ES202

Assignment-III

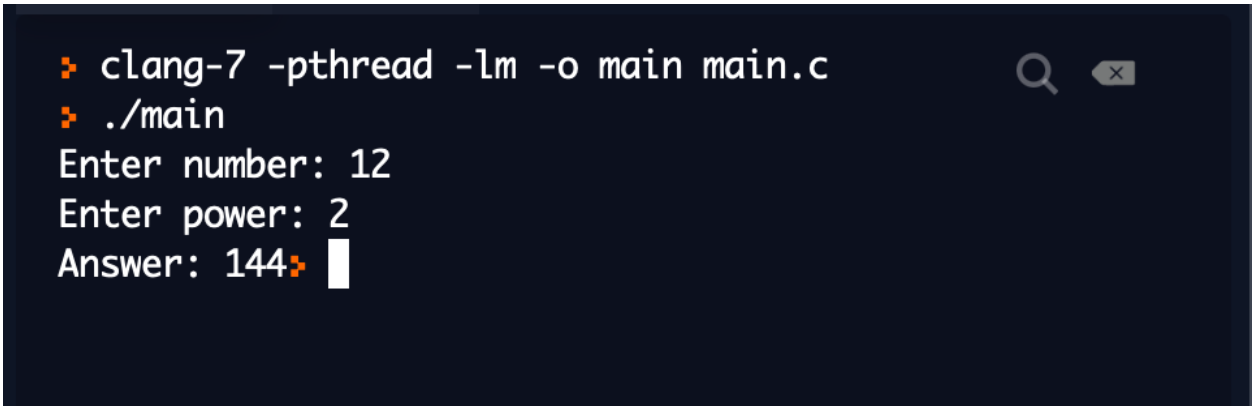
C Programming Exercises

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

Source Code:

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

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

Output:

