

Hints on creating a scanner

The first step in creating a scanner is to draw an FSA diagram. Create a Mealy machine by assigning actions to each of the arrows. Convert the circle and arrow drawing to two tables, one specifying the new state given the current state and input symbol, the other specifying the action to be taken given the current state and input symbol.

You will need to read the input one character at a time.

In Java, this can be done with the `read()` method of a `BufferedReader`.

```
java.io.BufferedReader inFile = new java.io.BufferedReader(new  
java.io.FileReader("snow.txt"));
```

In C++ you can use the `getc` function. You will probably want to cast the return value to a `char` after checking for an end of file.

You will probably want to group the input characters to use a single index into the state table for similar characters. In Java, you can tell if a character is a

letter `Character.isLetter(char)`

number `Character.isDigit(char)`

in C++:

letter `int isalpha (int c);`

number `int isdigit (int c);`

A general outline of the scanner might be:

state = 0

while not EOF

 read a character

 assign `inIndex` depending on the type of input character

`action = actionTable[state, inIndex];`

`state = stateTable[state, inIndex];`

 switch (`action`)

 case 0: Do this

 case 1: Do that