

# TDT4205

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## Problem 1.

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1.1) The DFA can be drawn as in fig. 1.

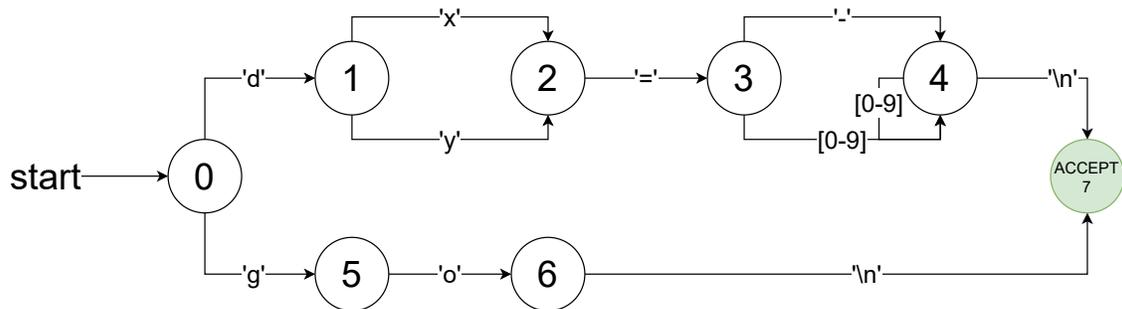


Figure 1: DFA for the simple language.

1.2) By looking at the DFA, we can create the regex:

```
/(go|d(x|y)--?[0-9]+)\n/g
```

1.3) The DFA has minimal states. There are two "paths" the states can move. The "go" is as simple as it can, consisting of two states.

The `dx=[signed integer]` and `dx=[signed integer]` states includes an optional negative sign, but the sign can't be in the middle of the integer. It needs to be the first part of the integer. Therefore we need "two" states to read the signed integer.

**Problem 2.**

2.1) We can draw the table from the DFA.

See the attached code for implementation.

Table 1: Transition table describing the states and changes.

	<b>d</b>	<b>x</b>	<b>y</b>	<b>=</b>	<b>-</b>	<b>[0-9]</b>	<b>g</b>	<b>o</b>	<b>\n</b>
<b>0</b>	1						5		
<b>1</b>		2	2						
<b>2</b>				3					
<b>3</b>					4	4			
<b>4</b>						4			7
<b>5</b>								6	
<b>6</b>									7
<b>7</b>	<b>ACCEPT</b>								