Design and Analysis of Algorithms – 20ISL57A

Program 10 - Implement N-Queens problem using backtracking.

```
#include<stdio.h>
#include<stdlib.h>
int board[20], count;
void print(int n)
{
   int i, j;
   printf("\n\nSolution %d:\n\n",++count);
   for(i=1;i<=n;i++)
      printf("\t%d",i);
   for(i=1;i<=n;i++)
   {
      printf("\n\n%d",i);
      for(j=1;j<=n;j++)
      {
         if(board[i]==j)
            printf("\tQ");
         else
            printf("\t-");
      }
   }
}
int place(int row,int column)
{
   int i;
   for(i=1;i<=row-1;i++)
   {
      if(board[i]==column)
         return 0;
      else if(abs(board[i]-column)==abs(i-row))
         return 0;
   }
```

```
    return 1;
}
void queen(int row,int n)
{
    int column;
    for(column=1;column<=n;column++)
    {
        if(place(row,column))
        {
            board[row]=column;
            if(row==n)
                print(n);
            else
                queen(row+1,n);
        }
    }
}
int main()
{
    int n;
    printf("Enter number of Queens:");
    scanf("%d",&n);
    queen(1,n);
}
```