

Importance of the course

C, C++

Data type & space

variable name;

int a;

predefined datatype

float b;

char c;

defined variables
Compilation

~~Recognize~~ int a;

inta; // compilation error

won't

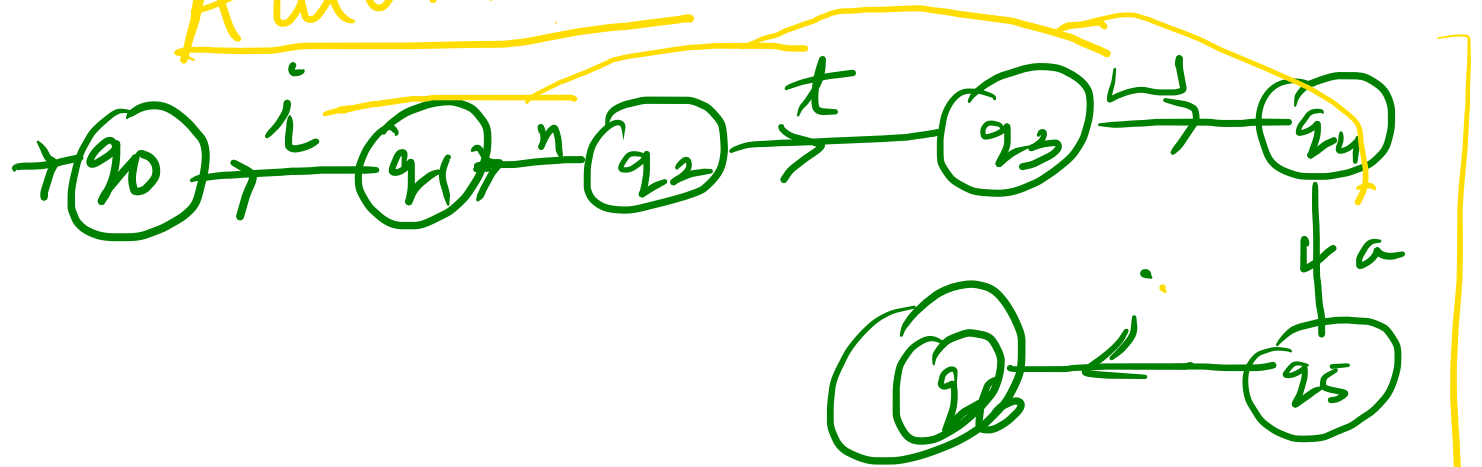
recognize

Finite Automata →



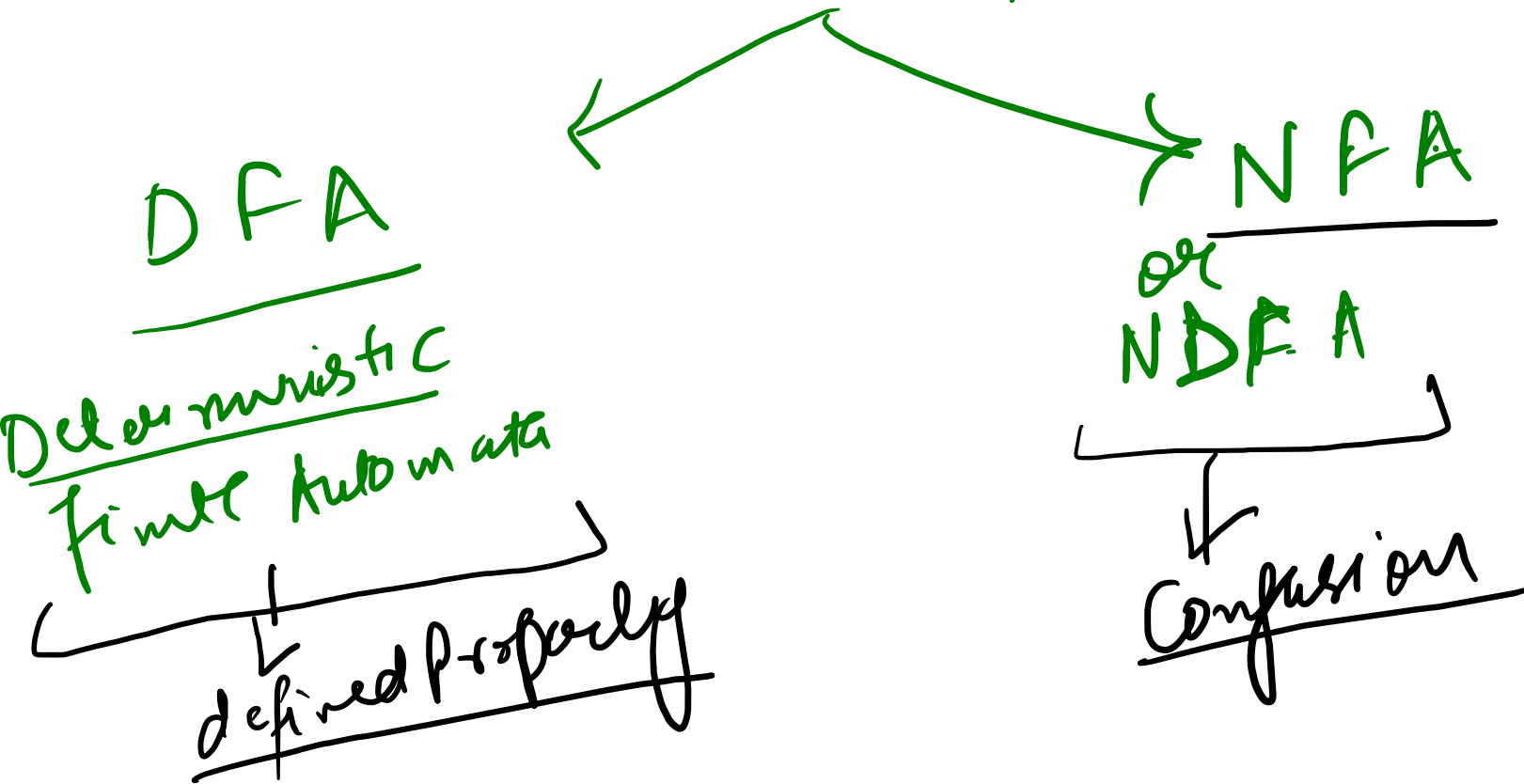
Theory ?

model

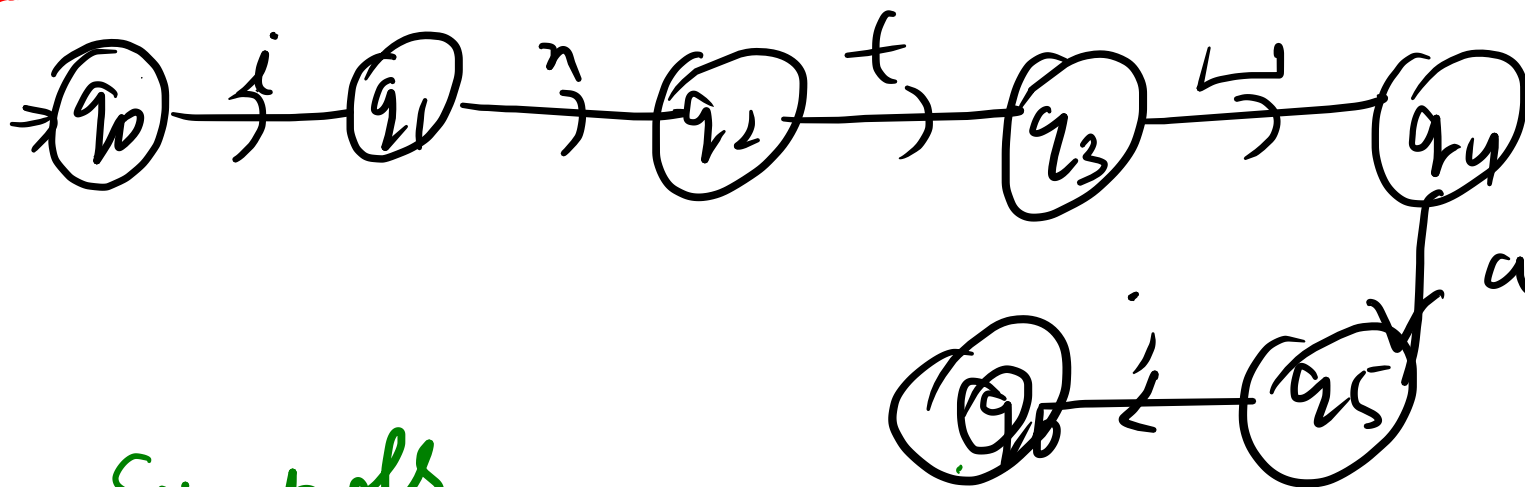


Declare a;

Finite Automata



NFA



4) Initial state

Symbols

- 1) $Q \rightarrow q_0, q_1, q_2, \dots, q_n \rightarrow$ Set of states q_0
- 2) $\Sigma \rightarrow$ Set of I/P symbols $\rightarrow i, n, t, L, a, ;$
- 3) $\delta \rightarrow$ Transition $q_0 \xrightarrow{i} q_1$ $Q \times \Sigma \rightarrow Q$