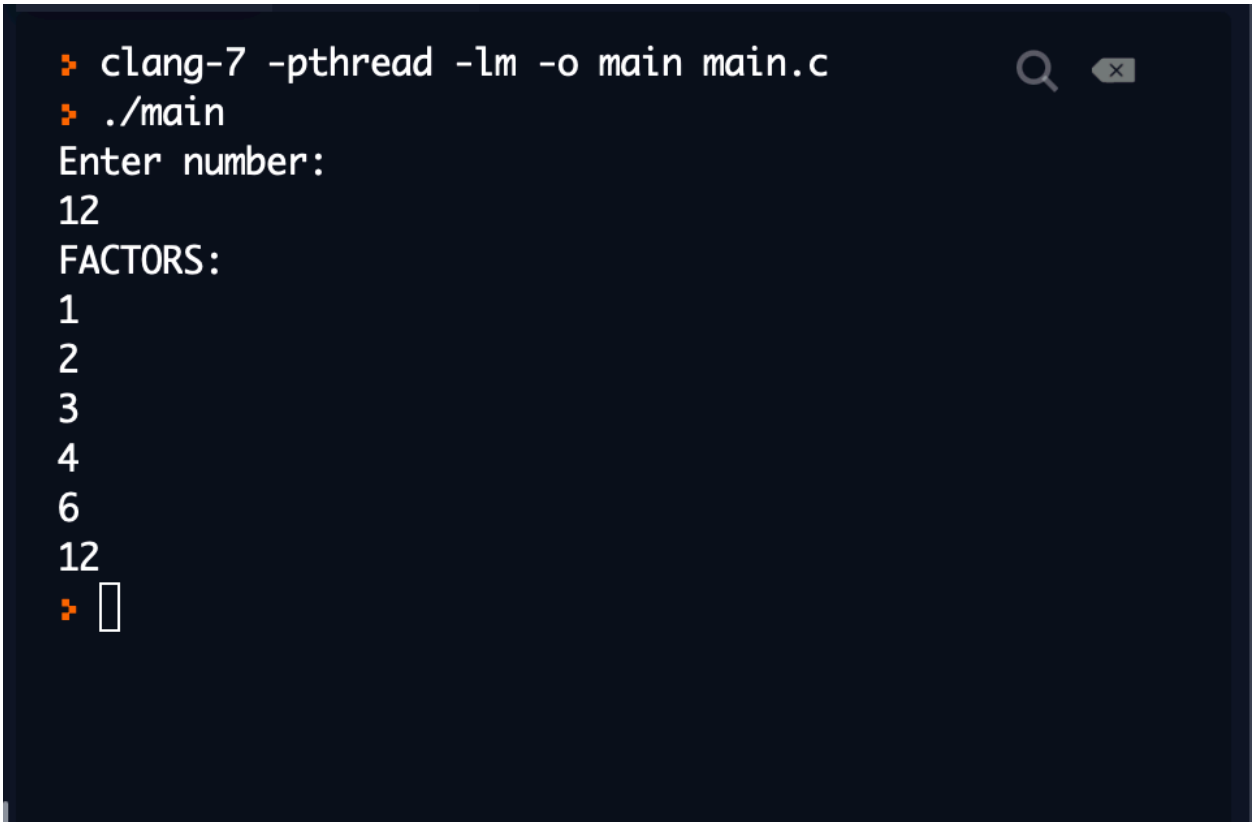


2. Write a C program to find all factors of a number.

Source Code:

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

Output:

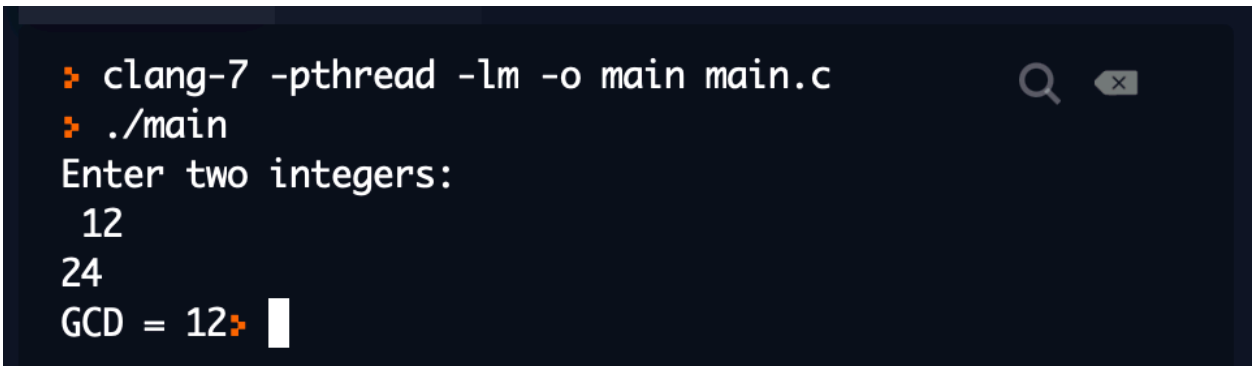


3. Write a C program to find HCF (GCD) of two numbers.

Source Code:

```
#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:

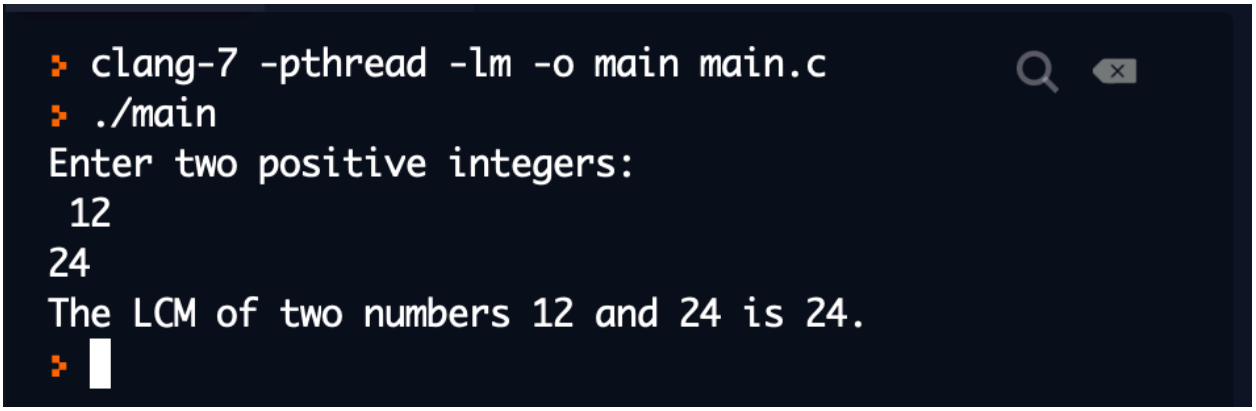


4. Write a C program to find LCM of two numbers.

Source Code:

