ES202

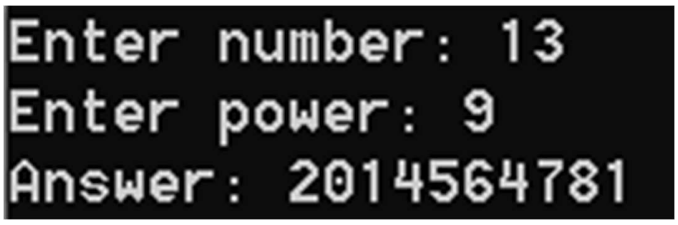
Assignment-III

C Programming Exercises

1. **Write a C program to find power of a number using for loop.**

```
#include <stdio.h>
void main()
{
 int n,p,ans=1;
 printf("Enter number: ");
 scanf("%d",&n);
 printf("Enter power: ");
 scanf("%d",&p);

 for(int i=1;i<=p;++i)
  ans*=n;
 printf("Answer: %d",ans);
}
```

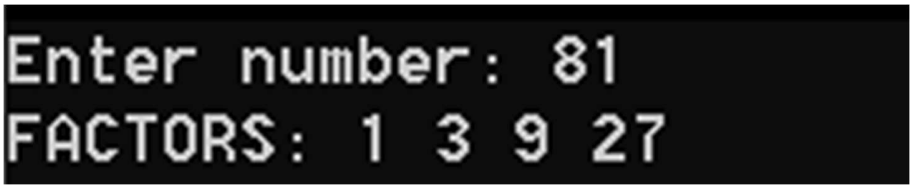
OUTPUT:



2. **Write a C program to find all factors of a number.**

```
#include <stdio.h>
void main()
{
 int n;
 printf("Enter number: ");
 scanf("%d",&n);
 printf("FACTORS: ");
  for(int i=1;i<=n/2;++i)
   if(n%i==0)
     printf("%d ",i);
}
```

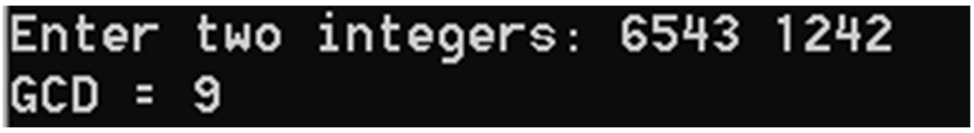
OUTPUT:



3. Write a C program to find HCF (GCD) of two numbers.

```
#include <stdio.h>
int main()
{
   int n1, n2;

   printf("Enter two integers: ");
   scanf("%d %d",&n1,&n2);

   n1 = ( n1 > 0) ? n1 : -n1;
   n2 = ( n2 > 0) ? n2 : -n2;

   while(n1!=n2)
   {
      if(n1 > n2)
         n1 -= n2;
      else
         n2 -= n1;
   }
   printf("GCD = %d",n1);

   return 0;
}
```

OUTPUT:



4. Write a C program to find LCM of two numbers.

```
#include <stdio.h>
int main() {
   int n1, n2, gcd;
   printf("Enter two positive integers: ");
   scanf("%d %d", &n1, &n2);

   for (int i = 1; i <= n1 && i <= n2; ++i)
      {

      if (n1 % i == 0 && n2 % i == 0)
         gcd = i;
      }
   printf("The LCM of two numbers %d and %d is %d.", n1, n2, ((n1 * n2) / gcd));
   return 0;
}
```

OUTPUT:

```
Enter two positive integers: 124 236
The LCM of two numbers 124 and 236 is 7316.
```

5. Write a C program to find all prime factors of a number.

```
#include <stdio.h>
int main()
{
   int num, isPrime;

   printf("Enter any number to print Prime factors: ");
   scanf("%d", &num);

   printf("All Prime Factors of %d are: \n", num);


   for(int i=2; i<=num/2; i++)
   {
      if(num%i==0)
      {
            isPrime = 1;
         for(int j=2; j<=i/2; j++)
         {
            if(i%j==0)
            {
               isPrime = 0;
               break;
            }
         }
         if(isPrime==1)
         {
            printf("%d ", i);
         }
      }
   }
```

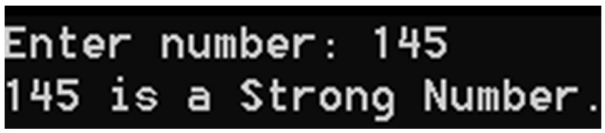
```
    return 0;
}
```

OUTPUT:

