1. Write a program to print the Armstrong number

```
#include<stdio.h>
#include<math.h>
int main(){
    int num, r, sum=0, count=0;
    printf("Enter a number: ");
    scanf("%d",&num);
    temp=num;
    while(num!=0){
            count++;
            num=num/10;
    }
    num=temp;
    while(num!=0){
        r=num%10;
        num=num/10;
        sum=sum+pow(r,count);
    }
    if(sum==temp)
        printf("%d is an Armstrong number",temp);
    else
        printf("%d is not an Armstrong number",temp);
    return 0;
}
```

2. Write a program to find the given number is prime or not

```
#include<stdio.h>
int main(){
int num,i,count=0;

printf("Enter a number: ");
scanf("%d",&num);
for(i=2;i<=num/2;i++){
if(num%i==0){
count++;

break;

}

else

}

if(count==0 && num!= 1)
printf("%d is a prime number",num);
printf("%d is not a prime number",num);
return

0; }
```

3. Write a program to generate first n prime numbers

```
#include<stdio.h>
int main(){
int num,i,count=0;

printf("Enter a number: ");
scanf("%d",&num);
for(i=2;i<=num/2;i++){
if(num%i==0){
count++;
break; }
else
}
```

```
if(count==0 && num!= 1)
printf("%d is a prime number",num);
printf("%d is not a prime number",num);
return
0; }
```

3. Write a program to generate first n prime numbers

```
#include<stdio.h>
int main(){
int n, i, count, prime=2;
printf("Enter a number: ");
scanf("%d",&n);
for(int num=1 ;num<=n; num++){
l1:count=0;
for(i=2;i<=prime/2;i++){
if(prime%i==0){
count++;
break;
}
}
if(count==0 && prime!= 1)
printf("%d “,prime++);
}
else{
prime++;
goto l1;
}
}
return 0; }
```

4.

```
55555 //i=5 k=i
45555 //k=i i=4
34555 //k=i i=3
23455 //k=i i=2
12345

int main()
{
  int i, j, k;
  for(i=5;i>=1;i--)
  {
    k = i; //k=5
    for(j=1;j<=5;j++)
    {
      if(k <= 5)
      {
        printf("%d",k);
      }
      else
      {
        printf("5");
      }
      k++;
    }
  printf("\n");
  }
  return 0;
}
```

5.

```
12344321
123**321
```

```
12****21
1******1

#include<stdio.h>
int main()
{
  int i,j,k;
  for(i=4;i>=1;i--)
  {
    for(j=1;j<=4;j++)
    {
      if(j<=i)
        printf("%d",j);
      else
        printf(" ");
    }
    for(j=4;j>=1;j--)
    {
      if(j<=i)
        printf("%d",j);
      else
        printf(" ");
    }
    printf("\n");
  }
  return 0;
}

6.
5432*
543*1
54*21
5*321
*4321

#include<stdio.h>
int main()
{
  int i,j;
  for(i=1;i<=5;i++)
  {
    for(j=5;j>=1;j--)
    {
      if(i==j)
        printf("*");
      else
        printf("%d",j);
    }
    printf("\n");
  }
  return 0;
}

7.
1        1
12      21
123    321
1234  4321
1234554321


#include<stdio.h>

int main()
```

```
{
  int i,j,k;
  for(i=1;i<=5;i++)
  {
    for(j=1;j<=5;j++)
    {
      if(j<=i)
        printf("%d",j);
      else
        printf(" ");
    }
    for(j=5;j>=1;j--)
    {
      if(j<=i)
        printf("%d",j);
      else
        printf(" ");
    }
    printf("\n");
  }
  return 0;
}
```

8.

```
1
2*2
3*3*3
4*4*4*4
4*4*4*4
3*3*3
2*2
1
```

```
#include<stdio.h>
int main()
{
  int i,j;
  for(i=1;i<=4;i++)
  {
    for(j=1;j<=i;j++)
    {
      if(j<i)
        printf("%d*",i);
      else
        printf("%d",i);
    }
    printf(" \n");
  }
  for(i=4;i>=1;i--)
  {
    for(j=1;j<=i;j++)
    {
      if(j<i)
        printf("%d*",i);
      else
        printf("%d",i);
    }
    printf(" \n");
  }
  return 0;
}
```

9.
11111
10001
10001
10001
11111

```
#include<stdio.h>

int main()
{
    int i,j;
    for(i=1;i<=5;i++)
    {
        for(j=1;j<=5;j++)
        {
            if(j==5 || j==1 || i==1 || i==5)
                printf("1");
            else
                printf("0");
        }
        printf("\n");
    }
    return 0;
}
```

10.

n=5
*
**
***
****
*****
11.
1
12
123
1234
12345

12.
1
22
333
4444
55555

13.
```
    *
   * *
  * * *
 * * * *
* * * * *
```

14.
```
     1
    2 3
   4 5 6
  7 8 9 10
11 12 13 14 15
```

15.

```
    A
   A B
  A B C
 A B C D
A B C D E
```

16.

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

17.

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

18.

n=5

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

19.

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

20.

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

21.

```
12344321
123**321
12****21
1******1
```