**a.**

**i. check whether the year is Leap year**

#include <stdio.h>

void year();

void main()

{

printf("Check the Year");

checkYear();

}

void checkYear()

{

int year;

printf("Enter a year: ");

scanf("%d", &year);

if (year % 400 == 0)

{

printf("%d is a leap year.", year);

}

else if (year % 100 == 0)

{

printf("%d is not a leap year.", year);

}

else if (year % 4 == 0) {

printf("%d is a leap year.", year);

}

else {

printf("%d is not a leap year.", year);

}

}

**ii. convert binary to hexadecimal**

#include <stdio.h>

void f();

void main()

{

convertNum();

}

void convertNum()

{

long int bv, hv = 0, i = 1, rem;

printf("Enter the binary number: ");

scanf("%ld", &bv);

while (bv != 0)

{

rem = bv % 10;

hv = hv + rem \* i;

i = i \* 2;

bv = bv / 10;

}

printf("Equivalent hexadecimal value: %lX", hv);

}

**iii. count number of digits in a number**

#include <stdio.h>

void num();

void main()

{

cont();

}

void cont()

{

long long n;

int count = 0;

printf("Enter an integer: ");

scanf("%lld", &n);

while (n != 0)

{

n /= 10;

++count;

}

printf("Number of digits: %d", count);

}

**d.**

**ii. calculate factorial of a number**

#include <stdio.h>

int factorial(int,int);

void main()

{

int n, i,res;

unsigned long long fact = 1;

printf("Enter an integer: ");

scanf("%d", &n);

if (n < 0)

printf("Error! Factorial of a negative number doesn't exist.");

else {

for (i = 1; i <= n; ++i)

{

res=factorial(fact,i);

}

printf("Factorial of %d = %llu", n, fact);

}

}

int factorial(int fact,int i)

{

return fact \*= i;

}

**iii**. **count number of digits in a number**

#include <stdio.h>

int num(int);

void main()

{

int n;

int count = 0,res;

printf("Enter an integer: ");

scanf("%d", &n);

while (n != 0)

{

res=num(n);

++count;

}

printf("Number of digits: %d", count);

}

int num(int n)

{

return n /= 10;

}

**g.**

**i. to Print Fibonacci Series**

#include<stdio.h>

int fibo(int);

int main()

{

int count, c = 0, i;

printf("Enter number of terms:");

scanf("%d",&count);

printf("\nFibonacci series:\n");

for ( i = 1 ; i <= count ; i++ )

{

printf("%d\n", fibo(c));

c++;

}

return 0;

}

int fibo(int num)

{

if ( num == 0 )

return 0;

else if ( num == 1 )

return 1;

else

return ( fibo(num-1) + fibo(num-2) );

}

**ii. to print even or odd numbers in given range**

#include <stdio.h>

void EvenAndOdd(int stVal, int n);

int main()

{

int n;

printf("Print even or odd numbers in a given range :\n");

printf(" Input the range to print starting from 1 : ");

scanf("%d", &n);

printf("\n All even numbers from 1 to %d are : ", n);

EvenAndOdd(2, n);

printf("All odd numbers from 1 to %d are : ", n);

EvenAndOdd(1, n);

printf("\n\n");

return 0;

}

void EvenAndOdd(int stVal, int n)

{

if(stVal > n)

return;

printf("%d ", stVal);

EvenAndOdd(stVal+2, n);

}

**j.**

**ii.** **to read a string and prints if it is a palindrome or not**.

#include <stdio.h>

#include <string.h>

void isPalindrome(char str[])

{

int l = 0;

int h = strlen(str) - 1;

while (h > l)

{

if (str[l++] != str[h--])

{

printf("%s is Not Palindrome", str);

return;

}

}

printf("%s is palindrome", str);

}

int main()

{

isPalindrome("Gopal Abdul");

isPalindrome("\n Welcome");

isPalindrome("\n devil");

return 0;

}