6. Write a C program to check whether a number is Strong number or not.

```
#include <stdio.h>
int fact(int a)
{
   int ans=1;
   for(int i=a;i>=1;--i)
     ans*=i;
   return ans;
}
int main()
{
  int n,s=0;
  printf("Enter number: ");
  scanf("%d",&n);
  int t=n;
  while(t!=0)
  {
   int c=t%10;
   s+=fact(c);
   t/=10;
  }
 if(n==s)
   printf("%d is a Strong Number.",n);
 else
   printf("%d is not a Strong Number.",n);

}
```

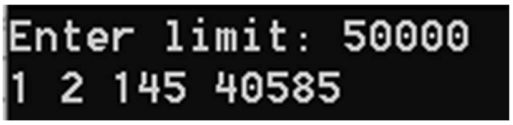
OUTPUT:



7. Write a C program to print all Strong numbers between 1 to n.

```
#include <stdio.h>
int fact(int a)
{
    int ans=1;
    for(int i=a;i>=1;--i)
      ans*=i;
    return ans;
}
int Strong(int t)
{
   int nn=t,s=0;
   while(t!=0)
   {
    int c=t%10;
    s+=fact(c);
    t/=10;
   }
 if(nn==s)
    printf("%d ",nn);

}
int main()
{
   int n;
   printf("Enter limit: ");
   scanf("%d",&n);
   for(int i=1;i<=n;++i)
    Strong(i);
}
```

OUTPUT:



8. Write a C program to convert Hexadecimal to Decimal number system.

```
#include <stdio.h>
#include <math.h>
int main()
{
  char n[100];int c=0;
  printf("Enter number in Hexadecimal: ");
  scanf("%s",&n);
  int dec=0;
  for(int i=0;i<=100;++i)
  {
    if(n[i]!='\0')
      ++c;
    else
      break;
  }
   int p=0;
   for(int i=c-1;i>=0;--i)
   {
      if(n[i]>=65)
         dec+=(n[i]-55)*(int)pow(16,p++);
      else
         dec+=(n[i]-48)*(int)pow(16,p++);
   }
   printf("Number in decimal number system: %d",dec);
  }
```

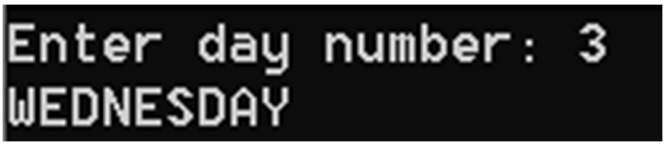
OUTPUT:

```
Enter number in Hexadecimal: 123BDE
Number in decimal number system: 1194974
```

9. Write a C program to input week number and print weekday.

```
#include <stdio.h>
int main()
{
  char w[8][10]={"MONDAY","TUESDAY","WEDNESDAY","THURSDAY","FRIDAY",
"SATURDAY","SUNDAY"}; int n;
  printf("Enter day number: ");
  scanf("%d",&n);
  printf("%s",w[n-1]);

  }
```

OUTPUT:



10. Write a C program to input marks of five subjects Physics, Chemistry, Biology, Mathematics and Computer. Calculate percentage and grade according to following:

Percentage	**>=**	**90%**	**:**	**Grade**	**A**
Percentage	**>=**	**80%**	**:**	**Grade**	**B**
Percentage	**>=**	**70%**	**:**	**Grade**	**C**
Percentage	**>=**	**60%**	**:**	**Grade**	**D**
Percentage	**>=**	**40%**	**:**	**Grade**	**E**

Percentage < 40% : Grade F

```
#include <stdio.h>
int main()
{
  float m1,m2,m3,m4,m5,p;
  printf("Enter marks in Physics out of 100: ");
  scanf("%f",&m1);
  printf("Enter marks in Chemistry out of 100: ");
  scanf("%f",&m2);
  printf("Enter marks in Biology out of 100: ");
  scanf("%f",&m3);
  printf("Enter marks in Mathematics out of 100: ");
  scanf("%f",&m4);
  printf("Enter marks in Computer out of 100: ");
  scanf("%f",&m5);
  p=(m1+m2+m3+m4+m5)/500.0*100.0;
  if(p>=90)
   printf("Percentage: %.2f\nGrade: A",p);
  else if(p>=90)
   printf("Percentage: %.2f\nGrade: B",p);
  else if(p>=80)
   printf("Percentage: %.2f\nGrade: C",p);
  else if(p>=70)
   printf("Percentage: %.2f\nGrade: D",p);
  else if(p>=60)
   printf("Percentage: %.2f\nGrade: E",p);
  else if(p>=40)
   printf("Percentage: %.2f\nGrade: A",p);
  }
```

OUTPUT:

```
Enter marks in Physics out of 100: 88
Enter marks in Chemistry out of 100: 90
Enter marks in Biology out of 100: 92
Enter marks in Mathematics out of 100: 94
Enter marks in Computer out of 100: 96
Percentage: 92.00
Grade: A
```