

# Compiler Design

## Week 4

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### **a) Regular definition for strings of digits with at most one repeated digit:**

```
%{  
#include <stdio.h>  
%}  
  
DIGIT [0-9]  
%%  
{DIGIT} ({DIGIT})?{DIGIT}? { printf("%s\n", yytext); }  
.\n ;  
%%  
int yywrap() { return 1; }  
int main() {  
    yylex();  
    return 0;}  

```

### **b) Regular definition for strings of a's and b's with an even number of a's and odd number of b's:**

```
%{  
#include <stdio.h>  
%}  
  
%%  
a { printf("a: %s\n", yytext); }  
b { printf("b: %s\n", yytext); }  
ab*ab* ;  
%%  
int yywrap() { return 1; }  
int main() {  

```

```
yylex();  
return 0;}
```

**c) Regular definition for strings of lowercase letters that contain 5 vowels in order:**

```
%{
```

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

```
%}
```

```
VOWEL [aeiou]
```

```
%%
```

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

```
.\n ;
```

```
%%
```

```
int yywrap() { return 1; }
```

```
int main() {
```

```
    yylex();
```

```
    return 0;}
```