Assignment

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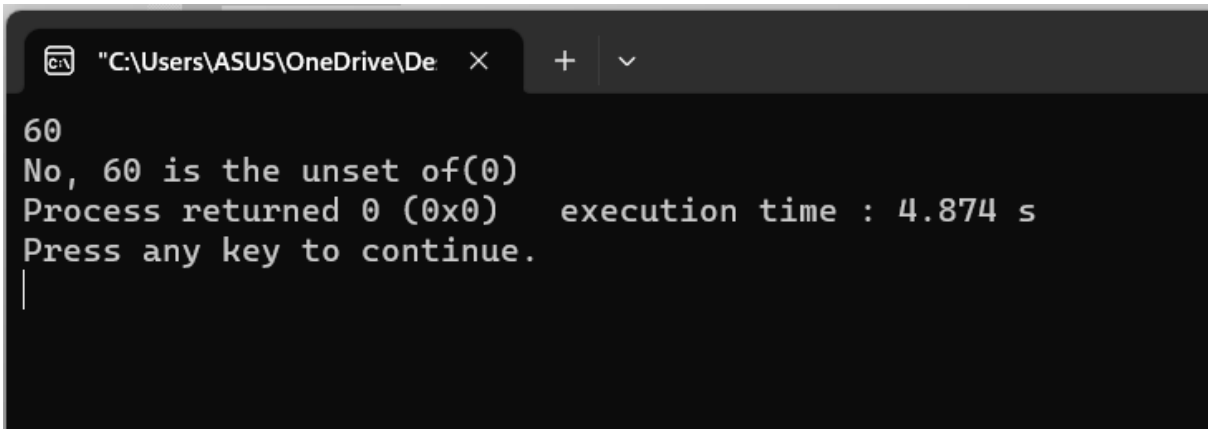
1.Write a C program to check Least Significant Bit (LSB) of a number is set or not.

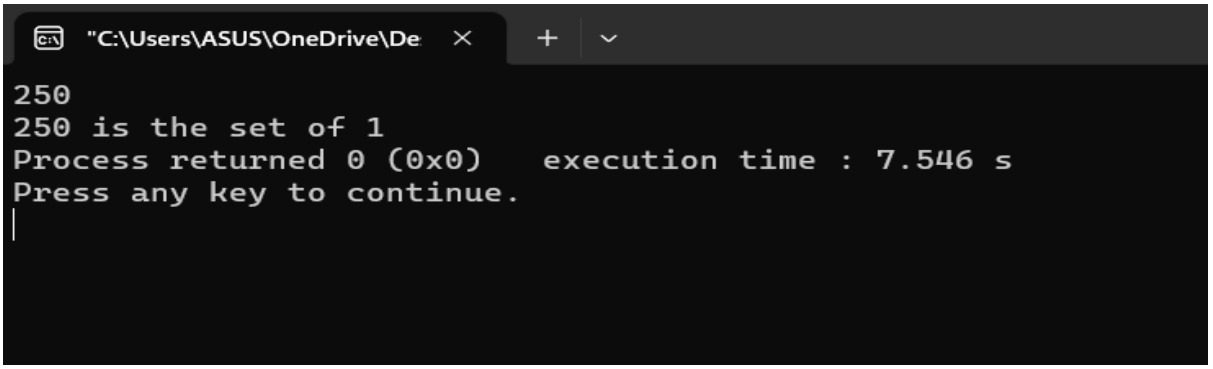
```
 #include<stdio.h>
int main()
{
   int t;
   scanf("%d",&t);
   (t&1==1)?printf("Yes, %d is the of set(1)",t)
   :printf("No, %d is the unset of(0)",t);
   return 0;
}
```



2.Write a C program to check Most Significant Bit (MSB) of a number is set or not.

