1. Program to print all-natural numbers between 1 to n.

SOURCE CODE

#include<stdio.h>

int main()

{

int n,i;

printf("Enter a number:");

scanf("%d",&n);

printf("First %d natural numbers are:\n",n);

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

{

printf("%d ",i);

}

return 0;

}

OUTPUT

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 4

3 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82

 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

**...Program finished with exit code 0**

**Press ENTER to exit console.**

1. Program to print all even or odd numbers in given range using recursion

SOURCE CODE

#include <stdio.h>

// Function declaration

void printevenodd(int cur, int limit);

int main()

{

int lowerLimit, upperLimit;

// Inputting lower and upper limit from user

printf("Enter lower limit: ");

scanf("%d", &lowerLimit);

printf("Enter upper limit: ");

scanf("%d", &upperLimit);

printf("Even/odd Numbers from %d to %d are: ", lowerLimit, upperLimit);

printevenodd(lowerLimit, upperLimit);

return 0;

}

//Recursive function to print even or odd numbers in a given range.

void printevenodd(int cur, int limit)

{

if(cur > limit)

return;

printf("%d, ", cur);

// Recursively call to printevenodd to get next value

printevenodd(cur + 2, limit);

}

OUTPUT

Enter lower limit: 5

Enter upper limit: 50

Even/odd Numbers from 5 to 50 are: 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37, 39, 41, 43, 45, 47

, 49,

**...Program finished with exit code 0**

1. Program to find sum of all-natural numbers between 1 to n using recursion

SOURCE CODE

#include <stdio.h>

int addNumbers(int n);

int main() {

int num;

printf("Enter a positive integer: ");

scanf("%d", &num);

printf("Sum = %d", addNumbers(num));

return 0;

}

int addNumbers(int n) {

if (n != 0)

return n + addNumbers(n - 1);

else

return n;

}

OUTPUT

Enter a positive integer: 50

Sum = 1275

**...Program finished with exit code 0**

**Press ENTER to exit console.**

1. Program to find sum of all even or odd numbers in given range using recursion

SOURCE CODE

#include <stdio.h>

int sumOfEvenOdd(int start, int end);

int main()

{

int start, end, sum;

/\* Input lower and upper limit from user \*/

printf("Enter lower limit: ");

scanf("%d", &start);

printf("Enter upper limit: ");

scanf("%d", &end);

printf("Sum of even/odd numbers between %d to %d = %d\n", start, end, sumOfEvenOdd(start, end));

return 0;

}

/\*\*

\* Find sum of all even or odd numbers recursively.

\*/

int sumOfEvenOdd(int start, int end)

{

/\* Base condition \*/

if(start > end)

return 0;

else

return (start + sumOfEvenOdd(start + 2, end));

}

OUTPUT

Enter lower limit: 5

Enter upper limit: 50

Sum of even/odd numbers between 5 to 50 = 621

**...Program finished with exit code 0**

1. Program to find reverse of any number using recursion

SOURCE CODE

#include<stdio.h>

int main(){

int num,reverse\_number;

//User would input the number

printf("\nEnter any number:");

scanf("%d",&num);

//Calling user defined function to perform reverse

reverse\_number=reverse\_function(num);

printf("\nAfter reverse the no is :%d",reverse\_number);

return 0;

}

int sum=0,rem;

reverse\_function(int num){

if(num){

rem=num%10;

sum=sum\*10+rem;

reverse\_function(num/10);

}

else

return sum;

return sum;

}

OUTPUT

Enter any number:50

After reverse the no is :5

**...Program finished with exit code 0**

1. Program to check whether a number is palindrome or not using recursion

SOURCE CODE

#include<stdio.h>

int check\_palindrome(int num){

static int reverse\_num=0,rem;

if(num!=0){

rem=num%10;

reverse\_num=reverse\_num\*10+rem;

check\_palindrome(num/10);

}

return reverse\_num;

}

int main(){

int num, reverse\_num;

printf("Enter a number: ");

scanf("%d",&num);

reverse\_num = check\_palindrome(num);

if(num==reverse\_num)

printf("%d is a palindrome number",num);

else

printf("%d is not a palindrome number",num);

return 0;

}

OUTPUT

Enter a number: 555

555 is a palindrome number

**...Program finished with exit code 0**

**Press ENTER to exit console.**

1. Program to find sum of digits of a given number using recursion

SOURCE CODE

#include<stdio.h>

int doSum(int);

int main()

{

int num,sum;

printf("Enter a Number to perform Sum : ");

scanf("%d",&num);

sum = doSum(num);

printf("Sum of Digits of Given Number is: %d",sum);

return 0;

}

int doSum(int num)

{

static int sum =0,r;

if(num!=0)

{

r=num%10;

sum=sum+r;

doSum(num/10);

}

return sum;

}

OUTPUT

Enter a Number to perform Sum : 555

Sum of Digits of Given Number is:  15

**...Program finished with exit code 0**

**Press ENTER to exit console.**

1. Program to generate nth Fibonacci term using recursion

SOURCE CODE

#include <stdio.h>

int fibo(int);

int main()

{

int num;

int result;

printf("Enter the nth number in fibonacci series: ");

scanf("%d", &num);

if (num < 0)

{

printf("Fibonacci of negative number is not possible.\n");

}

else

{

result = fibo(num);

printf("The %d number in fibonacci series is %d\n", num, result);

}

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));

}

}

OUTPUT

Enter the nth number in fibonacci series: 15

The 15 number in fibonacci series is 610

**...Program finished with exit code 0**

**Press ENTER to exit console.**

1. Program to find GCD (HCF) of two numbers using recursion

SOURCE CODE

#include <stdio.h>

int hcf(int n1, int n2);

int main() {

int n1, n2;

printf("Enter two positive integers: ");

scanf("%d %d", &n1, &n2);

printf("G.C.D of %d and %d is %d.", n1, n2, hcf(n1, n2));

return 0;

}

int hcf(int n1, int n2) {

if (n2 != 0)

return hcf(n2, n1 % n2);

else

return n1;

}

OUTPUT

Enter two positive integers: 5 15

G.C.D of 5 and 15 is 5.

**...Program finished with exit code 0**

**Press ENTER to exit console.**

1. Program to find LCM of two numbers using recursion using function

SOURCE CODE

#include<stdio.h>

int find\_lcm(int, int); // function prototype declaration

int main()

{

int a, b, lcm;

printf("\n\nEnter 2 integers to find LCM of:\n");

scanf("%d%d", &a, &b);

lcm = find\_lcm(a,b); // function call

printf("\n\n LCM of %d and %d is: %d\n\n", a, b, lcm);

}

int find\_lcm(int a, int b) // function definition

{

/\*

static variable is initialized only once

for each function call

\*/

static int temp = 1;

if(temp%a == 0 && temp%b == 0)

{

return temp;

}

else

{

temp++;

find\_lcm(a,b);

return temp;

}

}

OUTPUT

Enter 2 integers to find LCM of:

5 15

 LCM of 5 and 15 is: 15

**...Program finished with exit code 0**

**Press ENTER to exit console.**