ASSIGNMENT 2:

**PROGRAM 1:**

#include<stdio.h>

#include<conio.h>

void main()

{

int n,p,nPr\_var,r;

clrscr();

printf("Enter the value of n: ");

scanf("%d",&n);

printf("Enter the value of p");

scanf("%d",&r);

nPr\_var=fact(n)/fact(n-r);

printf("The value of nPr is : %d",nPr\_var);

getch();

}

int fact(n)

{

int k=1,i;

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

{

k=k\*i;

}

return(k);

}

**PROGRAM 2:**

#include<stdio.h>

#include<conio.h>

void main()

{

int n,p,nPr\_var,r,i;

clrscr();

printf("Enter the value of n: ");

scanf("%d",&n);

printf("Enter the value of p");

scanf("%d",&r);

nPr\_var=fact(n)/fact(r);

printf("The value of nPr is : %d",nPr\_var);

getch();

}

int fact(n)

{

int k=1,i;

if(n==0)

{

return(k);

}

else

{

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

{

k=k\*i;

}

}

return(k);

}

**PROGRAM 3:**

#include<stdio.h>

#include<conio.h>

void main()

{

float a,b,mul;

clrscr();

printf("Enter first integer: ");

scanf("%f",&a);

printf("Enter second integer");

scanf("%f",&b);

mul=a\*b;

printf("The Multiplication of Two Floating Numbers:%f ",mul);

getch();

}

**PROGRAM 4:**

#include<stdio.h>

#include<conio.h>

void main()

{

int a,b,quotient;

int remainder;

clrscr();

printf("Enter First number: ");

scanf("%d",&a);

printf("Enter Second number: ");

scanf("%d",&b);

quotient=a/b;

remainder=a%b;

printf("The Quotient= %d \n Remainder=%d",quotient,remainder);

getch();

}

**PROGRAM 5:**

#include<stdio.h>

#include<conio.h>

void main()

{

int r;

float area, circumference;

clrscr();

printf("Enter the Radius of Circle");

scanf("%d",&r);

area=3.17\*r\*r;

circumference=2\*3.17\*r;

printf("The Area=%f and \n Circumference of Cirlce= %f ",area,circumference);

getch();

}

**PROGRAM 7:**

#include<stdio.h>

#include<conio.h>

#include<math.h>

void main()

{

int s;

float area,a;

clrscr();

printf("Enter the side of an eqilateral triangle: ");

scanf("%d\n",&s);

area=(sqrt(3)/4)\*s\*s;

printf("The Area of an Equilateral Triangle : %f ",area);

getch();

}

**PROGRAM 8:**

#include <math.h>

#include <stdio.h>

int convert(long long n);

int main() {

long long n;

printf("Enter a binary number: ");

scanf("%lld", &n);

printf("%lld in binary = %d in decimal", n, convert(n));

return 0;

}

int convert(long long n) {

int dec = 0, i = 0, rem;

while (n != 0) {

rem = n % 10;

n /= 10;

dec += rem \* pow(2, i);

++i;

}

return dec;

}

**PROGRAM 9:**

#include <math.h>

#include <stdio.h>

long long convert(int n);

int main() {

int n;

printf("Enter a decimal number: ");

scanf("%d", &n);

printf("%d in decimal = %lld in binary", n, convert(n));

return 0;

}

long long convert(int n) {

long long bin = 0;

int rem, i = 1, step = 1;

while (n != 0) {

rem = n % 2;

printf("Step %d: %d/2, Remainder = %d, Quotient = %d\n", step++, n, rem, n / 2);

n /= 2;

bin += rem \* i;

i \*= 10;

}

return bin;

}

**PROGRAM 10:**

#include <stdio.h>

#include <math.h>

int convertDecimalToOctal(int decimalNumber);

int main()

{

int decimalNumber;

printf("Enter a decimal number: ");

scanf("%d", &decimalNumber);

printf("%d in decimal = %d in octal", decimalNumber, convertDecimalToOctal(decimalNumber));

return 0;

}

int convertDecimalToOctal(int decimalNumber)

{

int octalNumber = 0, i = 1;

while (decimalNumber != 0)

{

octalNumber += (decimalNumber % 8) \* i;

decimalNumber /= 8;

i \*= 10;

}

return octalNumber;}

**PROGRAM 11:**

#include <stdio.h>

#include <math.h>

long long convertOctalToDecimal(int octalNumber);

int main()

