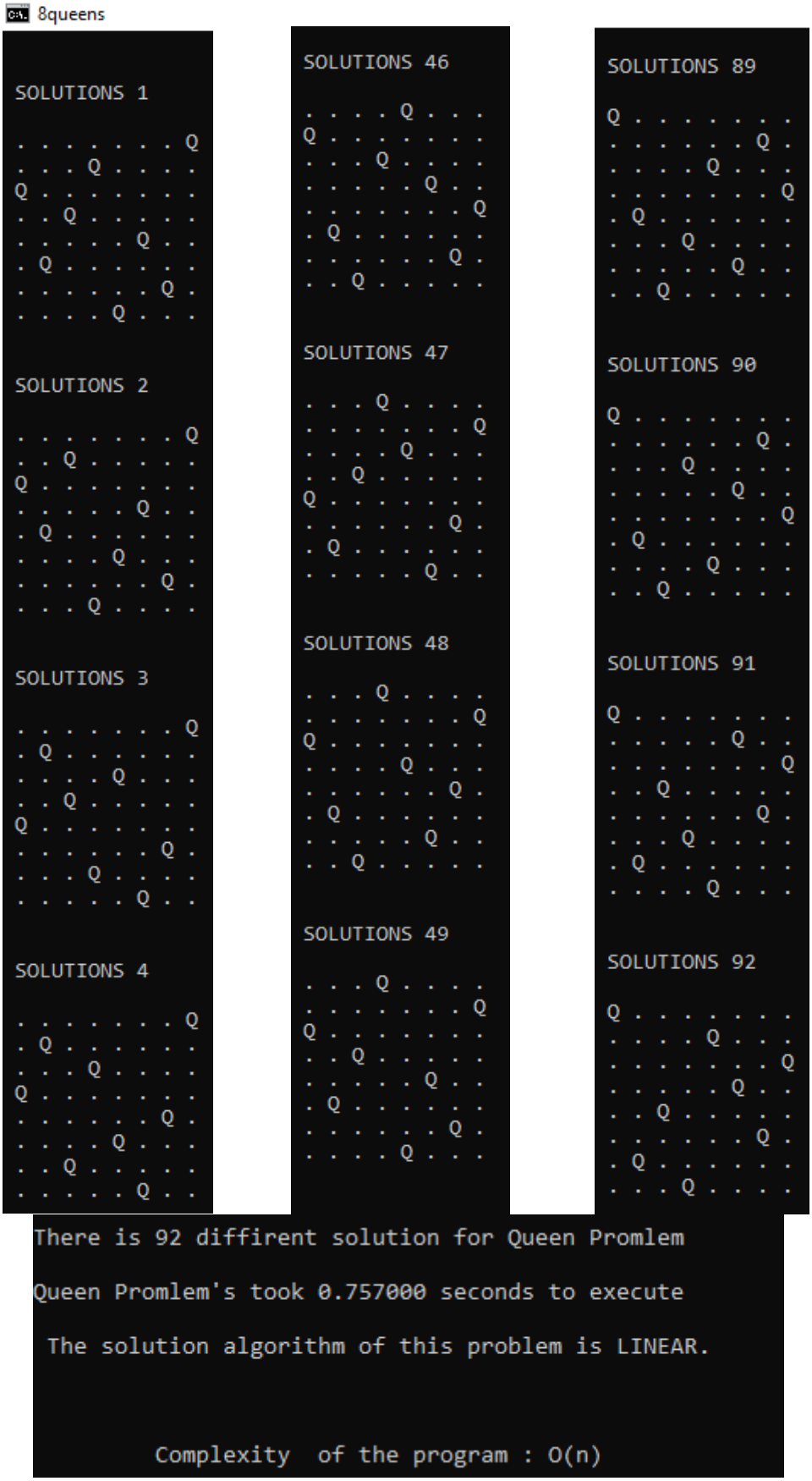
ASSIGNMENT #6 – N Queens Problem

C Code of 8 Queens Problem

```
#include <stdio.h>
 #define QUEENS 8          /* number of queens and board size */
 #define int unsigned

 int number = 0;
 int board [QUEENS];       /* each element represents a queue*/

 int boardTamam              /* check the validity of the board */
     (register int queue)
 {
   register int r;

   for (r = 0; r < queue; r++) /* Check all previous queues */
     if (board[queue] == board[r] ||
         board[queue] == board[r] << queue-r ||
         board[queue] == board[r] >> queue-r)
       return 0;
   return 1;
 }

 void writesol (void)        /* show the solution; Increase the NUMBER  */
 {
   register int t, r;

   printf("\n\n\t SOLUTIONS %u\n\n", ++number);
   for (r = 0; r < QUEENS; r++) { /* queue */
     for (t = 1<<QUEENS-1; t > 0; t >>= 1)
       printf(" %c", board[r] == t ? 'Q' :  '.');
     printf("\n");
   }
 }

 void place (int queue)   /* place to next queue */
 {
   if (queue == QUEENS)     /* all queues are full and checked */
     writesol();
   else
     for (board[queue]=1; board[queue]<1<<QUEENS;  board[queue]<<=1)
       if (boardTamam(queue))
         place(queue+1);  /* try the next queue */
 }

 signed main (void)
 {
   place(0);
   printf("\n\n There is %u diffirent solution for Queen Promlem \n",
QUEENS, number);
   return 0;
}
```

Output of Program



[Download the C Code File (until 24 January.)]