin;
5  void yyerror(char *);
6  int lineno;
7  %}
8  %token NUM
9  %token EOL
10 %token SP
11 %token INC
12 %token OP
13 %token id
14 %token KW
15 %token ASSIGN
16 %%
17
18 E: S {printf("\nSyntactically Correct!");};
19
20 S: LOOP S| IF S| STMT1 S| STMT2 S| SEP S| ELSE S |;
21
22 LOOP: KW SP id ASSIGN id SP id OP id SP id INC SP | KW SP id OP
       id SP {printf("LOOP");lineno++;};
23 IF: KW SP id OP id SP {printf("IF CONDITION");lineno++;};
24 STMT1: id ASSIGN id OP id SP {printf("STATEMENT");lineno++;};
25 STMT2: id ASSIGN id SP {printf("STATEMENT");lineno++;};
26 ELSE: KW {lineno++;};
27 SEP: SP {lineno++;}
28 ;
29
30 %%
```

```
31 int main(){
32     char ch;
33     if( !(yyin = fopen("in.txt","r")) ){
34         printf("cannot open file\n");exit(1);
35     }
36     yyparse();
37     return(1);
38 }
39 void yyerror(char* str)
40 {
41     printf("\nSyntax Error! Error at line %d\n",lineno+1);
42 }
```
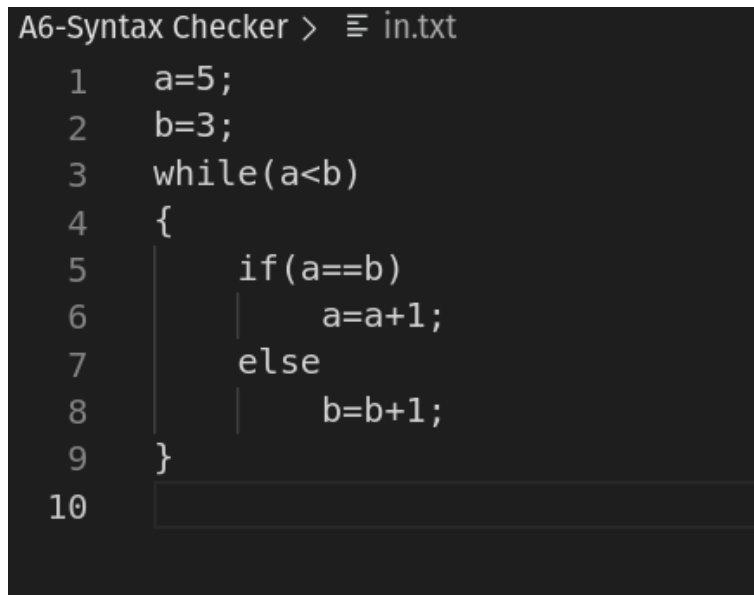
scheck.y.l

```
1  %{
2      #include "y.tab.h"
3      #include <stdio.h>
4      #include <stdlib.h>
5      void yyerror(char* str);
6      extern YYSTYPE yylval;
7  %}
8  %%
9  \t   ;
10 "for"|"if"|"else"|"while" {return KW;}
11 [();,{}] {return SP;}
12 [a-zA-Z] {return id;}
13 [0-9]+ {return id;}
14 "++" {return INC;}
15 "=" {return ASSIGN;}
16 [<>+\-*%] {return OP;}
17 "==" {return OP;}
18 "<="|">=" {return OP;}
19 .    ;
20 %%
21 int yywrap(void)
22 {return 1;}
```
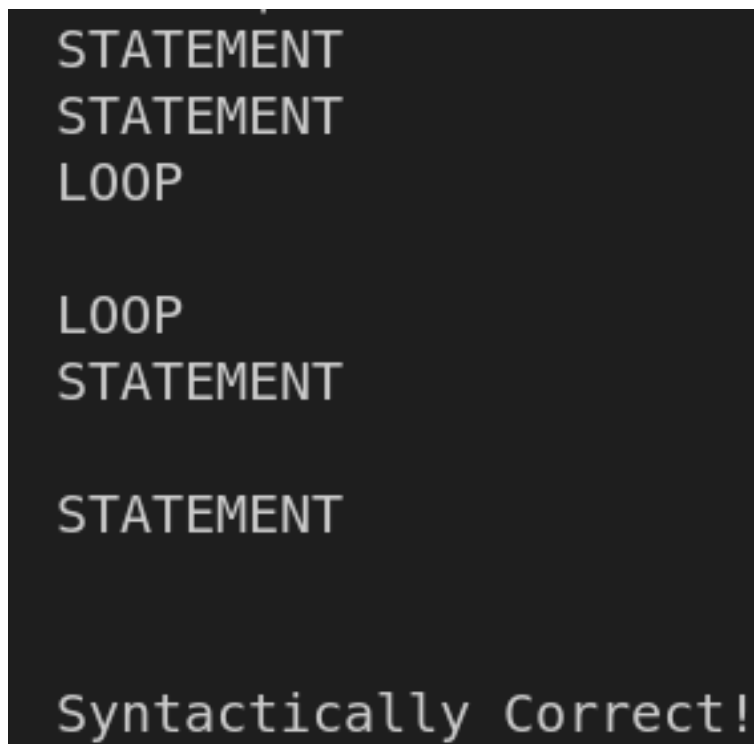
2 Output Screenshots

Figure 1: Valid Input

Figure 2: Output for valid input

Figure 3: Invalid Input

Figure 4: Output for invalid input