



SIMATS
ENGINEERING



SIMATS
Saveetha Institute of Medical And Technical Sciences
(Declared as Deemed to be University under Section 3 of UGC Act 1956)

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COURSE NAME : DATA STRUCTURES FOR MODERN COMPUTING SYSTEMS

COURSE CODE : CSA0302

9. WRITE A C PROGRAM TO PERFORM FIBONACCI SERIES WITH RECURSIVE FUNCTION

C PROGRAMMING CODE:

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

```
int main() {  
    int n, i, a = 0, b = 1, c;  
    printf("Enter number of terms: ");  
    scanf("%d", &n);  
    printf("Fibonacci Series: %d %d ", a, b);  
    for (i = 2; i < n; i++) {  
        c = a + b;  
        printf("%d ", c);  
        a = b;  
        b = c;  
    }  
    return 0;  
}
```

OUTPUT:

main.c	Output
<pre>1 #include <stdio.h> 2 3- int fib(int n) { 4 if (n <= 1) 5 return n; 6 return fib(n - 1) + fib(n - 2); 7 } 8 9- int main() { 10 int n, i; 11 printf("Enter number of terms: "); 12 scanf("%d", &n); 13 printf("Fibonacci Series: "); 14 for (i = 0; i < n; i++) 15 printf("%d ", fib(i)); 16 return 0; 17 } 18</pre>	<pre>Enter number of terms: 5 Fibonacci Series: 0 1 1 2 3 === Code Execution Successful ===</pre>

10.WRITE A C PROGRAM TO PERFORM FIBONACCI SERIES WITH OUT RECURSIVE FUNCTION

C PROGRAMMING CODE:

```
#include <stdio.h>
int main() {
int n, i, a = 0, b = 1, c;
printf("Enter number of terms: ");
scanf("%d", &n);
printf("Fibonacci Series: %d %d ", a, b);
for (i = 2; i < n; i++) {
c = a + b;
printf("%d ", c);
a = b;
b = c;
}
return 0;
}
```

OUTPUT:

main.c	Output
<pre>1 #include <stdio.h> 2 3 int main() { 4 int n, i, a = 0, b = 1, c; 5 printf("Enter number of terms: "); 6 scanf("%d", &n); 7 printf("Fibonacci Series: %d %d ", a, b); 8 for (i = 2; i < n; i++) { 9 c = a + b; 10 printf("%d ", c); 11 a = b; 12 b = c; 13 } 14 return 0; 15 } 16</pre>	<pre>Enter number of terms: 4 Fibonacci Series: 0 1 1 2 === Code Execution Successful ===</pre>