```
#include <stdio.h>
int main() {
   int n1, n2, gcd;
   printf("Enter two positive integers:\n ");
   scanf("%d", &n1);
scanf("%d",&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. \n", n1, n2, ((n1 * n2) / gcd));
   return 0;
}
```

Output:

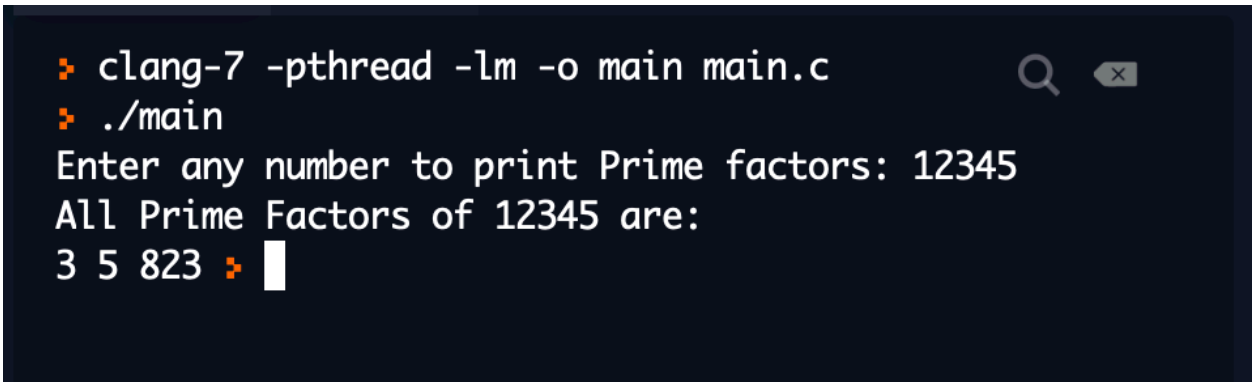


5. Write a C program to find all prime factors of a number.

Source Code:

```
    #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; 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:

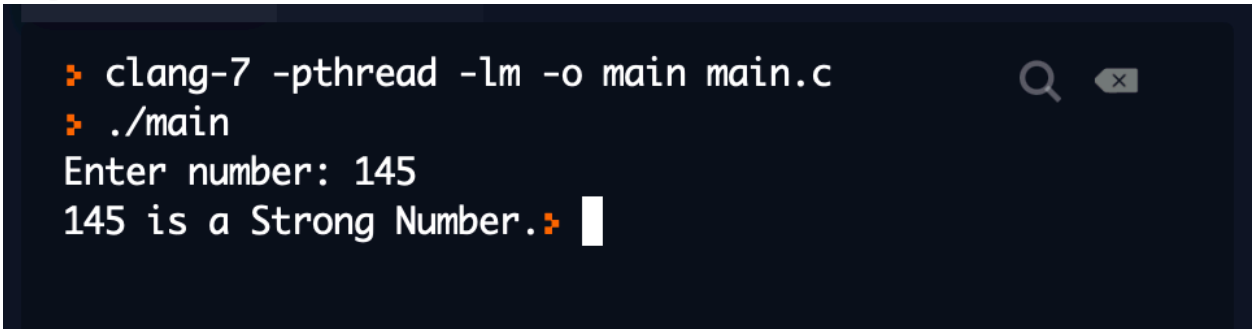


6. Write a C program to check whether a number is Strong number or not.

Source Code:

```
#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: \n");
   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",n);
 else
    printf("%d is not a Strong Number. \n",n);

}
```

Output:



