**ACD LAB**

**EXPERIMENTS**

**BY –**

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**IT-C**

EXPERIMENT 7 - Design a Program for creating machine that accepts the string always ending with 101.

CODE-

#include<bits/stdc++.h>

using namespace std;

int main(){

    string input,

    q0 = "000",

    q1 = "001",

    q2 = "010",

    q3 = "011",

    q4 = "100",

    q5 = "101",

    q6 = "110",

    q7 = "111",

    cur = "000";

    cin >> input;

    for(char i:input){

        if(i == '0'){

            if(cur == q0 || cur == q4) cur = q0;

            else if(cur == q1 || cur == q5) cur = q2;

            else if(cur == q2 || cur == q6) cur = q4;

            else if(cur == q3 || cur == q7) cur = q6;

        }

        else{

            if(cur == q3 || cur == q7) cur = q7;

            else if(cur == q0 || cur == q4) cur = q1;

            else if(cur == q1 || cur == q5) cur = q3;

            else if(cur == q2 || cur == q6) cur = q5;

        }

    }

    if(cur == q5) cout << "Machine will accept this input.";

    else cout << "Machine will not accept this input";

    cout << endl;

}

OUTPUT –

Text

Description automatically generated

Text

Description automatically generated

EXPERIMENT 8 - Design a Program for Mode 3 Machine.

CODE –

#include<bits/stdc++.h>

using namespace std;

int main(){

    string input;

    cout << "Enter number: ";

    cin >> input;

    int state = 0;

    for(char i:input) {

        if(state == 0 && i == '1') state = 1;

        else if(state == 1 && i == '0') state = 2;

        else if(state == 1 && i == '1') state = 0;

        else if(state == 2 && i == '0') state = 1;

    }

    if(state == 0) cout << "Machine will accept this input.";

    else cout << "Machine will not accept this input";

    cout << endl;

}

OUTPUT –

Text

Description automatically generated

Text

Description automatically generated

EXPERIMENT 9 - Design a program for accepting decimal number divisible by 2.

CODE –

#include<bits/stdc++.h>

using namespace std;

int main(){

    string input;

    cout << "Enter number: ";

    cin >> input;

    int state = 0;

    for(char i:input) {

        if(i == '0' || i == '2' || i == '4' || i == '6' || i == '8') state = 0;

        else state = 1;

    }

    if(state == 0) cout << "Machine will accept this input.";

    else cout << "Machine will not accept this input";

    cout << endl;

}

OUTPUT –

Text

Description automatically generated

Text

Description automatically generated

Text

Description automatically generated