

C 1a.c > main()

```
1  //.....(Question-1(a)).....//
2
3  #include<stdio.h>
4  int main(){
5
6  //declaring variables
7
8      int n,sume=0,sumo=0,sum,i;
9      printf("Enter the value of n: ");
10     scanf("%d",&n);
11
12     // adding the series and printing its value
13
14     for(i=1;i<=n;i++){
15         if(i%2==0){
16             sume=sume+ i*i;
17         }
18         else{
19             sumo=sumo+ i*i;
20         }
21     }
22     sum=sume-sumo; //sum of odd and even terms//
23
24     printf("The total sum is: %d",sum+2);
25
26     return 0;
27 }
```

```
Enter the value of n: 5
The total sum is: -13
```

C 1b.c > ...

```
1 //.....(Question-1(b)).....//
2
3 #include<stdio.h>
4
5 int main(){
6
7 //Declaring variables and scanning variables from the user
8
9     int n,i=1,sum=0;
10
11     printf("Enter the number: " );
12     scanf("%d",&n);
13
14 //checking conditions and adding
15
16     while(i<=n){
17         sum=sum+i*i;
18         i++;
19
20     }
21     printf("%d",sum);
22     return 0;
23 }
24
```

Enter the number: 4  
30

```

C 1c.c > main()
1 //.....(Question-1(c)).....//
2
3 #include<stdio.h>
4
5 int main(){
6
7 //Declaring variables and scanning variables from the user
8
9     float n,i=1,sum=0;
10
11     printf("Enter the number: " );
12     scanf("%f",&n);
13
14 //checking conditions and adding
15
16     while(i<=n){
17         if(i==n){
18             printf("1/%.0f",i);
19         }
20         else{
21             printf("1/%0.0f + ",i);}
22         sum=sum+ 1/i;
23         i++;
24
25     }
26     printf("\nTotal sum: %0.2f",sum);
27     return 0;
28 }
29

```

```

Enter the number: 4
1/1 + 1/2 + 1/3 + 1/4
Total sum: 2.08

```

C 1d.c > ...

```
1  //.....(Question-1(d)).....//
2
3  #include<stdio.h>
4
5  int main(){
6
7      int n,i,sum=0,rem;
8
9      printf("enter the value of number: ");
10     scanf("%d",&n);
11
12     i=n;
13
14     while(i>0){
15
16         rem=i%10;
17         sum=(sum)+(rem*rem*rem);
18         i=i/10;
19
20     }
21
22     if(n==sum){
23         printf("It's a amstrong number");
24     }
25
```

enter the value of number: 153  
It's a amstrong number

C 1e.c > ...

```
1 //.....(Question-1(e)).....//
2
3 #include<stdio.h>
4
5 int main(){
6
7     //declaring varaibles//
8
9     int n,sum=0,fact,i,rem,k;
10
11     //scanning variables//
12
13     printf("Enter the value of n: ");
14     scanf("%d",&n);
15
16     //finding the sum of the digits factorial//
17
18     i=n;
19     while(n>0){
20         rem=n%10;
21         fact=1;
22         for(k=1;k<=rem;k++){
23             fact=fact*k;
24         }
25         sum=sum+fact;
26         n=n/10;
27     }
28
29     //Checking whether the sum is equal to entered value//
30
31     if(sum==i){
32         printf("It's a strong number");
33     }
34
35     else{
36         printf("It's not a strong number");
37     }
38     return 0;
39 }
```


Enter the value of n: 145  
It's a strong number

C 2a.c >  main()

```
1  //.....(Question-2(a)).....//
2
3  #include<stdio.h>
4  int main(){
5
6  // declaring variables //
7
8      int i ,j ,s, n=4;
9
10
11  // Printing the pattern //
12
13      for(i=1;i<=n;i++){
14          for(s=1;s<=n-i;s++){
15              printf(" ");
16          }
17
18          for(j=1;j<=i;j++){
19              printf("*");
20              printf(" ");
21          }
22          printf("\n");
23      }
24      return 0;
25 }
```



```
      *
     * *
    * * *
   * * * *
```