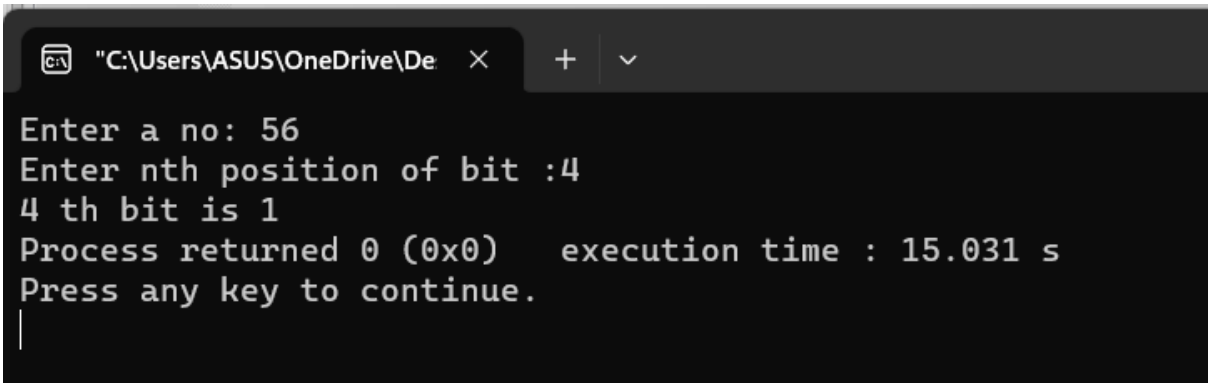
```
#include<stdio.h>
int main()
{
   int n,c=0,n1=0;
   scanf("%d",&n);
   n1=n;
    while(n>0){
      n/=2;
      c++;
   }
   (c==8||c==16||c==32)? printf("%d is the set of 1",n1)
```

```
    : printf("%d is the set of 0",n1);
}
```



3.Write a C program to get nth bit of a number.

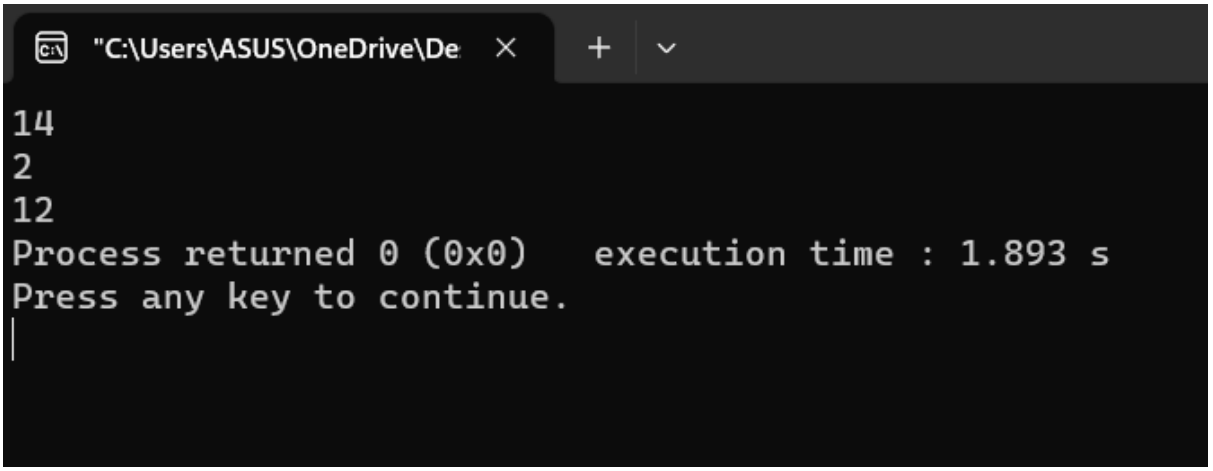
```
#include<stdio.h>
int main()
{
   int n,p;
   printf("Enter a no: ");
   scanf("%d",&n);
   printf("Enter nth position of bit :");
   scanf("%d",&p);
   printf("%d th bit is %d",p,1&n>>(p-1));
}
```



4.Write a C program to clear nth bit of a number.

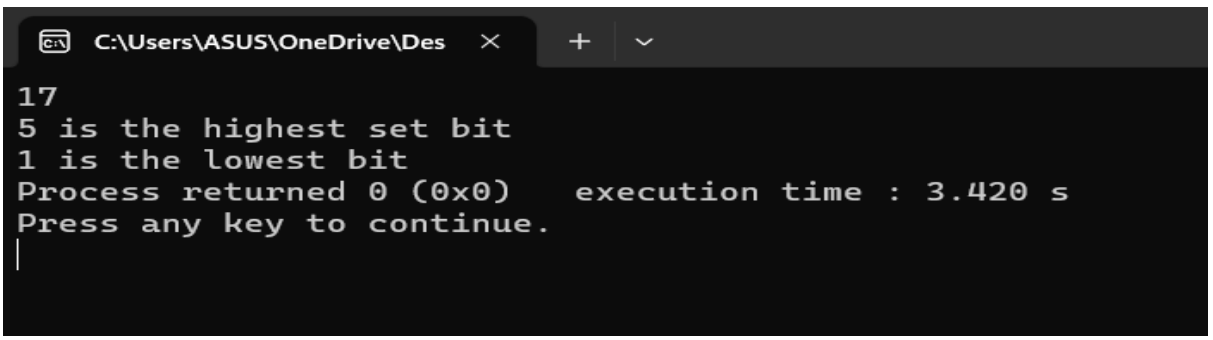
```
#include<stdio.h>
int main()
{
   int a,n;
   scanf("%d %d",&a,&n);
   printf("%d",a&~1<<n-1);
```

}



5.Write a C program to get highest set bit of a number.Write a C program to get lowest set bit of a number.

```
#include<stdio.h>
int main()
{
   int n,n1,c=0;
   scanf("%d",&n);
   n1=n;
   while(n>0){
      n/=2;
      c++;
   }
   printf("%d is the highest set bit\n",c);
   int i,s=0;
   for(i=0; ;i++){
     s++;
     if((1&(n1>>i))==1){
      break;
     }
   }
   printf("%d is the lowest bit ",s);
}
```



7.Write a C program to count trailing zeros in a binary number.

