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EXPERIMENT NO . 1

OBJECT : Write a Program to print ASCII value of a character in C.

Program:

```
#include <stdio.h>
int main()
{
   char c;
   printf("Enter a character: ");

   // Reads character input from the user
   scanf("%c", &c);

   // %d displays the integer value of a character
   // %c displays the actual character
   printf("ASCII value of %c = %d", c, c);
   return 0;
}
```

Output

```
Enter a character: G
ASCII value of G = 71
```

EXPERIMENT NO. 2

OBJECT: Write a Program using if-else statement.

Program:

// Program to check whether an integer entered by the user is odd or even

```
#include <stdio.h>
int main()
{
   int number;
   printf("Enter an integer: ");
   scanf("%d",&number);

   // True if remainder is 0
   if( number%2 == 0 )
      printf("%d is an even integer.",number);
   else
      printf("%d is an odd integer.",number);
   return 0;
}
```

Output

```
Enter an integer: 7
7 is an odd integer.
```

EXPERIMENT NO: 3

OBJECT: Write a program using Switch Statement.

Program:

```
int main()
{
    int i=2;
    switch (i)
    {
        case 1:
          printf("Case1 ");
          break;
        case 2:
          printf("Case2 ");
          break;
        case 3:
          printf("Case3 ");
          break;
        case 4:
          printf("Case4 ");
          break;
        default:
          printf("Default ");
    }
    return 0;
}
```

Output:

Case 2

EXPERIMENT NO: 4

OBJECT: Write a Program to find the average of n (n < 10) numbers using arrays.

Program:

```
#include <stdio.h>
int main()
{
    int marks[10], i, n, sum = 0, average;
    printf("Enter n: ");
    scanf("%d", &n);
    for(i=0; i<n; ++i)
    {
        printf("Enter number%d: ",i+1);
        scanf("%d", &marks[i]);
        sum += marks[i];
    }
    average = sum/n;

    printf("Average marks = %d", average);

    return 0;
}
```

Output

```
Enter n: 5
Enter number1: 45
Enter number2: 35
Enter number3: 38
Enter number4: 31
Enter number5: 49
Average = 39
```

EXPERIMENT NO : 5

OBJECT: Write a program using for, while and do-while loop in C.

Program:

for loop

```
// Program to calculate the sum of first n natural numbers
// Positive integers 1,2,3...n are known as natural numbers

#include <stdio.h>
int main()
{
   int num, count, sum = 0;

   printf("Enter a positive integer: ");
   scanf("%d", &num);

   // for loop terminates when n is less than count
   for(count = 1; count <= num; ++count)
   {
      sum += count;
   }

   printf("Sum = %d", sum);

   return 0;
}
```

Output

```
Enter a positive integer: 10
Sum = 55
```

while loop:

```
// Program to find factorial of a number
// For a positive integer n, factorial = 1*2*3...n

#include <stdio.h>
int main()
{
   int number;
   long long factorial;

   printf("Enter an integer: ");
   scanf("%d",&number);

   factorial = 1;
   // loop terminates when number is less than or equal to 0
   while (number > 0)
   {
      factorial *= number;

// factorial = factorial*number;
      --number;
   }

   printf("Factorial= %lld", factorial);

   return 0;
}
```

Output

```
Enter an integer: 5
Factorial = 120
```

do-while loop:

```
//Program to print table for the given number using //do while loop

#include <stdio.h>
#include <conio.h>
void main(){
int i=1,number=0;
clrscr();
printf("Enter a number: ");
scanf("%d",&number);
```

```
do{
printf("%d \n",(number*i));
i++;
}while(i<=10);

getch();
}
```

Output

```
Enter a number: 5
5
10
15
20
25
30
35
40
45
50
```

EXPERIMENT NO : 6

OBJECT: Write a Program to implement Call by Value and Call by Reference.

Program:

Call by Value:

```
#include <stdio.h>

void swapByValue(int, int); /* Prototype */

int main() /* Main function */
{
  int n1 = 10, n2 = 20;

/* actual arguments will be as it is */

swapByValue(n1, n2);

 printf("n1: %d, n2: %d\n", n1, n2);

}
void swapByValue(int a, int b)

{

int t;

 t = a; a = b; b = t;
}
```

OUTPUT

```
n1: 10, n2: 20
```

Call by Reference:

```
#include <stdio.h>
 void swapByReference(int*, int*); /* Prototype */

int main() /* Main function */
{
  int n1 = 10, n2 = 20;

  /* actual arguments will be altered */

 swapByReference(&n1, &n2);

printf("n1: %d, n2: %d\n", n1, n2);

}
void swapByReference(int *a, int *b)
{
  int t;

  t = *a; *a = *b; *b = t;
}
```

OUTPUT

n1: 20, n2: 10

EXPERIMENT NO : 7

OBJECT : Write a program for calculating factorial of a number using Recursion.

