Program: N-Queen Problem(Niyati’s Code)

Code:

```
int board[4];

int n=4;

int count=0;


void print_board()

{

   int i,j;

   count++;

   printf("\n Solution %d \n",count);

   for(i=1;i<=n;i++)

   {

      for(j=1;j<=n;j++)

      {

         if(board[i]==j)

            printf("Q\t");

         else

            printf("*\t");

      }

      printf("\n");

   }

}


int place(int row)

{

   int i;

   for(i=1;i<row;i++)

   {

      if(board[i]==board[row])

         return 0;
```

```
        else
            if ((abs(board[i]-board[row]))==abs(i-row))
                return 0;
    }
    return 1;
}

void Queen(int n)
{
    int k=1;
    board[k]=0;
    while(k!=0)
    {
        do
        {
            board[k]++;
        } while ((board[k]<=n)&& !place(k));
        if(board[k]<=n)
        {
            if(k==n)
                print_board(n);
            else
            {
                k++;
                board[k]=0;
            }
        }
        else
        k--;
    }
}
```

```
void main()
{
   int i;
   printf("How many Queens ?");
   scanf("%d",&n);
   Queen(n);
}
```

Output: (92 Solutions exist, printing only the first 5)

```
Niyati's Program on N-Queen Problem

How many Queens ? 8


 Solution 1

Q   *   *   *   *   *   *   *

*   *   *   *   Q   *   *   *

*   *   *   *   *   *   *   Q

*   *   *   *   *   Q   *   *

*   *   Q   *   *   *   *   *

*   *   *   *   *   *   Q   *

*   Q   *   *   *   *   *   *

*   *   *   Q   *   *   *   *


 Solution 2

Q   *   *   *   *   *   *   *

*   *   *   *   *   Q   *   *

*   *   *   *   *   *   *   Q

*   *   Q   *   *   *   *   *

*   *   *   *   *   *   Q   *

*   *   *   Q   *   *   *   *

*   Q   *   *   *   *   *   *

*   *   *   *   Q   *   *   *
```

Solution 3

```
Q * * * * * * *
* * * * * * Q *
* * * Q * * * *
* * * * * Q * *
* * * * * * * Q
* Q * * * * * *
* * * * Q * * *
* * Q * * * * *
```

Solution 4

```
Q * * * * * * *
* * * * * * Q *
* * * * Q * * *
* * * * * * * Q
* Q * * * * * *
* * * Q * * * *
* * * * * Q * *
* * Q * * * * *
```

Solution 5

```
* Q * * * * * *
* * * Q * * * *
* * * * * Q * *
* * * * * * * Q
* * Q * * * * *
Q * * * * * * *
* * * * * * Q *
* * * * Q * * *
```