


# 1. Write a program to Print Fibonacci Series using recursion

main.c	Run	Output
<pre>1 #include &lt;stdio.h&gt; 2 3 void printFibonacci(int n){ 4     int n1 = 0, n2 = 1, n3; 5 6     printf("%d %d ", n1, n2); 7 8     for(int i=2; i&lt;n; i++){ 9         n3 = n1 + n2; 10        printf("%d ", n3); 11        n1 = n2; 12        n2 = n3; 13    } 14 } 15 int main(){ 16     int n; 17 18     printf("Enter the number of elements: "); 19     scanf("%d", &amp;n); 20 21     printf("Fibonacci Series: "); 22     printFibonacci(n); 23 24     return 0; 25 } 26</pre>		<pre>/tmp/dhXob4bUun.o Enter the number of elements: 10 Fibonacci Series: 0 1 1 2 3 5 8 13 21 34  === Code Execution Successful ===</pre>

2. Write a program to check the given no is Armstrong or not using recursive function

main.c	Output
<pre>1 #include&lt;stdio.h&gt; 2 #include&lt;math.h&gt; 3 int an(int num) 4 { 5     if(num&gt;0) 6         return (pow(num%10,3) +an(num/10)); 7 } 8 int main() 9 { 10     int num; 11     printf("Enter a number:"); 12     scanf("%d",&amp;num); 13     if(an(num)==num) 14         printf("It is an Armstrong Number"); 15     else 16         printf("It is not an Armstrong Number"); 17 } 18</pre>	<pre>/tmp/G0HqQVKeZK.o Enter a number:153 It is an Armstrong Number  === Code Execution Successful ===</pre>

### 3. Write a program to find the GCD of two numbers using recursive function

main.c	Output
<pre>1 #include &lt;math.h&gt; 2 #include &lt;stdio.h&gt; 3 int gcd(int a, int b) 4 { 5     int result = ((a &lt; b) ? a : b); 6     while (result &gt; 0) { 7         if (a % result == 0 &amp;&amp; b % result == 0) { 8             break; 9         } 10        result--; 11    } 12    return result; 13 } 14 int main() 15 { 16     int a,b; 17     scanf("%d%d",&amp;a,&amp;b); 18     printf("GCD of %d and %d is %d ", a, b, gcd(a, b)); 19     return 0; 20 }</pre>	<pre>/tmp/DenQfA055h.o 98 56 GCD of 98 and 56 is 14  === Code Execution Successful ===</pre>


#### 4. Write a program to get the largest element of an array

main.c	Output
<pre>1 #include &lt;stdio.h&gt; 2 int largest(int arr[], int n) 3 { 4     int i; 5     int max = arr[0]; 6     for (i = 1; i &lt; n; i++) 7         if (arr[i] &gt; max) 8             max = arr[i]; 9     return max; 10 } 11 int main() 12 { 13     int arr[] = {10, 30, 40, 50, 20}; 14     int n = sizeof(arr) / sizeof(arr[0]); 15     printf("Largest in given array is %d", largest(arr, n)); 16     return 0; 17 }</pre>	<pre>/tmp/4EX8UuZGNJ.o Largest in given array is 50  === Code Execution Successful ===</pre>

## 5. Write a program to find the Factorial of a number using recursion

main.c	Output
<pre>1 #include &lt;stdio.h&gt; 2 int main() 3 { 4     int x = 5; 5     printf("The factorial of the number is %d",fact(x)); 6 } 7 int fact(int x) 8 { 9     if (x == 0) 10    return 1; 11    return x * fact(x - 1); 12 }</pre>	<pre>/tmp/MDQwcIFdCS.c: In function 'main': /tmp/MDQwcIFdCS.c:5:44: warning: implicit declaration of function 'fact' [ -Wimplicit-function-declaration] 5   printf("The factorial of the number is %d",fact(x));   ^~~~ /tmp/MDQwcIFdCS.o The factorial of the number is 120  === Code Execution Successful ===</pre>


