Compiler Design _ HW 0 5

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40747031S_hw05.l :

```
%{

%}
%%

[\t ]+        /* ignore white space */ ;

test          { printf("%s    <- test\n", yytext); }

\"[^"]*\" {
     printf("<<<string start>>> %s <<<string end>>> ", yytext);
     }

[a-zA-Z]+ { ECHO; /* normal default anyway */ }

\&.|\n        { ECHO; /* normal default anyway */ }

%%

main()
{
    yylex();
}
```

gen_bigc.c

```c
#include <stdio.h>
#include <stdlib.h>
#include <string.h>

int main(int argc, char *argv[]){
    int i =0 ;
    int line_n = atoi(argv[1]);
    char text1[]="#include<stdio.h>\n\nint main(){\n\tchar c[3]=\"0;\n\t";
    char text2[]="printf(";
    char text3[]=");\n\t";
    char text4[]="printf(\"\\\"\");\n\treturn 0;\n}\n";
    FILE *fp = NULL;
    fp = fopen("big.c", "w+");
    fprintf(fp,"%s", text1);
    for(i =0 ;i < line_n ;i++){
        fprintf(fp,"%s", text2);
        fprintf(fp,"%d", i);
        fprintf(fp,"%s", text3);
    }
    fprintf(fp,"%s", text4);
    fclose(fp);
    return 0;
}
```

正常.c 檔輸入

```
$ cat normal.c
#include<stdio.h>

int main(){
    char c[3]="222";
    printf("%s",c);
    return 0;
}
$ ./40747031s_hw5 < normal.c
#include<stdio.h>

intmain(){
charc[3]=<<<string start>>> "222" <<<string end>>> ;
printf(<<<string start>>> "%s" <<<string end>>> ,c);
return0;
}
```

生成小檔案輸入

```
$ ./gen_bigc 5
$ cat big.c
#include<stdio.h>

int main(){
        char c[3]="0;
        printf(0);
        printf(1);
        printf(2);
        printf(3);
        printf(4);
        printf("\"");
        return 0;
}
$ ./40747031s_hw5 <big.c
#include<stdio.h>

intmain(){
charc[3]=<<<string start>>> "0;
        printf(0);
        printf(1);
        printf(2);
        printf(3);
        printf(4);
        printf(" <<<string end>>> \<<<string start>>> "" <<<string end>>> );
return0;
}
```

生成大檔案(17M)輸入

```
$ ./gen_bigc 1000000
$ ls -llh big.c
-rw-r--r-- 1 40747031s nogroup 17M 2022-04-11 14:04 big.c
```

(前略)會正常顯示,因以檔案輸入會是 pointer 不會存 array

```
    printf(999996);
    printf(999997);
    printf(999998);
    printf(999999);
    printf(" <<<string end>>> \<<<string start>>> "" <<<string end>>> );
return0;
}
```

如以鍵盤輸入則會存 array,約在 4M 會爆

```
$ ./gen_bigc 400
$ ls -llh big.c
-rw-r--r-- 1 40747031s nogroup 4.7K 2022-04-11 14:10 big.c
```

複製貼上輸入(前略),沒輸出到正確的 399=> overflow

```
printf(331);printf(332);printf(333);printf(334);printf(335);printf(336);print
(338);printf(339);printf(340);printf(341);printf(342);printf(343);printf(344)
printf(346);printf(347);printf(348);printf(349);prin
    printf(" <<<string end>>> \<<<string start>>> "" <<<string end>>> );
return0;
}
```