Digna Mae D. Bulayo BSCpE 5A

CPE 412 – Structure of Programming Languages

Midterm – Assignment

Letter C

Set C. L = { W €(a,b)\* | W contains at least 5 b’s }

L = a\* b a\* b a\* b a\* b a\* b €\*

State Diagram:

b

b

b

b

b

a

a

a

a

a

a,b

|  |  |  |
| --- | --- | --- |
|  | a | b |
| q0 | q0 | q1 |
| q1 | q1 | q2 |
| q2 | q2 | q3 |
| q3 | q3 | q4 |
| q4 | q4 | q5 |
| q5 | q5 | q5 |

Q = q0, q1, q2, q3, q4, q5

€ = {a, b}

Initial State = {q0}

Final State = {q5}

Source Code:

#include <iostream>

#include <cstring>

class digna{

public:

void input();

void process();

int count,counter,i,len,flag;

char str[100];

};

using std::cout;

using std::cin;

using std::endl;

int main(){

digna a;

cout<<"Note: Input EXIT to end the loop."<<endl;

a.input();

cout<<"Program Terminated."<<endl;

return 0;

}

void digna::input(){

cout<<">>";

gets(str);

len=strlen(str);

flag = 1;

flag = strcmp(str, "EXIT");

if (flag!=0){

process();

}

}

void digna::process(){

count=0;

counter=0;

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

if(str[i]=='b'){

count++;

}

if(str[i]=='b'||str[i]=='a'){

counter++;

}

}

if(count>=5 && counter==len){

cout<<"EXPRESSION GENERATED"<<endl;

}

else{

cout<<"EXPRESSION NOT GENERATED"<<endl;

}

input();

}