1.

Palindrome.c

```c
#include <stdio.h>

int main(){
    int n, reverse = 0, remainder, original;
    printf("Input an integer number : ");
    scanf("%d", &n);
    original = n;

    while(n != 0){
        remainder = n%10;
        reverse = reverse*10 + remainder;
        n /= 10;
    }
    if(original == reverse){
        printf("%d is a palindrome.", original);
    } else {
        printf("%d is not a palindrome.", original);
    }
    return 0;
}
```

```
C:\Users\user\เดสก์ท็อป\C++\S
Input an integer number : 16361
16361 is a palindrome.
--------------------------------
Process exited after 2.109 seconds with return value 0
Press any key to continue . . .
```

2.

Swap_first_last.c

```c
#include <stdio.h>
int main(){
    int n, count = 0, n1, mul = 1, i, first, last, n2, n3;
    printf("Input an digits number : ");
    scanf("%d", &n);
    n1 = n;
    n2 = n;
    first = n;
    last = n;
    while(n != 0){
        count++;
        n /= 10;
    }
    for(i=0; i<count-1; i++){
        mul *= 10;
    }
    while(first >= 10){
        first /= 10;
    }
    last = last%10;
    n3 = (last * mul) + (n2 % mul) - last + first;
    printf("swapped number : %d", n3);
    return 0;
}
```

```
C:\Users\user\เดสก์ท็อป\C++\S
Input an digits number : 1234
swapped number : 4231
--------------------------------
Process exited after 1.051 seconds with return value 0
Press any key to continue . . .
```

3.

Swap_first_last.c Print_All_Prime.c

```c
#include <stdio.h>

int main(){
    int end, isprime;
    printf("Find prime 1 to : ");
    scanf("%d", &end);
    printf("All prime number between 1 to %d are:\n", end);
    for(int i=2; i<=end; i++){
        isprime = 1;
        for(int j=2; j<=i/2; j++){
            if(i%j == 0){
                isprime = 0;
                break;
            }
        }
        if(isprime == 1){
            printf("%d, ", i);
        }
    }
    return 0;
}
```

```
C:\Users\user\เดสก์ท็อป\C++\S
Find prime 1 to : 50
All prime number between 1 to 50 are:
2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47,
--------------------------------
Process exited after 0.9558 seconds with return value 0
Press any key to continue . . .
```

4.

FindPrime_factors.c

```c
#include <stdio.h>

void primefactors(int num){
    int count;
    for(count = 2; num > 1; count++){
        while(num%count == 0){
            printf("%d ", count);
            num = num / count;
        }
    }
}
int main(){
    int num;
    printf("Find num Prime factors : \n");
    scanf("%d", &num);
    primefactors(num);
    return 0;
}
```

```
C:\Users\user\เดสก์ท็อป\C++\S
Find num Prime factors :
24
2 2 2 3
--------------------------------
Process exited after 0.9713 seconds with return value 0
Press any key to continue . . .
```

5.

perfect_number.c

```c
#include <stdio.h>

int main(){
    int n, num, sum;
    printf("Enter limits : ");
    scanf("%d", &n);
    printf("Perfect number between 1 to %d are:\n", n);
    for(num=1; num<=n; num++){
        sum = 0;
        for(int i=1; i<=num / 2; i++){
            if(num % i == 0){
                sum += i;
            }
        }
        if(sum == num && num != 0){
            printf("%d\n", num);
        }
    }
    return 0;
}
```

```
C:\Users\user\เดสก์ท็อป\C++\S
Enter limits : 10000
Perfect number between 1 to 10000 are:
6
28
496
8128

--------------------------------
Process exited after 5.076 seconds with return value 0
Press any key to continue . . .
```

6.1

figure8.c hourglass.c

```c
#include <stdio.h>

int main(){
    int n, i, j, l, s;
    printf("Enter n value : ");
    scanf("%d", &n);
    for(i=-n; i<=n; i++){
        if(i < 0)
            l = -i;
        else
            l = i;
        for(s=0; s<n-l; s++)
            printf(" ");
        for(j=0; j<l+1; j++)
            printf("* ");
        printf("\n");
    }
    return 0;
}
```

```
C:\Users\user\เดสก์ท็อป\C++\S
Enter n value : 2
* * *
 * *
  *
 * *
* * *

--------------------------------
Process exited after 0.4593 seconds with return value 0
Press any key to continue . . .
```

6.2

plusSign.c

```c
#include <stdio.h>

void printPlusSign(int n) {
    int i, j;
    int mid = n / 2;

    for (i = 0; i < n; i++) {
        for (j = 0; j < n; j++) {
            if (i == mid || j == mid) {
                printf("+");
            } else {
                printf(" ");
            }
        }
        printf("\n");
    }
}

int main(){
    int n;
    scanf("%d", &n);
    printPlusSign(n);
    return 0;
}
```

```
C:\Users\user\เดสก์ท็อป\C++\S
3
 +
+++
 +

--------------------------------
Process exited after 0.7123 seconds with return value 0
Press any key to continue . . .
```

6.3

figure8.c

```c
#include <stdio.h>

int main()
{
    int i, j, size;
    printf("Enter size: ");
    scanf("%d", &size);
    for(i=1; i<size*2; i++)
    {
        for(j=1; j<=size; j++)
        {
            if((i==1 && (j==1 || j==size)) ||
               (i==size && (j==1 || j==size)) ||
               (i==size*2-1 && (j==1 || j==size)))
            {
                printf(" ");
            }
            else if(i==1 || i==size || i==(size*2)-1 || j==1 || j==size)
            {
                printf("*");
            }
            else
            {
                printf(" ");
            }
        printf("\n");
    }
    return 0;
}
```

```
Enter size: 5
 ***
*   *
*   *
*   *
 ***
*   *
*   *
*   *
 ***
```

6.4

Rightarrow.c Christmastree.c

```c
#include <stdio.h>

int main() {
    int rows1, r, c;
    printf("Enter number of rows to print the Right Arrow Pattern: ");
    scanf("%d", &rows1);

    printf("The Right Arrow Pattern is:\n");
    for (r = 1; r < rows1; r++) {
        for (c = 1; c <= (2 * r - 2); c++) {
            printf(" ");
        }
        for (c = r; c <= rows1; c++) {
            printf("*");
        }
        printf("\n");
    }
    for (r = 1; r <= rows1; r++) {
        for (c = 1; c <= (2 * rows1 - 2 * r); c++) {
            printf(" ");
        }
        for (c = 1; c <= r; c++) {
            printf("*");
        }
        printf("\n");
    }
    return 0;
}
```

```
Enter number of rows to print the Right Arrow Pattern: 5
The Right Arrow Pattern is:
*****
 ****
  ***
   **
    *
   **
  ***
 ****
*****

--------------------------------
Process exited after 0.4073 seconds with return value 0
Press any key to continue . . .
```

6.5

Rightarrow.c Christmastree.c

```c
#include <stdio.h>

int main() {
    int n, i, j, space;
    printf("Enter the number of rows (odd number >= 3): ");
    scanf("%d", &n);
    for (i = 1; i <= n; i++) {
        for (space = 1; space <= n - i; space++) {
            printf(" ");
        }
        for (j = 1; j <= 2 * i - 1; j++) {
            if (j % 2 == 0 && i > 1) {
                printf("-");
            } else {
                printf("*");
            }
        }
        printf("\n");
    }
    return 0;
}
```

```
Enter the number of rows (odd number >= 3): 3
  *
 *-*
*-*-*

--------------------------------
Process exited after 0.4253 seconds with return value 0
Press any key to continue . . .
```