PROGRAMMING FOR PROBLEM SOLVING ESC-18105

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#**PROGRAM NO:1** *C program to print "Hello World"*

```
#include<stdio.h>
int main()
 {
   printf ("Hello World\n");
   return 0;
 }

   Output
Hello World
```

#**PROGRAM NO:2** *C program to print Hello World five times*

```
#include<stdio.h>
int main()
{
  int n,i;
  printf("Enter a number:");
  scanf("%d",&n);
  for(i=1;i<=n;i++)
  {
     printf("Hello World ");
   }
     return 0;
 }
```

```
 Input: 3
  Output:
  Hello World
  Hello World
  Hello World
```

#**Program no:3**

- C program to check no is odd or even*

```
#include <stdio.h>
int main()
{
 int number;
 printf("Enter an integer: ");
 scanf("%d", &number);
 if(number % 2 == 0)
 printf("%d is even.", number);
 else
 printf("%d is odd.", number);
 return 0;
 }
```

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

#**Program no:4** *C program to find average of n numbers*

```
#include<stdio.h>
int main()
{
 int n, i;
 float sum = 0, x;
 printf("Enter number of elements: ");
 scanf("%d", &n);
 printf("\n\n\nEnter %d elements\n\n", n);
 for(i = 0; i < n; i++)
 {
  scanf("%f", &x);
  sum += x;
  }
 printf("\n\n\nAverage of the entered numbers  is = %f", (sum/n));
  return 0;
 }
```

Output Enter number of elements: 5

Enter 5 elements

2 3 4 5 6

Average of entered numbers is = 4.000000

#**Program no : 5**
C program to check no is positive or negative

```
 #include <stdio.h>
 int main()
   {
   int number;
    printf("Enter a number \n");
    scanf("%d", &number);
    if (number >= 0)
    printf("%d is a positive number \n", number);
    else
    printf("%d is a negative number \n", number);
    return 0;
     }
```

Output

```
Enter a number
-10
-10 is a negative number
```

#**Program no: 6**
C program to find prime no

```
#include <stdio.h>
int main()
{
 int n, i, flag = 0;
 printf("Enter a positive integer: ");
 scanf("%d", &n);
 for(i = 2; i <= n/2; ++i)
  {
   if(n%i == 0)
   {
       flag = 1;
     break;
     }
   }
    if (n == 1)
  {
   printf("1 is neither a prime nor simple     number.");
   }
 else
   {
    if (flag == 0)
    printf("%d is a prime number.", n);
   else
    printf("%d is not a prime number.", n);
   }
```

return 0; }

Output

```
Enter a positive integer: 29
29 is a prime number.
```

#**Program no:7**
C program to check no is palindrome or not

```
  #include <stdio.h>
```

```
    int main()
      {
        int n, r = 0, t;

         printf("Enter a number\n");
        scanf("%d", &n);

          t = n;

          while (t != 0)
            {
                   r = r * 10;
                   r = r + t%10;
                   t = t/10;
              }

          if (n == r)
          printf("%d is a palindrome number.\n", n);
         else
         printf("%d isn't a palindrome number.\n", n);

          return 0;
         }
```

```
  Output
  Enter a number 123321
  123321is a palindrome number
```

#**Program no : 8**
C program to print table of a number

```
   #include <stdio.h>
    int main()
    {
      int n, i;
      printf("Enter an integer: ");
        scanf("%d",&n);
       for(i=1; i<=10; ++i)
      {
       printf("%d * %d = %d \n", n, i, n*i);
      }
      return 0;
     }
```

```
 Output
  Enter an integer: 9
  9 * 1 = 9
  9 * 2 = 18
  9 * 3 = 27
  9 * 4 = 36
  9 * 5 = 45
  9 * 6 = 54
  9 * 7 = 63
  9 * 8 = 72
  9 * 9 = 81
  9 * 10 = 90
```

#**Program no 9**
C program to print table up to range

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

```
    printf("Enter the range: ");
    scanf("%d", &range);
    for(i=1; i <= range; ++i)
     {
     printf("%d * %d = %d \n", n, i, n*i);
      }
      return 0;
       }
```

Output

```
  Enter an integer: 12
  Enter the range: 8
 12 * 1 = 12
 12 * 2 = 24
 12 * 3 = 36
 12 * 4 = 48
 12 * 5 = 60
 12 * 6 = 72
 12 * 7 = 84
 12 * 8 = 96
```

#**Program no 10**
C program to find prime range

```
   #include <stdio.h>
    int main()
     {
       int low, high, i, flag;
       printf("Enter two numbers: ");
      scanf("%d %d", &low, &high);
     printf("Prime numbers between %d and %d      are: ", low, high);
     while (low < high)
      {
        flag = 0;
         for(i = 2; i <= low/2; ++i)
       {
         if(low % i == 0)
       {
         flag = 1; break;
        } }
         if (flag == 0)
       printf("%d ", low);
       ++low;
        }
     return 0;}
```

