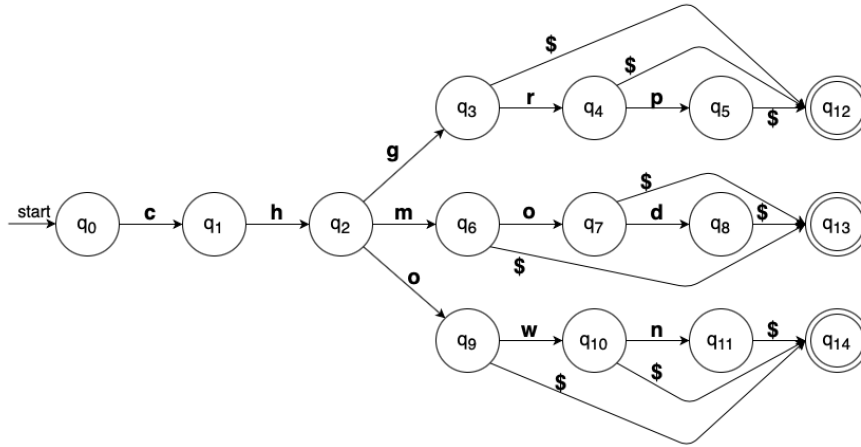


(a) DFA:

q_{12} , q_{13} , q_{14} are accepting states for the unique prefixes of CHGRP, CHMOD and CHOWN respectively.

All transitions that are not shown lead to a reject state.

**Regular expression for this language:**

$ch [g | gr | grp | m | mo | mod | o | ow | own] \$$

Lexing rules:

$chg\$ | chgr\$ | chgrp\$ \Rightarrow CHGRP$

$chm\$ | chmo\$ | chmod\$ \Rightarrow CHMOD$

$cho\$ | chow\$ | chown\$ \Rightarrow CHOWN$

- (b) $cmp\$ \Rightarrow CMP$
 $cmpd\$ | cmpdi\$ | cmpdir\$ \Rightarrow CMPDIR$