6. Write a program for to copy one string to another using recursion

main.c	Run	Output
<pre>1 #include &lt;stdio.h&gt; 2 int main() 3 { 4     char s1[] = "GeeksforGeeks", s2[100], i; 5     printf("string s1 : %s\n", s1); 6     for (i = 0; s1[i] != '\0'; ++i) 7     { 8         s2[i] = s1[i]; 9     } 10    s2[i] = '\0'; 11    printf("String s2 : %s", s2); 12 } 13</pre>		<pre>/tmp/gEby39Dw1U.o string s1 : GeeksforGeeks String s2 : GeeksforGeeks  === Code Execution Successful ===</pre>

7. Write a program to print the reverse of a string using recursion


main.c	Run	Output
<pre>1 #include &lt;stdio.h&gt; 2 void reverse(char *str) 3 { 4     if (*str) 5     { 6         reverse(str+1); 7         printf("%c", *str); 8     } 9 } 10 int main() 11 { 12     char a[] = "mano"; 13     reverse(a); 14     return 0; 15 } 16</pre>		<pre>/tmp/ITWxkM1xw6.o onam  === Code Execution Successful ===</pre>

8. Write a program to generate all the prime numbers using recursion


main.c	Run	Output
<pre>1 #include &lt;stdio.h&gt; 2 3 void printFibonacci(int n){ 4     int n1 = 0, n2 = 1, n3; 5 6     printf("%d %d ", n1, n2); 7 8     for(int i=2; i&lt;n; i++){ 9         n3 = n1 + n2; 10        printf("%d ", n3); 11        n1 = n2; 12        n2 = n3; 13    } 14 } 15 int main(){ 16     int n; 17 18     printf("Enter the number of elements: "); 19     scanf("%d", &amp;n); 20 21     printf("Fibonacci Series: "); 22     printFibonacci(n); 23 24     return 0; 25 } 26</pre>		<pre>/tmp/dWIXob4bUun.o Enter the number of elements: 10 Fibonacci Series: 0 1 1 2 3 5 8 13 21 34  === Code Execution Successful ===</pre>



9. Write a program to check a number is a prime number or not using recursion.

main.c	Run	Output
<pre>3 int main() 4 { 5     int num, check; 6     printf("Enter a number: "); 7     scanf("%d", &amp;num); 8     check = primeno(num, num / 2); 9     if (check == 1) 10    { 11        printf("%d is a prime number\n", num); 12    } 13    else 14    { 15        printf("%d is not a prime number\n", num); 16    } 17 } 18 int primeno(int num, int i) 19 { 20     if (i == 1) 21     { 22         return 1; 23     } 24     else{ 25         if (num % i == 0) 26         { 27             return 0; 28         } 29         else{ 30             return primeno(num, i - 1); 31         } 32     } 33 }</pre>		<pre>/tmp/5KX2NEt4wh.o Enter a number: 2 2 is a prime number  === Code Execution Successful ===</pre>

10. Write a program for to check whether a given String is Palindrome or not using recursion

main.c	Run	Output
<pre>2 #include &lt;string.h&gt; 3 #include &lt;stdbool.h&gt; 4 bool isPalRec(char str[], int s, int e) 5 { 6     if (s == e) 7         return true; 8     if (str[s] != str[e]) 9         return false; 10    if (s &lt; e + 1) 11        return isPalRec(str, s + 1, e - 1); 12    return true; 13 } 14 bool isPalindrome(char str[]) 15 { 16     int n = strlen(str); 17     if (n == 0) 18         return true; 19 20     return isPalRec(str, 0, n - 1); 21 } 22 int main() 23 { 24     char str[] = "malayalam"; 25     if (isPalindrome(str)) 26         printf("Yes"); 27     else 28         printf("No"); 29 }</pre>		<pre>/tmp/ZcAz696L05.o Yes  === Code Execution Successful ===</pre>