Output

```
  Enter two numbers :20 50
  Prime numbers between 20 and 50 are: 23 29       31 37 41 43 47
```

#**program no 11**
*C program to find largest no *

```
 #include <stdio.h>
  int main()
  {
  double n1, n2, n3;
   printf("Enter three different numbers: ");                                scanf("%lf %lf %l
    if( n1>=n2 && n1>=n3 )
   printf("%.2f is the largest number.", n1);               if( n2>=n1 && n2>=n3 )
 printf("%.2f is the largest number.", n2);
        if( n3>=n1 && n3>=n2 )
 printf("%.2f is the largest number.", n3);
return 0;
```

}

```
Output
Enter three numbers: -4.5 3.9 5.6
5.60 is the largest number.
```

```
#**Program no :12**
*C program to find factorial of a number*

 #include <stdio.h>
 int main()
{
 int n, i;
 unsigned long long factorial = 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)
```

{ factorial *= i; } printf("Factorial of %d = %llu", n, factorial); } return 0;}

```
 Output
 Enter an integer: 3
 Factorial of 3 = 6
```

```
#**Program no : 13**
*C program to reverse a number*

 #include <stdio.h>
 int main()
 {
  int n, reversedNumber = 0, remainder;
  printf("Enter an integer: ");
   scanf("%d", &n);
 while(n != 0)
{
 remainder = n%10;
  reversedNumber = reversedNumber*10 +
     remainder;
 n /= 10;
}
 printf("Reversed Number = %d",
     reversedNumber);
  return 0;}


 Output
 Enter an integer 1234
 Reversed Number =4321
```

```
#**Program no: 14**
*C program to convert farenhiet to celcius*
```

#include<stdio.h>

int main()

{

```
  float celsius, fahrenheit;
```

printf("\nEnter temperature in Fahrenheit:");

```
   scanf("%f",&fahrenheit);

   celsius=(fahrenheit - 32)*5/9;

   printf("\nCelsius = %.3f",celsius); }


 Output
 Enter temperature in farenhiet: 205
 Celcius = 96.11
```

Program no :15
C program to find factorial by recursion

```
 #include <stdio.h>
 long int factorial(int n);
 int main()
 {
   int n;
   printf("Enter a positive integer: ");
   scanf("%d", &n);
   printf("Factorial of %d = %ld", n,
   factorial(n));
     return 0;
   }
    long int multiplyNumbers(int n)
  {
     if (n >= 1)
     return n*multiplyNumbers(n-1);
    else
    return 1;
  }


  Output
  Enter a positive integer : 3
  Factorial of 3= 6
```

Program no : 16
Program to add two matrices

```
  #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;
   }
```

#**Program no :17**
C program to multiply two matrices

```
 #include <stdio.h>
 int main()
  {
   int a[10][10], b[10][10], result[10][10], r1, c1, r2,
     c2, i, j, k;
  printf("Enter rows and column for first matrix:
  ");
  scanf("%d %d", &r1, &c1);
  printf("Enter rows and column for second
      matrix: ");
 scanf("%d %d",&r2, &c2);
 while (c1 != r2)
 {
    printf("Error! column of first matrix not equal
     to row of second.\n\n");
    printf("Enter rows and column for first matrix: ");
    scanf("%d %d", &r1, &c1);
    printf("Enter rows and column for second matrix: ");
    scanf("%d %d",&r2, &c2); } // Storing elements of first matrix.
    printf("\nEnter elements of matrix 1:\n")
    for(i=0; i<r1; ++i)
      for(j=0; j<c1; ++)
      {
 printf("Enter elements a%d%d: ",i+1, j+1);
 scanf("%d", &a[i][j]); } // Storing elements of second matrix.
 printf("\nEnter elements of matrix 2:\n");
 for(i=0; i<r2; ++i)
 for(j=0; j<c2; ++j)
{
  printf("Enter elements b%d%d: ",i+1, j+1);
  scanf("%d",&b[i][j]); } // Initializing all elements of result matrix to 0
  for(i=0; i<r1; ++i)
 for(j=0; j<c2; ++j)
  {
   result[i][j] = 0; } // Multiplying matrices a and b and // storing result in result matrix
for(i=0; i<r1; ++i)
for(j=0; j<c2; ++j)
for(k=0; k<c1; ++k)
{
   result[i][j]+=a[i][k]*b[k][j]; } // Displaying the result
  printf("\nOutput Matrix:\n");
   for(i=0; i<r1; ++i)
   for(j=0; j<c2; ++j)
   {
     printf("%d ", result[i][j]);
     if(j == c2-1)
      printf("\n\n");
     } return 0;}
```
