1. **Implement a finite-state machine for morphological parsing. In this example, we'll create a simple machine to generate plural forms of English nouns using python.**

**Aim:**

To implement a finite-state machine for morphological parsing by creating a simple machine to generate plural forms of English nouns using python.

**Code:**

def fsm\_pluralize(word):

# Transition based on FSM rules

if word.endswith("y") and word[-2] not in "aeiou":

return word[:-1] + "ies"

elif word.endswith(("s", "x", "z", "ch", "sh")):

return word + "es"

elif word.endswith("y") and word[-2] in "aeiou":

return word + "s"

else:

return word + "s"

singular\_noun = input("Enter a singular noun: ")

plural\_noun = fsm\_pluralize(singular\_noun)

print(f"The plural form of '{singular\_noun}' is: {plural\_noun}")

**Input:**

Enter a singular noun: city

**Output:**

The plural form of 'city' is: cities

