# Question 2.

1. DNA Complement Generator  
   This program takes a DNA sequence from the user and outputs its complementary sequence. It follows the rules: A <-> T, C <-> G. Both uppercase and lowercase letters are handled.  
   C Code:

#include <stdio.h>  
#include <ctype.h>  
  
char get\_complement(char base) {  
 switch (toupper(base)) {  
 case 'A': return 'T';  
 case 'T': return 'A';  
 case 'C': return 'G';  
 case 'G': return 'C';  
 default: return base;  
 }  
}  
  
int main() {  
 char dna[1000];  
 printf("Enter a DNA sequence: ");  
 scanf("%s", dna);  
  
 printf("Complement: ");  
 for (int i = 0; dna[i] != '\0'; i++) {  
 char comp = get\_complement(dna[i]);  
 if (islower(dna[i]))  
 comp = tolower(comp);  
 else  
 comp = toupper(comp);  
 printf("%c", comp);  
 }  
 printf("\n");  
  
 return 0;  
}