C 2b.c >  main()

```
1 //.....(Question-2(b)).....//
2
3 #include<stdio.h>
4 int main(){
5
6 // declaring variables //
7
8     int i ,j , n=5;
9
10 // Printing the pattern //
11
12     for(i=1;i<=n;i++){
13         for(j=1;j<=i;j++){
14             if((i+j)%2==0){printf("1");}
15             else{printf("0");}
16         }
17         printf("\n");
18
19     }
20
21     return 0;
22 }
```

```
1
01
101
0101
10101
```

```
1 //.....(Question-2(c)).....//
```

```
2
```

```
3 #include <stdio.h>
```

```
4
```

```
5 int main() {
```

```
6
```

```
7 // Declaring variables //
```

```
8
```

```
9     int n=5,i,j,s;
```

```
10
```

```
11 //
```

```
12
```

```
13     for (int i = 0; i < n; i++) {
```

```
14         int coefficient = 1;
```

```
15
```

```
16         // Print spaces for formatting
```

```
17         for (int j = 0; j<n-i-1; j++) {
```

```
18             printf("    ");
```

```
19         }
```

```
20
```

```
21         for (int j = 0; j <= i; j++) {
```

```
22             if (j != 0) {
```

```
23                 coefficient = coefficient * (i - j + 1) / j;
```

```
24             }
```

```
25
```

```
26
```

```
27         // Print the coefficient with proper formatting
```

```
28         printf("%6d", coefficient);
```

```
29     }
```

```
      1
     1 1
    1 2 1
   1 3 3 1
  1 4 6 4 1
```



C 2d.c > main()

```
1 //.....(Question-2(d)).....//
2
3 #include<stdio.h>
4 int main(){
5
6 // declaring variables //
7
8     int i ,j ,s, n=5;
9
10 // Printing the pattern //
11
12     for(i=1;i<=n;i++){
13
14         for(j=1;j<=i;j++){
15             printf("%d",j);
16         }
17
18         for(s=1;s<=2*(n-i);s++){
19             printf(" ");
20         }
21
22         for(j=i;j>0;j--){
23             printf("%d",j);
24         }
25         printf("\n");
26     }
27     return 0;
28 }
```

```
1      1
12     21
123    321
1234   4321
1234554321
```

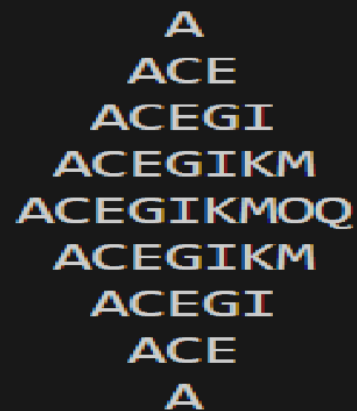
C 2e.c > main()

```
1 //.....(Question-2(e)).....//
2
3 #include<stdio.h>
4 int main(){
5
6 // declaring variables //
7
8     int i ,j , n=5;
9
10 // Printing the pattern //
11
12     for(i=1;i<=n;i++){
13         for(j=1;j<=i;j++){
14             printf("%d",j);
15         }
16         printf("\n");
17     }
18
19     for(i=1;i<=n-1;i++){
20         for(j=1;j<=n-i;j++){
21             printf("%d",j);
22         }
23         printf("\n");
24     }
25
26 return 0;
27 }
```

```
1
12
123
1234
12345
1234
123
12
1
```

C 2f.c > main()

```
1 //.....(Question-2(f)).....//
2
3 #include<stdio.h>
4 int main(){
5
6 // declaring variables //
7
8     int i ,j ,s,k, n=5;
9
10 // Printing the pattern //
11     for(i=1;i<=n;i++){
12         for(s=1;s<=n-i;s++){
13             printf(" ");
14         }
15
16         for(j=1,k='A';j<=2*i-1;j++){
17
18             printf("%c",k);
19             k=k+2;
20         }
21         printf("\n");
22     }
23
24     for(i=1;i<=n-1;i++){
25         for(s=1;s<=i;s++){
26             printf(" ");
27         }
28
29         for(j=1,k='A';j<=2*(n-i+1)-3;j++){
30
31             printf("%c",k);
32             k=k+2;
33         }
34         printf("\n");
35     }
36     return 0;
37 }
```



