

FA represents a finite automata which reads from an input file the set of states, the alphabet, the input state, the output states and the transitions. The data structure is made up of a list of states, an alphabet list, the input state as string, a list of output states and a map with tuples as keys for the transitions.

It can check if the FA is a DFA, and, given a sequence, check if the sequence is valid.

In order for the scanner to use the FA there is also a method that gets the first valid sequence from a string.

```
letter = "a" | "b" | ... | "z" | "A" | "B" | ... | "Z"
```

```
digit = "0" | "1" | ... | "9"
```

```
char = letter | digit | "-" | "+"
```

```
state = {char}
```

```
states = state {"", "state"}
```

```
alphabet = char {"", "char"}
```

```
transition = state {"", "char" "=" state
```

```
transitions = transition {"\n" transition}
```

```
inputFile = states "\n" alphabet "\n" state "\n" states "\n" transitions
```