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| **Implementation of DFA-1\*2\*3\*** |
| **Aim:** C program to implement a DFA for the regular expression 1\*2\*3\* using IF -ELSE. |
| **Program**  #include<stdio.h>  #include<string.h>  int dfa=0;  void state0(char c)  {  if(c=='1')  {  dfa=1;  }  else if(c=='2')  {  dfa=2;  }  else if(c=='3')  {  dfa=3;  }  else  {  dfa=-1;  }  }  void state1(char c)  {  if(c=='2')  {  dfa=2;  }  else if(c=='3')  {  dfa=3;  }  else if(c=='1')  {  dfa=1;  }  else  {  dfa=-1;  }  }  void state2(char c)  {  if(c=='3')  {  dfa=3;  }  else if(c=='2')  {  dfa=2;  }  else  {  dfa=-1;  }  }  void state3(char c)  {  if(c=='3')  {  dfa=3;  }    else  {  dfa=-1;  }  }  int isaccepted(char a[])  {  int i,len;  len=strlen(a);  for(i=0;i<len;i++)  {  if(dfa==0)  {  state0(a[i]);    }  else if(dfa==1)  {  state1(a[i]);    }  else if(dfa==2)  {  state2(a[i]);    }  else if(dfa==3)  {  state3(a[i]);    }  else  {  return 0;  }  }  if(dfa==2 || dfa==1 || dfa==3)  {  return 1;  }  else  {  return 0;  }  }  void main()  {  char a[20];  printf("Enter the string");  scanf("%s" ,a);  if(isaccepted(a))  {  printf("Accepted\n");  }  else  {  printf("Rejected\n");  }  } |
| **Result:** Implemented a DFA for the regular expression 1\*2\*3\* using IF-ELSE and executed successfully. |
| **Remarks:**(To be filled by faculty)  **Algorithm**  1.Start  2.Initilize global variable dfa=0  3.Input the string s  4. Find length as len.  5.Pass the string s to the function isaccepted()  6.In function isaccepted() for every element  if dfa=0 goto 7  else if dfa =1 goto 8  else if dfa =2 goto 9  else if dfa =3 goto 10  else goto 13  7.In state0 if element =1 set dfa=1  else if element =2 set dfa = 2  else if element =3 set dfa =3  else set dfa=-1  8.In state1 if element = 2 set dfa= 2  else if element= 3 set dfa= 3  else if element = 1 set dfa= 1  else set dfa= -1  9.In state2 if element = 3 set dfa=3  else if element= 2 set dfa = 2  else set dfa = -1  10. In state3 if element =3 set dfa= 3  else set dfa =-1  11. If dfa = 1 or 2 or 3 goto 12  else goto 13  12.Print Accepted goto 14  13.Print Rejected  14.Stop  **Sample Input and Output**    **NFA ,DFA and Transition Tables** |