

Prelude

Other uses of compiler technology

- Used in CS410 to parse graphics model
- Used frequently throughout career to embed languages within applications
- domain-specific XML

Notice also that ...

- JLex is also a compiler
- I wonder how it parses its input? Did it use a parser generator?



Plan for Today

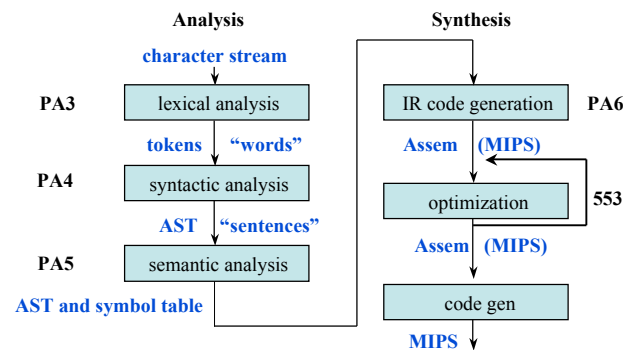
Previously ...

- Tokens can be expressed to the lexer generator JLex as regular expressions

How do lexer generators work?

- Convert regular expressions to NFA
- Converting an NFA to DFA
- Implementing the DFA

Structure of the MiniJava Compiler



Specifying Tokens with JFlex

JFlex example input file:

```
package mparser;
import java_cup.runtime.Symbol;

%%
%line
%char
%cup
%public

%eofval{
    return new Symbol(sym.EOF, new
    TokenValue("EOF", yyline, yychar));
}%eofval}
```

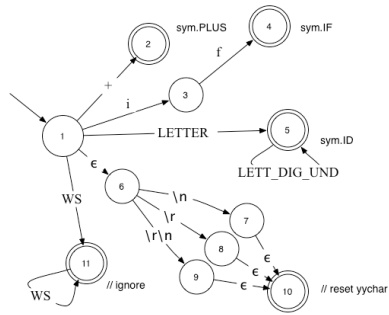
```
LETTER=[A-Za-z]
DIGIT=[0-9]
UNDERSCORE="_"
LETT_DIG_UND={LETTER}|{DIGIT}|{UNDERSCORE}
ID={LETTER}({LETT_DIG_UND})*

%%
"&&" { return new Symbol(sym.AND, new
    TokenValue(yytext(), yyline, yychar)); }

"boolean" {return new
    Symbol(sym.BOOLEAN, ...

{ID} { return new Symbol(sym.ID, new ...
```

Example NFA for Multiple Tokens

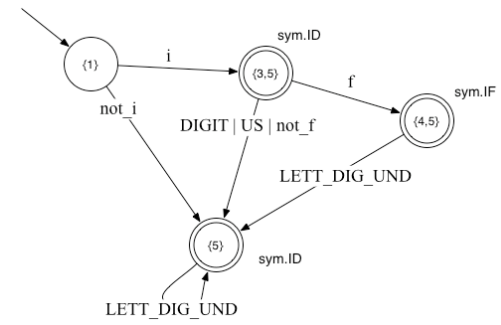


CS453 Lecture

NFAs and DFAs

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DFA from IF and ID NFAs



CS453 Lecture

NFAs and DFAs

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