**Program on calculation**

Program 1:

In the following program we are calculating the value of nPr based on the given values of n and r. nPr can also be represented as P(n,r). The formula of P(n, r) is: n! / (n – r)!. For example P(6, 2) = 6! / (6-2)! => 720 / 24 = 30. We have implemented the same logic in the below C program.

#include <stdio.h>

void main()

{

int n, r, npr\_var;

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

scanf("%d", &n);

printf("\nEnter the value of r:");

scanf("%d", &r);

/\* nPr is also known as P(n,r), the formula is:

\* P(n,r) = n! / (n - r)! For 0 <= r <= n.

\*/

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

printf("\nThe value of P(%d,%d) is: %d",n,r,npr\_var);

}

// Function for calculating factorial

int fact(int num)

{

int k = 1, i;

// factorial of 0 is 1

if (num == 0)

{

return(k);

}

else

{

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

{

k = k \* i;

}

}

return(k);

}

Program 2:

In the following program we are calculating and displaying the value of nCr. nCr can also be represented as C(n,r)  
The formula is:  
C(n,r) = n! / ( r!(n – r)! ). For 0 <= r <= n. Here ! represents factorial. For example: C(6, 2) = 6! / (2! \* (6-2)!) => 720/(2 \* 24) => 15  
The same calculation we have done in the following program.

#include <stdio.h>

int fact(int num);

void main()

{

int n, r, ncr\_var;

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

scanf("%d", &n);

printf("\nEnter the value of r:");

scanf("%d", &r);

/\* ncr is also represented as C(n,r), the formula is:

\* C(n,r) = n! / ( r!(n - r)! ). For 0 <= r <= n.

\*/

ncr\_var = fact(n) / (fact(r) \* fact(n - r));

printf("\nThe value of C(%d,%d) is: %d",n,r,ncr\_var);

}

/\* This function is used to find the

\* factorial of given number num

\*/

int fact(int num)

{

int k = 1, i;

// factorial of 0 is 1

if (num == 0)

{

return(k);

}

else

{

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

{

k = k \* i;

}

}

return(k);

}

Program 3:

Program to multiply two floating point numbers and display the product as output.

## Example 1: Program to display the product of two float numbers

In this program, user is asked to enter two float numbers and the program stores the entered values into the variable num1 and num2. The program then multiplies entered numbers and display the product as output.

#include <stdio.h>

int main(){

float num1, num2, product;

printf("Enter first Number: ");

scanf("%f", &num1);

printf("Enter second Number: ");

scanf("%f", &num2);

//Multiply num1 and num2

product = num1 \* num2;

// Displaying result up to 3 decimal places.

printf("Product of entered numbers is:%.3f", product);

return 0;

}

Output:

Enter first Number: 12.761

Enter second Number: 89.23

Product of entered numbers is:1138.664

Program 4:

Program to find quotient and remainder based on the dividend & divisor values entered by user.

## Example :Program to find Quotient and Remainder

In this program, user is asked to enter the dividend and divisor and the program then finds the quotient and remainder based on the input values.

#include <stdio.h>

int main(){

int num1, num2, quot, rem;

printf("Enter dividend: ");

scanf("%d", &num1);

printf("Enter divisor: ");

scanf("%d", &num2);

/\* The "/" Arithmetic operator returns the quotient

\* Here the num1 is divided by num2 and the quotient

\* is assigned to the variable quot

\*/

quot = num1 / num2;

/\* The modulus operator "%" returns the remainder after

\* dividing num1 by num2.

\*/

rem = num1 % num2;

printf("Quotient is: %d\n", quot);

printf("Remainder is: %d", rem);

return 0;

}

Output:

Enter dividend: 15

Enter divisor: 2

Quotient is: 7Program to find quotient and remainder based on the dividend & divisor values entered by user.

Program 5:

Here we will write two C programs to find the average of two numbers(entered by user).

## Example : Program to find the average of two numbers

#include <stdio.h>

int main()

{

int num1, num2;

float avg;

printf("Enter first number: ");

scanf("%d",&num1);

printf("Enter second number: ");

scanf("%d",&num2);

avg= (float)(num1+num2)/2;

//%.2f is used for displaying output upto two decimal places

printf("Average of %d and %d is: %.2f",num1,num2,avg);

return 0;

}

Output:

Enter first number: 12

Enter second number: 13

Average of 12 and 13 is: 12.50