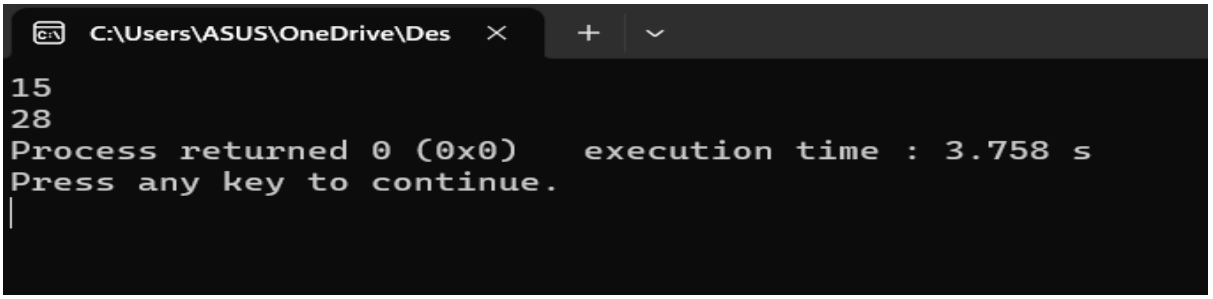
```
#include<stdio.h>
int main()
{
   int n,s=0;
   scanf("%d",&n);
   for(int i=0; ;i++){
         s++;
       if((1&(n>>i))==1){
      break;
     }
   }
   printf("%d",s-1);

}
```

```
14
1
Process returned 0 (0x0)   execution time : 4.968 s
Press any key to continue.
```

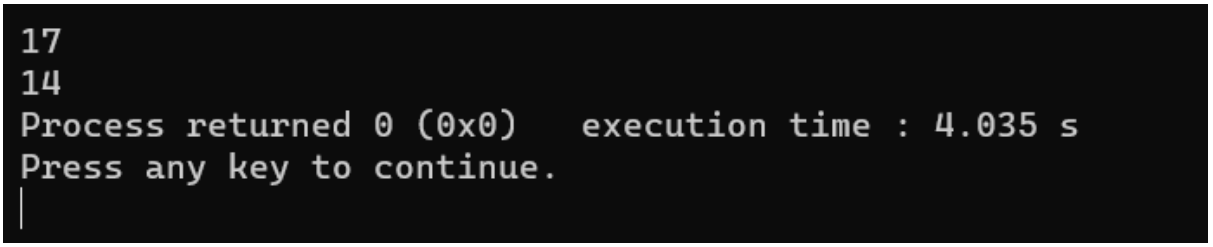
8.Write a C program to count leading zeros in a binary number.

```
#include<stdio.h>
int main()
{
   int n,c=0;
   scanf("%d",&n);
       while(n>0){
      n/=2;
      c++;
   }
   printf("%d",32-c);
}
```



9.Write a C program to flip bits of a binary number using bitwise operator.

```
#include<stdio.h>
int main()
{
   int n,n1,c=0;
   scanf("%d",&n);
   n1=n;
    while(n>0){
      n/=2;
      c++;
   }
   int s1=pow(2,c)-1;
   printf("%d",n1^s1);
}
```



10.Write a C program to count total zeros and ones in a binary number.

```
#include<stdio.h>
int main()
{
   int n,c=0;
   scanf("%d",&n);
   for(int i=0;i<32;i++)
   {
      ((n>>i&1)==0)?c++:32-c;
   }
   printf("Total zeros = %d\nTotal ones = %d",c,32-c);
}
```

```
10
Total zeros = 30
Total ones = 2
Process returned 0 (0x0)   execution time : 6.934 s
Press any key to continue.
```

11..Write a C program to rotate bits of a given number.

```
#include<stdio.h>
int main()
{
   int n,n1,s=0,c=0,c1=0;
   scanf("%d",&n);
   n1=n;
     while(n>0){
       n/=2;
       c++;
   }
   c1=c;
   for(int i=0;i<c1;i++){
       s=s+(1&n1>>i)*pow(2,c-1);
       c--;
   }
   printf("%d",s);
}
```

```
18
9
Process returned 0 (0x0)   execution time : 7.202 s
Press any key to continue.
```