Program:

```
/*
 * C Program to find factorial of a given number using recursion
 */
#include <stdio.h>

int factorial(int);      //prototype

int main()
{
   int num;
   int result;

   printf("Enter a number to find it's Factorial: ");
   scanf("%d", &num);
   if (num < 0)
   {printf("Factorial of negative number not possible\n");
   }
   else
   {
      result = factorial(num);
      printf("The Factorial of %d is %d.\n", num, result);
   }
   return 0;
}
int factorial(int num)
{
   if (num == 0 || num == 1)
   {return 1;
   }
   else
   { return(num * factorial(num - 1));
   }}
```

OUTPUT:

```
Enter a number to find it's Factorial: 6
The Factorial of 6 is 720.
```

EXPERIMENT NO : 8

OBJECT: Write a program to perform String Manipulation by using library functions.

Program:

strlen:

```
#include <stdio.h>
#include <string.h>
int main()
{
    char str1[20] = "BeginnersBook";
    printf("Length of string str1: %d", strlen(str1));
    return 0;
}
```

Output:

```
Length of string str1: 13
```

strcmp:

```
#include <stdio.h>
#include <string.h>
int main()
{
    char s1[20] = "BeginnersBook";
    char s2[20] = "BeginnersBook.COM";
    if (strcmp(s1, s2) ==0)
    {
      printf("string 1 and string 2 are equal");
    }else
     {
       printf("string 1 and 2 are different");
     }
    return 0;
}
```

Output:

string 1 and 2 are different

strcat:

```
#include <stdio.h>
#include <string.h>
int main()
{
    char s1[10] = "Hello";
    char s2[10] = "World";
    strcat(s1,s2);
    printf("Output string after concatenation: %s", s1);
    return 0;
}
```

Output:

Output string after concatenation: HelloWorld

strcpy:

```
#include <stdio.h>
#include <string.h>
int main()
{
    char s1[30] = "string 1";
    char s2[30] = "string 2 : I'm gonna copied into s1";
    /* this function has copied s2 into s1*/
    strcpy(s1,s2);
    printf("String s1 is: %s", s1);
    return 0;
}
```

Output:

String s1 is: string 2: I'm gonna copied into s1

EXPERIMENT NO : 9

OBJECT: Write a Program to implement Pointer in C.

Program:

```
/* Source code to demonstrate, handling of pointers in C program
*/
#include <stdio.h>
int main(){
  int* pc;
  int c;
  c=22;
  printf("Address of c:%u\n",&c);
  printf("Value of c:%d\n\n",c);
  pc=&c;
  printf("Address of pointer pc:%u\n",pc);
  printf("Content of pointer pc:%d\n\n",*pc);
  c=11;
  printf("Address of pointer pc:%u\n",pc);
  printf("Content of pointer pc:%d\n\n",*pc);
  *pc=2;
  printf("Address of c:%u\n",&c);
  printf("Value of c:%d\n\n",c);
  return 0;
}
```

Output

```
Address of c: 2686784
Value of c: 22

Address of pointer pc: 2686784
Content of pointer pc: 22

Address of pointer pc: 2686784
Content of pointer pc: 11

Address of c: 2686784
Value of c: 2
```

EXPERIMENT NO : 10

OBJECT: Write a program for addition of two matrices in C.

Program:

```
#include <stdio.h>

int main()
{
 int m, n, c, d, first[10][10], second[10][10], sum[10][10];

  printf("Enter the number of rows and columns of matrix\n");
  scanf("%d%d", &m, &n);
  printf("Enter the elements of first matrix\n");

  for (c = 0; c < m; c++)
    for (d = 0; d < n; d++)
      scanf("%d", &first[c][d]);

  printf("Enter the elements of second matrix\n");

  for (c = 0; c < m; c++)
    for (d = 0 ; d < n; d++)
        scanf("%d", &second[c][d]);

  printf("Sum of entered matrices:-\n");

  for (c = 0; c < m; c++) {
    for (d = 0 ; d < n; d++) {
      sum[c][d] = first[c][d] + second[c][d];
      printf("%d\t", sum[c][d]);
    }
    printf("\n");
  }

  return 0;
}
```

Output

```
Enter the number of rows and columns of matrix
2
2
Enter the elements of first matrix
1  2
3  4
Enter the elements of second marix
5  6
2  1
Sum of entered matrices:-
6        8
5        5
```

EXPERIMENT NO : 12

OBJECT: Write a Program to store and display student information using Structure.

Program:

```
#include <stdio.h>
struct student
{
   char name[50];
   int roll;
   float marks;
} s;
int main()
{
   printf("Enter information:\n");
   printf("Enter name: ");
   scanf("%s", s.name);

   printf("Enter roll number: ");
   scanf("%d", &s.roll);

   printf("Enter marks: ");
   scanf("%f", &s.marks);
   printf("Displaying Information:\n");

   printf("Name: ");
   puts(s.name);

   printf("Roll number: %d\n",s.roll);
   printf("Marks: %.1f\n", s.marks)
return 0;
}
```

Output

```
Enter information:
Enter name: Jack
Enter roll number: 23
Enter marks: 34.5
Displaying Information:
Name: Jack
Roll number: 23
Marks: 34.5
```