A  
ACE  
ACEGI  
ACEGIKM  
ACEGIKMOQ  
ACEGIKM  
ACEGI  
ACE  
A

C 3.c > ...

```
1  //.....(Question-3).....//
2
3  #include<stdio.h>
4  int main(){
5
6  //declaring variables//
7
8      int n1,n2,i,sum=0;
9
10     printf("Enter the value of n1: ");
11     scanf("%d",&n1);
12
13     printf("Enter the value of n2: ");
14     scanf("%d",&n2);
15
16     if(n1>n2){
17         for(i=n2+1;i<=n1;i++){
18             if(i%2==0){
19                 printf("%d\n",i);
20                 sum=sum+i;
21             }
22         }
23         printf("sum= %d",sum);}
24
25     else {
26         printf("n1 must be greater than n2!! ");
27     }
28     return 0;
29 }
30
```

```
Enter the value of n1: 6
Enter the value of n2: 1
2
4
6
sum= 12
```

```
1 //.....(Question-4).....//
2
3 #include <stdio.h>
4
5 int main() {
6
7     // declaring variables //
8
9     int num1, num2;
10
11     // scanning variables from user //
12
13     printf("Enter the first number: ");
14     scanf("%d", &num1);
15
16     printf("Enter the second number: ");
17     scanf("%d", &num2);
18
19     // Applying Euclidean theorem //
20
21     if (num1 < 0 || num2 < 0) {
22         printf("Please enter non-negative numbers.\n");
23     } else {
24         int hcf;
25
26         // Find the HCF using the Euclidean algorithm
27         while (num1 != num2) {
28             if (num1 > num2) {
29                 num1 -= num2;
30             } else {
31                 num2 -= num1;
32             }
33         }
34         hcf = num1;
35
36     // printing hcf //
37
38     printf("The HCF of %d and %d is %d\n", num1, num2, hcf);
39 }
40
41 return 0;
42 }
43
```

```
Enter the first number: 5
Enter the second number: 10
The HCF of 5 and 10 is 5
```

C 5.c > ...

```
1 //.....(Question-5).....//
2
3 #include <stdio.h>
4 #include <math.h>
5
6 int main() {
7
8 //declaring variables and scanning it from user //
9     int num1, num2, sum = 0;
10
11     printf("Enter the first four-digit positive integer: ");
12     scanf("%d", &num1);
13
14     printf("Enter the second four-digit positive integer: ");
15     scanf("%d", &num2);
16
17 // Check if the numbers are four-digit positive integers
18     if (num1 < 1000 || num1 > 9999 || num2 < 1000 || num2 > 9999) {
19         printf("Please enter valid four-digit positive integers.\n");
20         return 1;
21     }
22
23 // Calculate the sum of products of digits
24     int digit1, digit2;
25     for (int i = 0; i < 4; i++) {
26         digit1 = (num1 / (int)(pow(10, i))) % 10;
27         digit2 = (num2 / (int)(pow(10, i))) % 10;
28         sum += digit1 * digit2;
29     }
30
31     printf("Sum of products of corresponding digits: %d\n", sum);
32
33     return 0;
34 }
35
```

```
Enter the first four-digit positive integer: 1234
Enter the second four-digit positive integer: 1234
Sum of products of corresponding digits: 30
```

C 6.c > ...

```
1 //.....(Question-6).....//
2
3
4 #include<stdio.h>
5 #include<math.h> //for using power function//
6
7 int main(){
8
9 // declaring variables //
10
11     int n,i=0,k,rem,sum=0;
12
13 // scanning the binary code //
14
15     printf("Enter the value of binary code: ");
16     scanf("%d",&n);
17
18 // Converting binary into decimal //
19
20     while(n>0){
21         rem=n%10;
22         sum=sum+rem*pow(2,i);
23         i++;
24         n=n/10;
25     }
26
27 // Printing the converted value //
28
29     printf("The binary code in decimal is: %d",sum);
30     return 0;
31 }
```

Enter the value of binary code: 1011  
The binary code in decimal is: 11