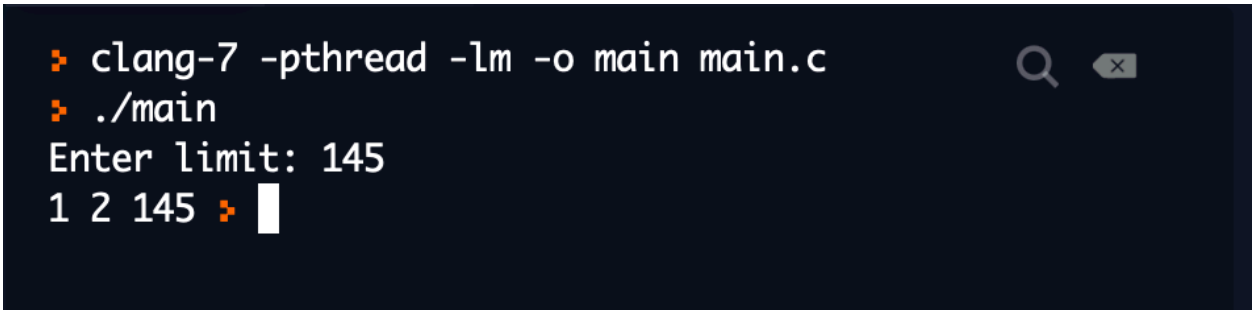
7. Write a C program to print all Strong numbers between 1 to n.

Source Code:

```
#include <stdio.h>
int fact(int a)
{
   int ans=1;
   for(int i=a;i>=1;--i)
     ans*=i;
```

```
    return ans;
}
void 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:



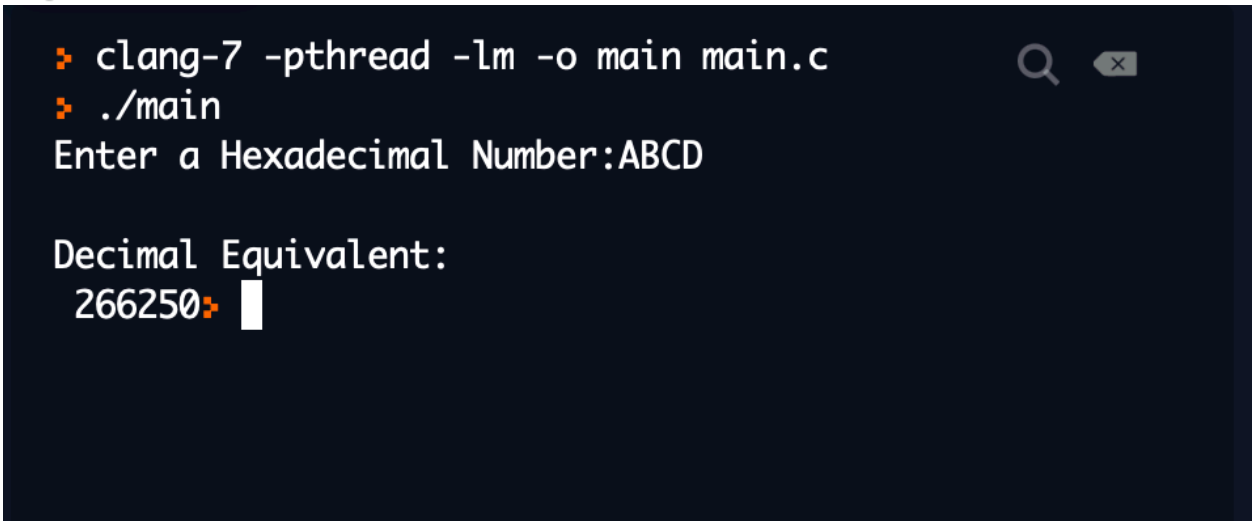
8. Write a C program to convert Hexadecimal to Decimal number system.

Source Code:

```
#include<stdio.h>
#include<math.h>
int main()
{
    int dn=0;
    int c=0,l=0,i=0;
    char hdn[20];

    printf("Enter a Hexadecimal Number:");
    scanf("%s",hdn);
    while(hdn[i]!='\0')
```

```
    {
     l++;
     i++;
    }
    l--;
    i=0;
   while(l>=0)
   {
    c=hdn[l];
    if(c>=48&&c<=57)
    c=c-48;

    else if(c>=97&&c<=102)
    c=c-97+10;

    else if(c>=65&&c<=70)
    dn=c-65+10;


    dn=dn+(c*pow(16,i));
    l--;
    i++;

    }
    printf("\nDecimal Equivalent:\n %d",dn);
    return 0;
}
```

Output:



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

Source Code :

```
#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:

```
clang-7 -pthread -lm -o main main.c
./main
Enter day number: 4
THURSDAY
```

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

Source Code:

```
#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: