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DFA

```
#include<stdio.h>
int main()
 int s1, s2;
 int i,j;
 int final[10], state[10], delta[10][10], nos, p, flag;
 char symbol[10],str[10],ch;
 printf("\nEnter number of states:");
 scanf("%d",&s1);
 for(i=0;i<s1;i++)</pre>
     printf("\nEnter states:");
     scanf("%d",&state[i]);
 printf("\nEnter number of symbols:");
 scanf("%d", &s2);
 for(i=0;i<s2;i++)</pre>
     printf("\nEnter symbol :");
     scanf(" %c",&symbol[i]);
 printf("\nStates are as follows:\n");
 for(i=0;i<s1;i++)
     printf("q%d ",i);
 printf("\n\nSymbols are as follows:");
 for(i=0;i<s2;i++)
    printf("%c ",symbol[i]);
 for(i=0;i<s1;i++)</pre>
     for(j=0;j<s2;j++)</pre>
            printf("\n\nFrom q%d state, enter state for %c symbol : ",i,symbol[j]);
            scanf("%d",&delta[i][j]);
           }
    }
```



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```
printf("\n\nDelta is \n\t");
for(i=0;i<s2;i++)</pre>
    printf("\t%c",symbol[i]);
for(i=0;i<s1;i++)
     printf("\n\tq%d",i);
     for(j=0;j<s2;j++)
      printf("\t%d",delta[i][j]);
printf("\n\nEnter number of final states:");
scanf("%d",&nos);
for(i=0;i<nos;i++)</pre>
    {
     printf("\nEnter final states:");
     scanf("%d",&final[i]);
printf("\nInitial state is : q%d",state[0]);
printf("\nFinal states are : ");
for(i=0;i<nos;i++)</pre>
   printf("q%d ",final[i]);
```



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```
do
   {
      printf("\n\nEnter string to test:");
      scanf("%s",str);
      p=0,flag=0;
      i=0;
      while(str[i]!='\0')
                 ch=str[i];
                 for(j=0;j<s2;j++)</pre>
                       if(ch==symbol[j])
                            p=delta[p][j];
      printf("\nCurrent State Is : q%d",p);
      for(i=0;i<nos;i++)</pre>
             if(p==final[i])
                  flag=1;
            }
      if(flag==1)
          printf("\nString Is Valid");
      else
          printf("\nString Is Invalid");
      printf("\nDo you want to continue?(y/n):");
      scanf(" %c",&ch);
    }while(ch=='y' || ch=='Y');
return 0;
```