#include <stdio.h>

#define TOTAL\_STATES 2

#define FINAL\_STATES 1

#define ALPHABET\_CHARCTERS 2

#define UNKNOWN\_SYMBOL\_ERR 0

#define NOT\_REACHED\_FINAL\_STATE 1

#define REACHED\_FINAL\_STATE 2

enum DFA\_STATES{q0,q1}; enum input{a,b};

int Accepted\_states[FINAL\_STATES]={q1};

char alphabet[ALPHABET\_CHARCTERS]={'a','b'};

int Transition\_Table[TOTAL\_STATES][ALPHABET\_CHARCTERS]; int Current\_state=q0;

void DefineDFA()

{

Transition\_Table[q0][a] = q1; Transition\_Table[q0][b] = q0; Transition\_Table[q1][a] = q1; Transition\_Table[q1][b] = q0;

}

int DFA(char current\_symbol)

{

int i,pos;

for(pos=0;pos<ALPHABET\_CHARCTERS; pos++)

if(current\_symbol==alphabet[pos]) break;//stops if any character other than a or b

if(pos==ALPHABET\_CHARCTERS)

return UNKNOWN\_SYMBOL\_ERR; for(i=0;i<FINAL\_STATES;i++)

if((Current\_state=Transition\_Table[Current\_state][pos])

==Accepted\_states[i])

return REACHED\_FINAL\_STATE; return NOT\_REACHED\_FINAL\_STATE;

}

int main(void)

{

char current\_symbol; int result;

DefineDFA(); //Fill transition table

printf("Enter a string with 'a' s and 'b's:\nPress Enter Key to stop\n");

while((current\_symbol=getchar())!= '\n')

if((result= DFA(current\_symbol))==UNKNOWN\_SYMBOL\_ERR) break;

switch (result) {

case UNKNOWN\_SYMBOL\_ERR:printf("Unknown Symbol %c", current\_symbol);

break;

case NOT\_REACHED\_FINAL\_STATE:printf("Not accepted"); break; case REACHED\_FINAL\_STATE:printf("Accepted");break;

default: printf("Unknown Error");

}

printf("\n\n\n"); return 0;

}

