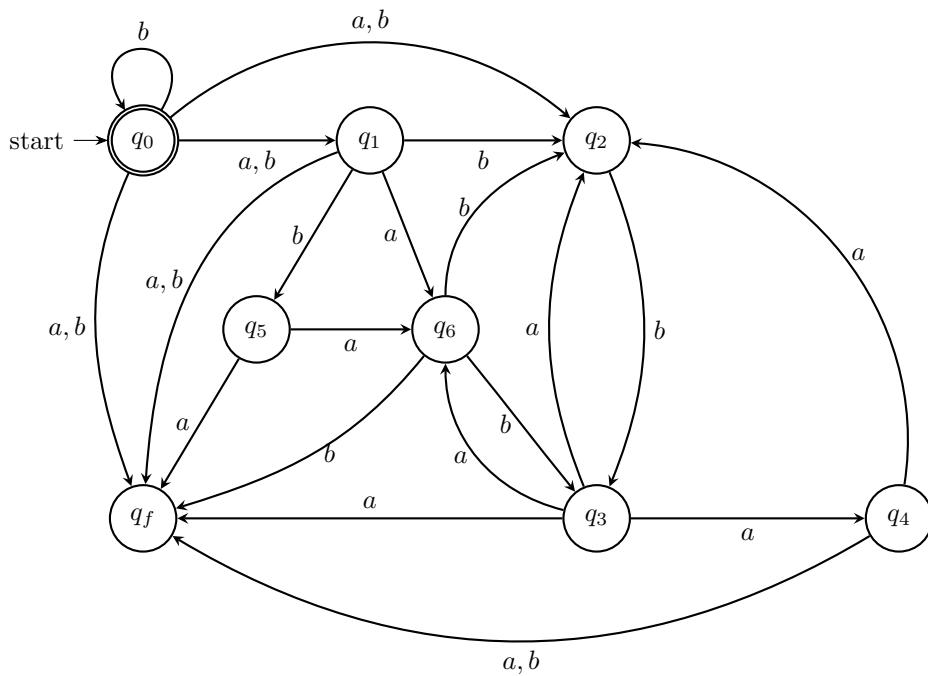


# COMPSCI 2AC3 Assignment 3

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1.a



The NFA is correct because it accounts for all possible combinations of  $a$  and  $b$  that do not have the combinations  $aaa$  nor  $abb$  with zero or more  $b$ 's trailing. The NFA accounts for when these combinations may occur in a string, as for example  $abb$  may occur at an even or odd index within the string. The NFA also accounts for the fact that  $abb$  is only an acceptable string if it is followed by an  $a$ , as this would invalidate the criteria for  $abb(b^*)^*$ . Finally, the NFA also accounts for the fact that there can be at most two  $a$ 's in a row, and forces the NFA to transition to a  $b$ , or accepting state if there are two  $a$ 's in a row.