Abhinav Anand **Roll-22052611** **Section:B16**

```
//q1)Print Armstrong numbers from 100 to 999.
#include <stdio.h>
int main() {
   int num, digit, sum, a;
   printf("Armstrong numbers in the range 100 to 999 are:\n");
   for (num = 100; num <= 999; num++) {
      a = num;
      sum = 0;
      while (a > 0)
         { digit = a % 10;
         sum += (digit * digit * digit);
         a /= 10;
      }
      if (num == sum)
         { printf("%d ", num);
      }
   }
   return 0;
}
```

Output-

```
Armstrong numbers in the range 100 to 999 are:
153 370 371 407
```

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//q2)Find the sum of digits of a number until the sum is reduced to 1 digit.
Example: 538769->38->11->2

```
#include<stdio.h>
int main() {
   int num, sum, digit;
   printf("Enter a number: ");
   scanf("%d", &num);
   sum = num;
   while (sum >= 10)
      {sum = 0;
      for (int i = num; i > 0; i /= 10)
         {digit = i % 10;
         sum += digit;
      }
      num = sum;
   }
   printf("The final sum of digits is: %d\n", sum);
   return 0;
}
```

Output-

Enter a number: 538769

The final sum of digits is: 2

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```
//q3)Check whether a number is prime or not.
#include <stdio.h>
int main()
   {int num;
   printf("Enter a number: ");
   scanf("%d", &num);
   for (int i = 2; i <= num/2; i++)
      {if (num % i == 0) {
         printf("%d is not a prime number.\n", num);
         return 0;
      }
   }
   printf("%d is a prime number.\n", num);
   return 0;
}
```

Output-

```
Enter a number: 19
19 is a prime number.
```

Lab 5(For Loop)
Abhik Samanta Roll-22052610 Section-B16

```
//q4)Find the factorial of a number.
#include<stdio.h>
void
   main(){ int
   n,num; long
   fact=1;
   printf("Enter the number :");
   scanf("%d",&n);
   num=n;
   if(n<0){
      printf("No factorial of negative number.");
   }
   else{
      for(int
         i=1;i<=n;i++){fact*
         =i;
      }
      printf("Factorial of %d = %ld\n", num, fact);
   }
}
```

Output-

```
Enter the number :5
Factorial of 5 = 120
```

Lab 5(For Loop)
Abhik Samanta Roll-22052610 Section-B16

```
//q5)Convert a binary number to a decimal number
#include<stdio.h>
void main(){
   int n,nsave,rem,d;
   int j=1;
   int dec=0;
   printf("Enter the number in binary: ");
   scanf("%d",&n);
   nsave=n;
   for(;n>0;n/=10){
      rem=n%10;
      d=rem*j;
      dec+=d;
      j*=2;
   }
   printf("Binary number = %d, Decimal number = %d\n", nsave, dec);
}
```

Output-

```
Enter the number in binary: 100101
Binary number = 100101, Decimal number = 37
```

Lab 5(For Loop)
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H.W Questions

//p1)Multiply two positive numbers without using * operator.

```
#include <stdio.h>
int
  main(){i
  nt x, y;
  int product = 0;
  printf("Enter two integers:\n");
  scanf("%d%d", &x, &y);
  for(int i=1;i<=y;i++)
  {
    product += x;
  }
  printf("Product = %d\n", product);
}
```

Ouptut-

Enter two integers:

4 3

Product = 12

Lab 5(For Loop)
Abhik Samanta Roll-22052610 Section-B16

//p2)Convert a decimal number to its equivalent binary number.

```
#include<stdio.h>
int main() {
   int dec, bin= 0, base = 1, rem;
   printf("Enter a decimal number: ");
   scanf("%d", &dec);
   for (int i = dec; i > 0; i /= 2)
      {rem = i % 2;
      bin+= rem * base;
      base *= 10;
   }
   printf("Binary equivalent: %d\n", bin);
   return 0;
}
```

Output-

Enter a decimal number: 37

Binary equivalent: 100101

Lab 5(For Loop)
Abhik Samanta Roll-22052610 Section-B16

```
//p3)Find the sum of this series up to n terms 1+2+4+7+11+16+...
#include <stdio.h>
int main()
  {int n;
  printf("Enter the value of n: ");
  scanf("%d", &n);
  int sum = 0;
  int term = 1;
  for (int i=1; i<= n;i++)
    {sum += term;
    term += i;
  }
  printf("The sum of the series up to %d terms is: %d", n, sum);
  return 0;
}
```

Output-

```
Enter the value of n: 5
The sum of the series up to 5 terms is: 25
```

Lab 5(For Loop)
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```
//p4)Generate the fibonacci series 0,1,1,2,3,5,8,13,34,55,89
#include<stdio.h>
void main(){
  int t1 = 0, t2 = 1, nextTerm = 0, n;
  printf("Enter a positive number: ");
  scanf("%d", &n);
  printf("Fibonacci Series:");
  for (int
  i=1;i<=n;i++){ printf("%d,
  ", nextTerm); nextTerm =
  t1 + t2;
    t1 = t2;
    t2 = nextTerm;
  }
}
```

Output-

```
Enter a positive number: 89
Fibonacci Series:0, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89
```

Lab 5(For Loop)
Abhik Samanta Roll-22052610 Section-B16

```
//p5)Find the LCM and HCF of two numbers.
#include <stdio.h>
int main() {
   int num1, num2, hcf, lcm;
   printf("Enter two positive integers: ");
   scanf("%d %d", &num1, &num2);
   for (int i = 1; i <= num1 && i <= num2; i++)
      {if (num1 % i == 0 && num2 % i == 0) {
         hcf = i;
      }
   }
   lcm = (num1 * num2) / hcf;
   printf("HCF: %d\n", hcf);
   printf("LCM: %d\n", lcm);
   return 0;
}
```

Output-

```
Enter two positive integers: 24 36
HCF: 12
LCM: 72
```

Lab 5(For Loop)
Abhik Samanta Roll-22052610 Section-B16

//p6)An integer n is divisible by 9 if the sum of its digits is divisible by 9. Develop a program to display each digit, starting with the rightmost digit. Your program should also determine whether or not the number is divisible by 9.

```
#include<stdio.h>

int main(){
   int num,sum=0;
   printf("Enter the number: ");
   scanf("%d",&num);
   for(;num > 0;num/=10){
      int mod = num % 10;
      printf("%d\n",mod);
      sum+=mod;
   }
   if(sum%9==0){
      printf("It is divisible by 9");
   }
   else{
      printf("It is not divisible by 9");
   }


   return 0;
}
```

Output-

```
Enter the number: 123456
6
5
4
3
2
1
It is not divisible by 9
```