5) F Set of final states q_n

Types

DFA

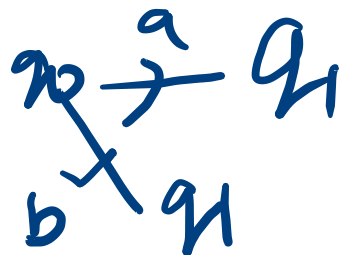
NFA

→ Deterministic finite Automata

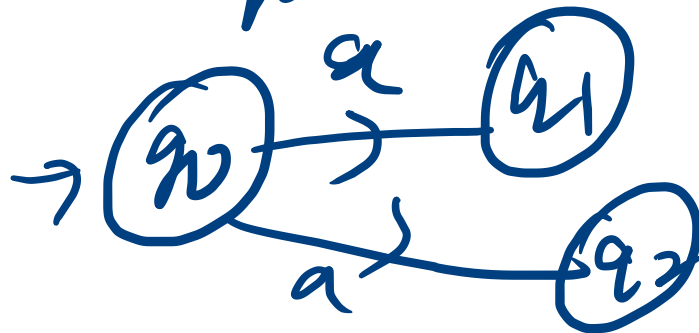
Non Deterministic finite Automata

→ State ~~if symbol~~ 1 or 1 state

→ $q_0 \xrightarrow{a} q_1, q_2$



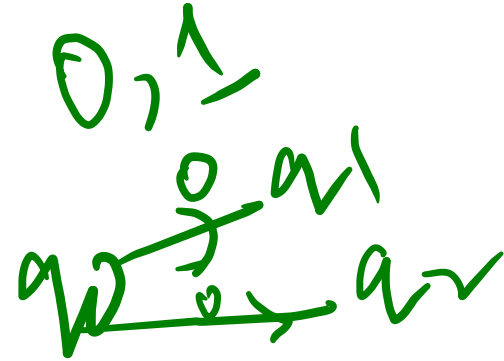
$Q \times \Sigma \rightarrow Q$



More than one inputs

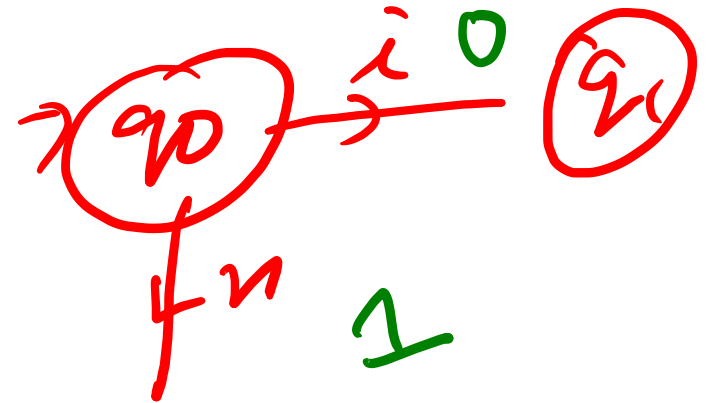
$Q \times \Sigma \rightarrow 2^Q$

DAA

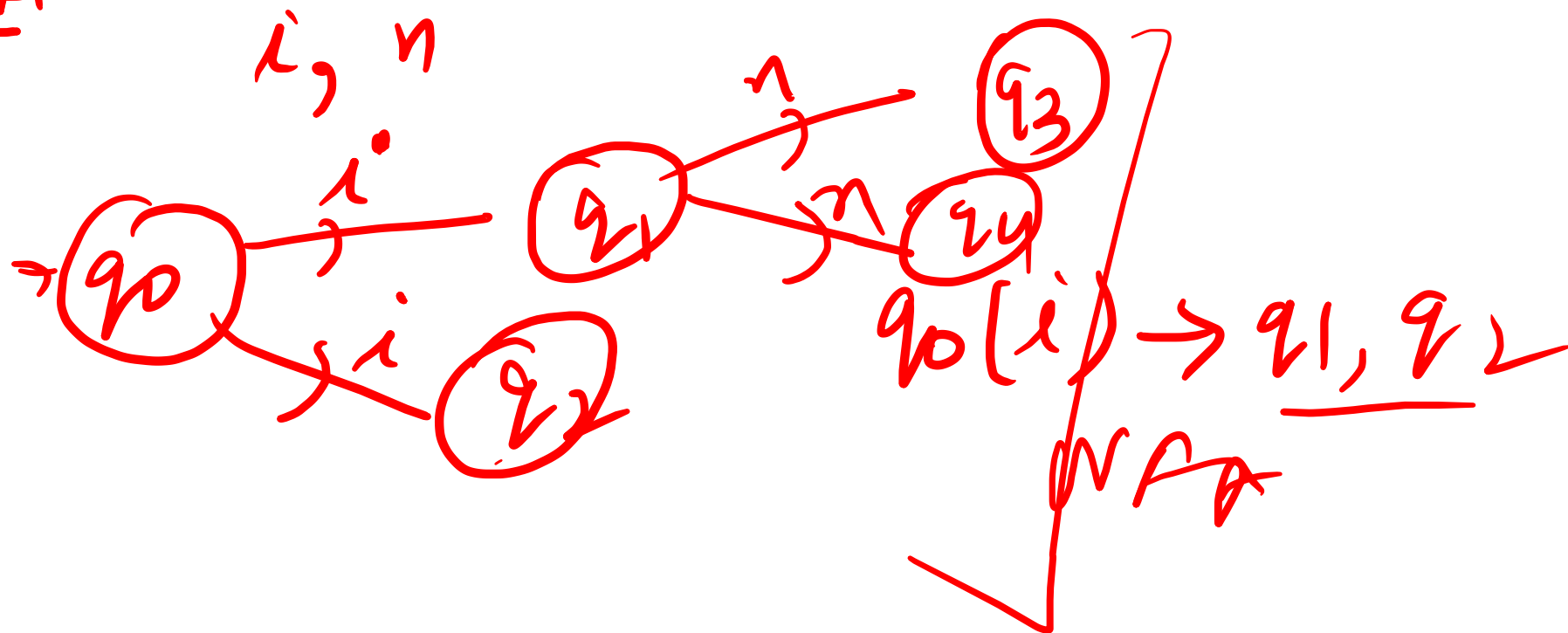


1) Every IP has 1 of P

2) " " must have transition with
all IP symbols



NFA



$Q \rightarrow$ set of states

$\Sigma \rightarrow$ " , I/P symbols

$\delta \rightarrow$ DFA $[Q \times \Sigma \rightarrow Q]$ NFA $[Q \times \Sigma \rightarrow 2^Q]$

$q_0 \rightarrow$ Initial state .

$F \rightarrow$ set of final states

Real life Example

NFA

ATM Machine

single Input
→ multiple
of BS

User → Insert Card

NFA

Money?

IF

→ Error Message

→ Enough Money

Vending Machine

→ Request → BCD
→ BNC D

~~Surf IP → Multiple ops~~
→ NPA