12.Write a C program to convert decimal to binary number system using bitwise operator.

```
#include<stdio.h>
int main()
{
   int n1,n,c=0,s=0;
   scanf("%d",&n);
   n1=n;
```

```
    while(n>0){
      n/=2;
      c++;
   }
   for(int i=c-1;i>=0;i--)
   {
      printf("%d",1&n1>>i);
   }
   return 0;
}
```

```
11
1011
Process returned 0 (0x0)   execution time : 8.933 s
Press any key to continue.
```

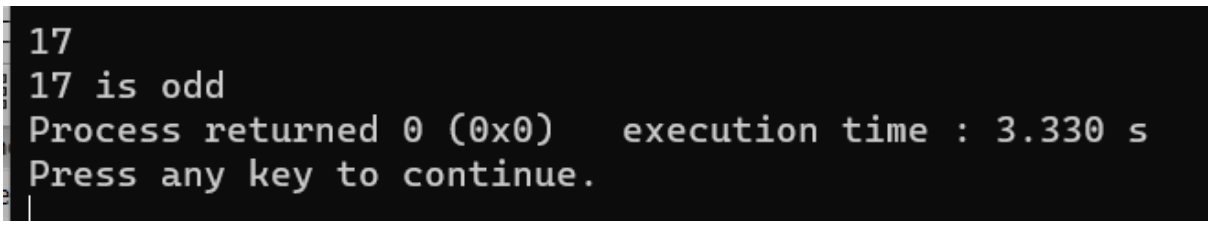
13.Write a C program to swap two numbers using bitwise operator.

```
#include<stdio.h>
int main()
{
   int a,b;
   scanf("%d %d",&a,&b);
   b=a^b;
   a=a^b;
   b=a^b;
   printf("%d %d",a,b);
}
```

```
4 7
7 4
Process returned 0 (0x0)   execution time : 1.399 s
Press any key to continue.
```

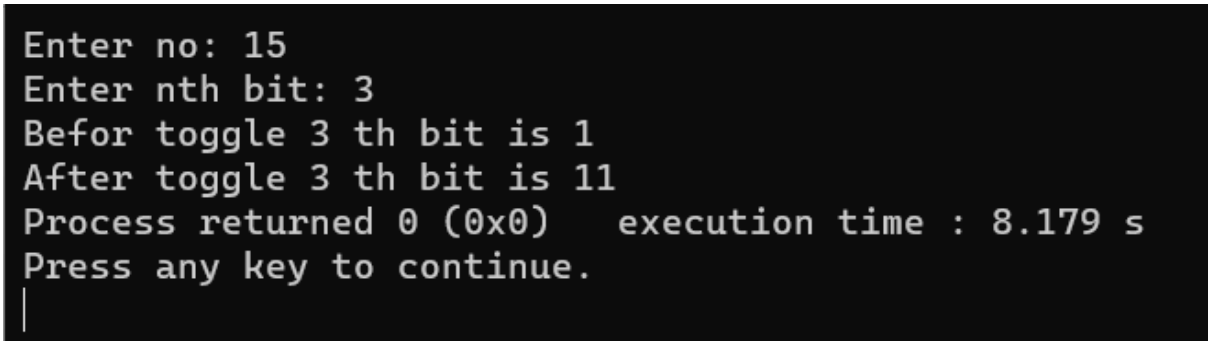
14Write a C program to check whether a number is even or odd using bitwise operator.

```
#include<stdio.h>
int main()
{
   int n;
   scanf("%d",&n);
   (n&1==0)?printf("%d is even",n)
   : printf("%d is odd",n);
}
```



15. Write a C program to toggle nth bit of a number.

```
#include<stdio.h>
int main()
{
   int n,p;
   printf("Enter no: ");
   scanf("%d",&n);
   printf("Enter nth bit: ");
   scanf("%d",&p);
   printf("Befor toggle %d th bit is %d\n",p,1&n>>(p-1));
   printf("After toggle %d th bit is %d",p,(n^1<<(p-1)));
}
```



16. Write a C program to set nth bit of a number.

```
#include<stdio.h>
int main()
{
   int n,p;
   printf("Enter a no: ");
   scanf("%d",&n);
   printf("Enter nth bit to set: ");
   scanf("%d",&p);
   printf("%d ",n|(n>>(p-1)));
   return 0;
}
```

```
Enter a no: 20
Enter nth bit to set: 4
22
Process returned 0 (0x0)   execution time : 7.285 s
Press any key to continue.
```