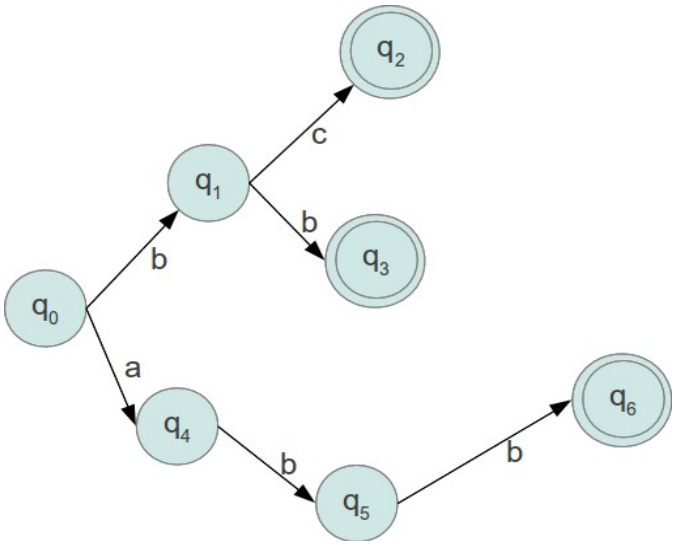
**Compilers**
**2011-2012**
**An Example on Lexical Analysis**

We have the following lexical specifications:

| | |
|---|---|
| abb | action 1 |
| bb | action 2 |
| bc | action 3 |

The DFA will be something similar to:




The Edges table will be:

| **State** | **Input** | | |
|---|---|---|---|
| | **a** | **b** | **c** |
| **$q_0$** | $q_4$ | $q_1$ | - |
| **$q_1$** | - | $q_3$ | $q_2$ |
| **$q_2$** | - | - | - |
| **$q_3$** | - | - | - |
| **$q_4$** | - | $q_5$ | - |
| **$q_5$** | - | $q_6$ | - |
| **$q_6$** | - | - | - |

The State table will be:

| State | Action |
|---|---|
| $q_0$ | 0 |
| $q_1$ | 0 |
| $q_2$ | 3 |
| $q_3$ | 2 |
| $q_4$ | 0 |
| $q_5$ | 0 |
| $q_6$ | 1 |

Applying the lexical analyser over the input string (abbbc):

| String | State (after symbol table) | Accepted Index | Start Index | Current Index | Action | Token |
|---|---|---|---|---|---|---|
| abbbc | $q_4$ | - | 0 | 0 | | |
| abbbc | $q_5$ | - | 0 | 1 | | |
| abbbc | $q_6$ | 2 | 0 | 2 | 1 | abb |
| abbbc | $q_1$ | - | 3 | 3 | | |
| abbbc | $q_2$ | 4 | 3 | 4 | 3 | bc |