
1.Prime number with ranges:

Input : 2 5

Output: 2 3 5

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

```
int prime(int n){
```

```
    if(n<0){
```

```
        return 0;
```

```
    }
```

```
    int count=0;
```

```
    for(int i=2;i<=n/2;i++){
```

```
        if(n%i==0){
```

```
            count++;
```

```
        }
```

```
    }
```

```
    if(count==0){
```

```
        return n;
```

```
    }
```

```
    return 0;
```

```
}
```

```
int main(){
```

```
    int n;
```

```
    int m;
```

```
    scanf("%d %d",&n,&m);
```

```
for(int i=n;i<=m;i++){  
    if(prime(i)){  
        printf("%d ",i);  
    }  
}  
  
return 0;  
}
```

2.Collatz sequence

Input:10

Output :6

```
int main(){  
  
    int n;  
  
    scanf("%d",&n);  
  
    int count=0;  
  
    if(n<=0){  
        printf("Please enter a positive number.");  
        return 0;  
    }  
  
    while(n!=1){  
        if(n%2==0){  
            n=n/2;  
        }  
    }
```

```
    else{  
  
        n=n*3+1;  
  
    }  
  
    count++;  
  
}  
  
printf("%d",count);  
  
return 0;  
  
}
```

3.Working with character:

Input:A

Output:a

```
int main(){  
  
    char ch;  
  
    scanf(" %c",&ch);  
  
    if(islower(ch)){  
  
        printf("%c",toupper(ch));  
  
    }  
  
    else if(isupper(ch)){  
  
        printf("%c",tolower(ch));  
  
    }  
  
}
```

```
else{

    printf("It is not a alphabet");

}

return 0;

}
```

4.Harshad Number:

Input : 36

Output: 36 is a Harshad Number

```
int main(){

    int n;

    scanf("%d",&n);

    int temp=n;

    int sum=0;

    while(n>0){

        int dig=n%10;

        sum+=dig;

        n=n/10;

    }

    printf("%d\n",sum);

    if(temp%sum==0){

        printf("%d is a harshad number",temp);

    }

}
```

```
}

else{

    printf("%d is not a harshad number",temp);

}

return 0;

}
```

5.Product of a digit:

Input:65

Output:30

```
int main(){

    int n;

    scanf("%d",&n);

    int prod=1;

    while(n>0){

        int digit=n%10;

        prod*=digit;

        n=n/10;

    }

    printf("%d",prod);

    return 0;

}
```

```
}
```

6.Pattern:

Input:5

Output:

*

* *

* * *

* * * *

* * * * *

```
int main(){
    int n;
    scanf("%d",&n);
    for(int i=0;i<=n;i++){
        for(int j=0;j<i;j++){
            printf("* ");
        }
        printf("\n");
    }
}
```

7.Alphabet Pattern:

Input:5

Output:

A

A B

A B C

A B C D

A B C D E

```
int main(){
    int n;
```

```
scanf("%d",&n);

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

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

        printf("%c ",A'+j);

    }

    printf("\n");

}

}
```

8.Alphabet Pattern:

Input:4

Output:

A

B B

C C C

D D D D

```
int main(){

    int n;

    scanf("%d",&n);

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

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

            printf("%c ",A'+i);

        }

        printf("\n");

    }

}
```

9.Custom patterns

Input: 2 5

Output:

* * * * *

* * * *

```
int main(){  
    int n;  
    scanf("%d",&n);  
    int stars;  
    scanf("%d",&stars);  
    for(int i=0;i<n;i++){  
        int count = (i%2==0)?stars*2:stars;  
        for(int j=0;j<count;j++){  
            printf(" ");  
        }  
        printf("\n");  
    }  
    return 0;  
}
```