{

int octalNumber;

printf("Enter an octal number: ");

scanf("%d", &octalNumber);

printf("%d in octal = %lld in decimal", octalNumber, convertOctalToDecimal(octalNumber));

return 0;

}

long long convertOctalToDecimal(int octalNumber)

{

int decimalNumber = 0, i = 0;

while(octalNumber != 0)

{

decimalNumber += (octalNumber%10) \* pow(8,i);

++i;

octalNumber/=10;

}

i = 1;

return decimalNumber;

}

**PROGRAM 12:**

#include <math.h>

#include <stdio.h>

int convert(long long bin);

int main() {

long long bin;

printf("Enter a binary number: ");

scanf("%lld", &bin);

printf("%lld in binary = %d in octal", bin, convert(bin));

return 0;

}

int convert(long long bin) {

int oct = 0, dec = 0, i = 0;

// converting binary to decimal

while (bin != 0) {

dec += (bin % 10) \* pow(2, i);

++i;

bin /= 10;

}

i = 1;

// converting to decimal to octal

while (dec != 0) {

oct += (dec % 8) \* i;

dec /= 8;

i \*= 10;

}

return oct;

}

**PROGRAM 13:**

#include <math.h>

#include <stdio.h>

long long convert(int oct);

int main() {

int oct;

printf("Enter an octal number: ");

scanf("%d", &oct);

printf("%d in octal = %lld in binary", oct, convert(oct));

return 0;

}

long long convert(int oct) {

int dec = 0, i = 0;

long long bin = 0;

// converting octal to decimal

while (oct != 0) {

dec += (oct % 10) \* pow(8, i);

++i;

oct /= 10;

}

i = 1;

// converting decimal to binary

while (dec != 0) {

bin += (dec % 2) \* i;

dec /= 2;

i \*= 10;

}

return bin;

}

**PROGRAM14:**

#include<stdio.h>

#include<conio.h>

void main()

{

int n, i , c;

clrscr();

printf("Enter Fibonacci series of n terms :\n");

scanf("%d",&n);

printf("Fibonacci series \n0\n1\n");

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

{

printf("%d\n", Fibo(i));

i++;

}

getch();

}

int Fibo(int n)

{

if ( n == 0 )

return 0;

else if ( n == 1 )

return 1;

else

return ( Fibo(n-1) + Fibo(n-2) );

}

**PROGRAM 15:**

#include<stdio.h>

long int facto(int n);

void main() {

int n;

clrscr();

printf("Enter a positive integer: ");

scanf("%d",&n);

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

getch();

}

long int facto(int n)

{

if (n>=1)

return n\* facto(n-1);

else

return 1;

}

**PROGRAM 16:**

#include <stdio.h>

int sumnatural(int n);

void main() {

int num;

clrscr();

printf("Enter a positive integer: ");

scanf("%d", &num);

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

getch();

}

int sumnatural(int n) {

if (n != 0)

return n + sumnatural(n - 1);

else

return n;

}

**PROGRAM 17:**

#include<stdio.h>

int isPal(int aj)

void main()

{

int palindrome,n;

clrscr();

printf("\n\nEnter a number to check for Palindrome: ");

scanf("%d", &n);

palindrome = isPal(n);

if(palindrome == 1)

printf("\n\n\n%d is palindrome\n\n", n);

else

printf("\n\n\n%d is not palindrome\n\n", n);

getch();

}

int isPal(int aj)

{

static int sum = 0,n;

if(aj != 0)

{

sum = sum \*10 + aj%10;

isPal(aj/10);

}

else if(sum == n)

return 1;

else

return 0;

}

**PROGRAM 18:**

#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;

}

**PROGRAM 19:**

#include<stdio.h>

#include<conio.h>

char\* reverse(char\* str);

void main()

{

int i, j, k;

char str[100];

char \*rev;

printf("Enter the string:\t");

scanf("%s", str);

printf("The original string is: %s\n", str);

rev = reverse(str);

printf("The reversed string is: %s\n", rev);

getch();

}

char\* reverse(char \*str)

{

static int i = 0;

static char rev[100];

if(\*str)

{

reverse(str+1);

rev[i++] = \*str;

}

return rev;

}

**PROGRAM 20:**

#include<stdio.h>

int add(int m, int n)

{

int y;

if(n == 0)

return m;

y = add(m, n-1) + 1;

return y;

}

void main()

{

int a, b, r;

clrscr();

printf("Enter the two numbers:\n");

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

r = add(a, b);

printf("\n\nSum of two numbers is: %d\n\n", r);

getch();

}