1. Write a C program to find ε -closure for all the states in a Non-Deterministic Finite Automata (NFA) with ε -moves.

Program:

#include <stdio.h>

#include <stdlib.h>

int nos, i, j, k, sub[10], res[10], x, l;

int s\_table[7][7];

void validate(int s) {

x = 0;

for (j = 0; j < nos; j++) {

if (s\_table[s][j] == 1) {

sub[x] = j;

printf(" %d ",j);

x++;

}

}

}

int main() {

printf("Enter the number of states: ");

scanf("%d", &nos);

printf("\nEnter the epsilon states.\nIf there is no state then print -1:\n");

for(i=0;i<nos;i++){

for(j=0;j<nos;j++){

printf(" \nfor position [%d] , [%d] : ",i+1,j+1);

scanf("%d",&s\_table[i][j]);

}

}

for(i=0;i<nos;i++){

for(j=0;j<nos;j++){

printf(" %d ",s\_table[i][j]);

}printf("\n");

}

for (i = 0; i < nos; i++) {

printf("Epsilon closure of state Q%d: %d ", i, i);

validate(i);

for (k = 0; k < x; k++) {

res[k] = sub[k];

}

for (l = 0; l < x; l++) {

validate(res[l]);

}

printf("\n");

}

return 0;

}

Output:

