**Assignment 5**

**Objective:**

Write a program to check the acceptance of a given string in a given DFA(Transition Table)

**Code:**

using System;

usingSystem.Collections.Generic;

usingSystem.Linq;

usingSystem.Text;

usingSystem.Threading.Tasks;

namespace ToCS\_Assignment\_5

{

classProgram

{

publicstaticintreturnRowNumber(string str)

{

int c=0;

while( (char)(97 + c) != (char)str[0] )

c++;

return c;

}

publicstaticvoidprintTransitionTable(string[,] arr)

{

Console.WriteLine();

Console.WriteLine("State | 0 1 ");

for (int r = 0; r <arr.GetLength(0); r++)

{

Console.Write((char)(97 + r)+" |");

for (int c = 0; c <arr.GetLength(1); c++)

{

Console.Write(" "+arr[r,c]+" ");

}

Console.WriteLine();

}

Console.WriteLine();

}

staticvoid Main(string[] args)

{

intnoOfStates, noOfFinalStates, i = 0, r = 0, rowNumber;

string str, charr, chr, nextState;

Console.Write("Enter No. of States : ");

noOfStates = Convert.ToInt32(Console.ReadLine()); //Input number of States

Console.WriteLine("States are a,b,c,......\n");

string[,] transitionTable = newstring[noOfStates, 3];

while (i<noOfStates)

{

Console.Write("on '" + (char)(97 + i) + "' move to \_\_ by 0 : ");

transitionTable[i, 0] = Console.ReadLine();

Console.Write("on '" + (char)(97 + i) + "' move to \_\_ by 1 : ");

transitionTable[i, 1] = Console.ReadLine();

i++;

}

Console.Write("\nEnter No. of Final States : ");

noOfFinalStates = Convert.ToInt32(Console.ReadLine()); //Input Number Of final states

for (i = 0; i<noOfFinalStates; i++)

{

Console.Write("\nEnter # " + (i + 1) + " final state : ");

charr = Console.ReadLine(); //Input final state

rowNumber = returnRowNumber(charr);

transitionTable[rowNumber, 2] = "+";

}

printTransitionTable(transitionTable); //To print the Transition table

while (true)

{

Console.Write("\nEnter a string {0,1} : ");

str = Console.ReadLine(); //Input string to check

i = 0;

while (i<str.Length)

{

chr = Convert.ToString(str[i]);

nextState = transitionTable[r, Convert.ToInt32(chr)];

r = returnRowNumber(nextState);

i++;

}

Console.WriteLine();

if (transitionTable[r, 2] == "+")

Console.WriteLine(str + " is acceptable");

else

Console.WriteLine(str + " is not acceptable");

Console.ReadKey();

}

}

}

}

